

JAI NARAIN VYAS UNIVERSITY

JODHPUR



2016 - 2021

3.7.1 Number of Collaborative activities for research, Faculty exchange, Student exchange/internship per year

Research Article

Antiatherosclerotic and Cardioprotective Potential of *Acacia senegal* Seeds in Diet-Induced Atherosclerosis in Rabbits

Heera Ram,¹ Rameshwar Jatwa,² and Ashok Purohit¹

¹Department of Zoology, Jai Narain Vyas University, Jodhpur 342001, India

²Molecular Medicine and Toxicology Lab, School of Life Sciences, Devi Ahilya University, Indore, Madhya Pradesh 452001, India

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Academic Editor: Gary A. Lorigan

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Acacia senegal L. (Fabaceae) seeds are essential ingredient of “Pachkutta,” a specific Rajasthani traditional food. The present study explored antiatherosclerotic and cardioprotective potential of *Acacia senegal* seed extract, if any, in hypercholesterolemic diet-induced atherosclerosis in rabbits. Atherosclerosis in rabbits was induced by feeding normal diet supplemented with oral administration of cholesterol (500 mg/kg body weight/day mixed with coconut oil) for 15 days. Circulating total cholesterol (TC), HDL-cholesterol (HDL-C), LDL-cholesterol (LDL-C), triglycerides, and VLDL-cholesterol (VLDL-C) levels; atherogenic index (AI); cardiac lipid peroxidation (LPO); planimetric studies of aortal wall; and histopathological studies of heart, aorta, kidney, and liver were performed. Apart from reduced atherosclerotic plaques in aorta (6.34 ± 0.72) and increased lumen volume (51.65 ± 3.66), administration with ethanolic extract of *Acacia senegal* seeds (500 mg/kg/day, p.o.) for 45 days to atherosclerotic rabbits significantly lowered serum TC, LDL-C, triglyceride, and VLDL-C levels and atherogenic index as compared to control. Atherogenic diet-induced cardiac LPO and histopathological abnormalities in aorta wall, heart, kidney, and liver were reverted to normalcy by *Acacia senegal* seed extract administration. The findings of the present study reveal that *Acacia senegal* seed extract ameliorated diet-induced atherosclerosis and could be considered as lead in the development of novel therapeutics.

1. Introduction

Atherosclerosis is a chronic disease characterized by lipid deposition and inflammation in arterial wall [1]. Accumulation of oxidized cholesterol through a cascade of gradual developing processes results in an unstable atherosclerotic plaque that ultimately bursts and gives rise to myocardial infarction [1, 2]. Atherosclerosis is mainly influenced by hypercholesterolemia and dyslipidemia that are developed through various risk factors, that is, hereditary, sedentary lifestyle, diabetes, and high fat diet consumption [1, 3, 4]. A number of pharmacological agents are available in the market to manage dyslipidemia and atherosclerosis; however the drugs are reported to induce adverse drug reactions [5–7]. Interestingly, herbal nutritional supplement has a potential to ameliorate cardiovascular diseases at different steps in their development without any known side effect [5, 7, 8].

The resident population of Western Rajasthan consumes a specific kind of long-established food known as “Pachkutta”

and its main components are *Acacia senegal* L. (Fabaceae) seeds, pod of *Prosopis cineraria* L. (Fabaceae), and *Capparis decidua* L. (Capparaceae) fruit. In general, Rajasthani people who incorporate “Pachkutta” and some long-established foods in their diet are found to report almost nil incidences of cardiovascular system related diseases. *Acacia senegal*, commonly known as Gum Arabica, Kumath, and Rfaudraksha, is a drought or arid region tree. Official parts of *Acacia senegal* such as seeds, fruits, leaves, gum, and bark are rich in polyphenols, flavonoids, tannins, saponins, and alkaloids [9, 10]. While *Acacia senegal* gum is used for soothing mucous membranes of the intestine and to treat inflamed skin [11], it is also reported to cure bleeding, bronchitis, malaria, diarrhea, gonorrhea, leprosy, typhoid fever, and upper respiratory tract infections besides possessing antiplatelet and antifertility activities [12–14].

The present study was planned to investigate antiatherosclerotic and cardioprotective role of *Acacia senegal* seed extract, if any, using high fat diet-induced atherosclerotic



अभियान्त्रिकी एवं प्रौद्योगिकी महाविद्यालय, बीकानेर
College of Engineering & Technology, Bikaner

AN AUTONOMOUS INSTITUTION OF GOVERNMENT OF RAJASTHAN

Ref. No.:CET/Reg./2016-17/ 1314

Date: 03.11.2016

TO WHOM SO EVER IT MAY CONCERN

It is certified that Dr. Archana Bohra Gupta, Assistant Professor in Department of Structural Engineering at M.B.M. Engineering College of Jai Narain Vyas University, Jodhpur has delivered Expert Lectures on Advances in Steel Structure on 2nd & 3rd November, 2016 at College of Engineering & Technology, Bikaner.

We wish her all the success in her life ahead.


(Registrar)

To,

Dr. S.K. Singh (PI)

Professor

Department of Civil Engineering

Jai Narain Vyas University Jodhpur

&

Dr Anil Vyas (CO-PI)

Assistant Professor

Department of Chemical Engineering

Jai Narain Vyas University Jodhpur

Date: 10th Oct 2016**Sub: Acceptance letter for project funding**

Dear Sir,

We have evaluated your proposed project entitled "Reliability and product validation study of CAPDI Technology for removal of TDS from water" technically and also your submitted budget proposal for the same for 53.00 lacs (including pilot plant cost of Rs 50.00 lacs to be imported from Holland)

We are pleased to inform you that our management has accepted the project funding of Rs 300000.00 (Rs. Three lacs only) with the following terms and conditions.

1. **Pilot plant cost (Rs. Fifty lacs only)** for the study will be born by the company directly and this plant is to be returned back to the company after the study. Company will import the pilot plant for the study on its own level and university has not to pay any amount in this regards.
2. **Company will pay Rs 3.0 Lacs to the university account for the recurring expenditure of the project as mentioned in the project proposal.**
3. A.C. Taxi charges of Rs 12.00 / km is permitted in the project.
4. Air travel by any airlines is permitted for PI & CO-PI of the project.
5. For out side testing following labs are recommended
 - a. Shriram Institute for industrial research Delhi
 - b. SIMA Lab Dehli
 - c. VIMTA Lab Hyderabad
 - d. Bangalore Analytical Research Centre (BARC) Bangalore
6. Payment of Transportation of Pilot plant from one place to other by road is permitted on actual basis.
7. For outside accommodation hotel charges upto maximum 5000.00 per day per person is permitted.
8. For any other expenditure / honorarium paid to staff engaged in the project, PI decision will be final.
9. You will share with us the study report and product validation certificate.

Please let us know the payment mode.

Yours sincerely,

For InNow India Pvt Ltd

Innow India Private Limited

Ashwani Kohli

CEO/Director



Innow India Private Limited

(A wholly owned subsidiary of InNow LLC, USA)

Regd. Office : 3, Sukhchain Marg, DLF Phase-1, Gurgaon-122002, Haryana, INDIA.



JAI NARAIN VYAS UNIVERSITY, JODHPUR
(DEVELOPMENT SECTION)

No.: JNVU/Dev./2017/ 92

Date: 28.4.2017

The Comptroller
Jai Narain Vyas University
Jodhpur.

Sir,


The Director, Gurgaon has released grant and same has been credited through Cheque in ICICI Bank, Jodhpur as per details given hereunder :-

S. No.	PURPOSE	D.D. No./ Cheque No./ RTGS/NEFT	Date	Amount	Budget Head/ University A/c No.
1.	Research Project in Now India Pvt. Ltd., Gurgaon Dr. Anil Vyas, Co-Principle Investigator & Head, Deptt. of Chemical Eng., Faculty of Engineering	Cheque 035156	29.3.2017	3,00,000/-	A/c No. 05710400000026

This is for your information and necessary action.

Yours faithfully,

Encls.: As above.


OFFICER-IN-CHARGE
24/4/17

Copy forwarded to the following for information and necessary action:-

1. The Head, Deptt. of Chemical Engineering, Jai Narain Vyas University, Jodhpur.
2. Dr. Anil Vyas, Co-PI, Deptt. of Chemical Engineering, J. N. Vyas University, Jodhpur.


OFFICER-IN-CHARGE
24/4/17

Research Article

Adverse Effects of Subchronic Dose of Aspirin on Reproductive Profile of Male Rats

Archana Vyas,¹ Heera Ram,¹ Ashok Purohit,¹ and Rameshwar Jatwa²

¹Department of Zoology, Jai Narain Vyas University, Jodhpur, Rajasthan 342001, India

²Molecular Medicine and Toxicology Lab, School of Life Sciences, Devi Ahilya University, Indore, Madhya Pradesh 452001, India

Correspondence should be addressed to Heera Ram; baradhr@gmail.com

Received 25 October 2015; Accepted 2 March 2016

Academic Editor: Massoud Amanlou

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Aspirin (acetylsalicylic acid) is widely used for cardiovascular prophylaxis and as anti-inflammatory pharmaceutical. An investigation was carried out to evaluate the influence of subchronic dose of aspirin on reproductive profile of male rats, if any. Experimental animals were divided into three groups: control and aspirin subchronic dose of 12.5 mg/kg for 30 days and 60 days, respectively, while alterations in sperm dynamics, testicular histopathological and planimetric investigations, body and organs weights, lipid profiles, and hematology were performed as per aimed objectives. Subchronic dose of aspirin reduced sperm density, count, and mobility in cauda epididymis and testis; histopathology and developing primary spermatogonial cells (primary spermatogonia, secondary spermatogonia, and mature spermatocyte) count were also significantly decreased in rats. Hematological investigations revealed hemopoietic abnormalities in 60-day-treated animals along with dysfunctions in hepatic and renal functions. The findings of the present study revealed that administration with subchronic dose of aspirin to male rats resulted in altered reproductive profiles and serum biochemistry.

1. Introduction

Aspirin (acetylsalicylic acid) is a nonsteroidal anti-inflammatory drug (NSAID) used in various pathological conditions for its anti-inflammatory, antipyretic, and analgesic benefits [1, 2]. Investigations on aspirin and its underlying mechanism exposed new arena of knowledge, namely, prostaglandin synthesis and platelet inhibition and allowed additional development of efficient antiplatelet agents and anti-inflammatory medications [3]. In the present scenario, with increasing incidence of noncommunicable diseases, aspirin has gained a significant attention not only as an analgesic but also as a cardioprotective agent [4]. On the other hand, reports are there in the literature suggesting morbidity and mortality associated with adverse effects of aspirin. Furthermore, long-term therapeutic use of aspirin is associated with the incidences of gastrointestinal (GI) ulcerations, nephrotoxicity, hepatotoxicity, and even renal cell cancers [5]. The antiplatelet effect of aspirin has been attributed to coronary artery disease, pregnancy complications, and

preeclampsia in angiotensin-sensitive primigravida [5–7]. Whereas aspirin treatment causes an increased risk of cerebral microbleeds, tinnitus in children, and Reye's syndrome when given to children or adolescents to treat fever or illnesses, it alters estrogen and progesterone biosynthesis upon chronic administration [8–10].

Interestingly, aspirin-induced inhibition of prostaglandins synthesis resulted in altered cholesterol metabolism and androgen biosynthesis [10]. However, effect of subchronic aspirin administration on male reproductive profile was not well elucidated till date. Therefore, the present study was designed to reveal out the influence of aspirin subchronic dose on male reproductive profile and serum variables of rats.

2. Materials and Methods

2.1. Experimental Animals. Colony bred adult healthy male albino rats weighing 200–235 g were used for present research. All animals were proven fertile and were obtained from the Indian Veterinary Research Institute (IVRI),

Dr. Anita Aggarwal

Scientist E, TDT Division



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Telefax: 011-26862512
Phone : 011-26590343
E-mail: anita.a@nic.in

भारत सरकार
विज्ञान और प्रौद्योगिकी मंत्रालय,
विज्ञान और प्रौद्योगिकी विभाग,
टेक्नोलॉजी भवन, नया महरौली मार्ग,
नई दिल्ली-110 016

GOVERNMENT OF INDIA
MINISTRY OF SCIENCE AND TECHNOLOGY,
DEPARTMENT OF SCIENCE AND TECHNOLOGY,
TECHNOLOGY BHAVAN, NEW MEHRAULI ROAD,
NEW DELHI-110 016

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26562134, 26562122 (EPBAX)
फैक्स/Fax : 26569908, 26864570,
26863847, 26862418

No. IDP/MED/24/2015 v.in

22.03.2016

Subject: Financial assistance for the project entitled "Fabrication of nano-biochip for clinical diagnosis".

Dear Dr. Kumbhat,

We are glad to inform you that the above mentioned project has been sanctioned at a total cost of ₹.36,17,600 i.e. ₹ 33,17,600/- as the contribution of DST and ₹ 3,00,000/- as the contribution of Industrial collaborator for a period of 24 months and released an amount of ₹. 5,16,000/- i.e. ₹. 3,61,000/- for Jai Narain Vyas University and ₹ 1,55,000 for University of Madras under 'Grants for Creation of Capital Assets' and ₹.15,36,600/- i.e. ₹. 8,72,100/- for Jai Narain Vyas University and Rs.6,64,500/- under 'Grants-in-Aid General' being the first installment of the grant. An acknowledgement should be submitted immediately after the receipt of this sanction order and the RTGS from DST. The date will be regarded as the date of starting of the project otherwise the date on the sanction order will be treated as date of commencement.

You are also required to inform DST regarding the recruitment of the manpower sanctioned under the project. The other terms and conditions of the grant are clearly mentioned in Sanction order & Annexure I and you have to abide by them. The industry contribution should be received within six months after initiating the project and reflected in the subsequent Utilization Certificates. The proof of receipt of committed contribution should be sent to DST at earliest. The Support from IDP-DST should be duly acknowledged at all the platforms wherever this work is presented. Kindly do the needful and send the desired information.

With warm regards,

Yours sincerely

(Anita Aggarwal)

To

Dr. Sunita Kumbhat,
Professor, Biosensor Laboratory,
Department of Chemistry, Jai Narain Vyas University,
Jodhpur-342001, Rajasthan.

Copy to :

✓ Dr. D. Ravi Shankaran, Associate Professor, National Centre for Nanoscience and Nanotechnology, University of Madras, Guindy Campus, Chennai-600025, Tamil Nadu.

Registrar, Jai Narain Vyas University, Jodhpur-342001, Rajasthan.

Registrar, University of Madras, Guindy Campus, Chennai-600025, Tamil Nadu.

Mr. Trilok Tak, M/s Mind Field Technologies Pvt. LTD, H-1/125, Industrial Area, Behind New Power House, Jodhpur-342003, Rajasthan.

ORDER

Subject: **Financial assistance for the project entitled "Fabrication of nano-biochip for clinical diagnosis" submitted by Dr. Sunita Kumbhat, Professor, Biosensor Laboratory, Department of Chemistry, Jai Narain Vyas University, Jodhpur-342 001, Rajasthan, Dr. D. Ravi Shankaran, Associate Professor, National Centre for Nanoscience and Nanotechnology, University of Madras, Guindy Campus, Chennai- 600 025, Tamil Nadu and M/s MindField Technologies Pvt. LTD, H-1/125, Industrial Area, Behind New Power House, Jodhpur - 342003, Rajasthan.**

Sanction of the President is conveyed for the sanction of ₹. 36,17,600/- (Rupees Thirty Six Lakh Seventeen Thousand Six Hundred only) i.e. ₹. 33,17,600/- (Rupees Thirty Three Lakh Seventeen Thousand Six Hundred only) as the contribution of DST and ₹. 3,00,000/- (Rupees Three Lakh only) as the contribution of Industrial Collaborator M/s MindField Technologies Pvt. LTD, H-1/125, Industrial Area, Behind New Power House, Jodhpur - 342003, Rajasthan.

2. Out of the DST's contribution of ₹. 33,17,600/- (Rupees Thirty Three Lakh Seventeen Thousand Six Hundred only) the break up of ₹. 18,49,100/- (Rupees Eighteen Lakh Forty Nine Thousand One Hundred only) would be the share for Jai Narain Vyas University, Jodhpur-342 001, Rajasthan and ₹. 14,68,500/- (Rupees Fourteen Lakh Sixty Eight Thousand Five Hundred only) would be the share for University of Madras, Guindy Campus, Chennai for a duration of 24 months.

3. Out of the share of ₹. 18,49,100/- (Rupees Eighteen Lakh Forty Nine Thousand One Hundred only) in respect of Jai Narain Vyas University, Jodhpur-342 001, Rajasthan, the break-up of ₹. 3,61,000/- (Rupees Three Lakh Sixty One Thousand only) would be for the Capital head and ₹. 14,88,100/- (Rupees Fourteen Lakh Eighty Eight Thousand One Hundred only) will be under the Grant in Aid General head.

4. Out of the share of ₹. 14,68,500/- (Rupees Fourteen Lakh Sixty Eight Thousand Five Hundred only) in respect of University of Madras, Chennai the break-up of ₹. 1,55,000/- (Rupees One Lakh Fifty Five Thousand only) would be for the Capital head and ₹. 13,13,500/- (Rupees Thirteen Lakh Thirteen Thousand Five Hundred only) will be under the Grant in Aid General head.

5. The Item of expenditure for which the total allocation of ₹. 36,17,600/- has been approved for a period of 24 months are given below.

A. Non-recurring (Capital Items) (DST)

	HEAD	Jai Narain Vyas University	University of Madras	Total
1.	EQUIPMENTS : pH meter, Ultrasonication Elma P 60 H 230V, Digital Magnetic Stirrer with hot plate and supporting rod and Upgradation of existing ESPR; Dropsens Electrochemical Reader	₹. 3,61,000/-	₹. 1,55,000/-	₹. 5,16,000/-
	Total- Capital			₹. 5,16,000/-

B. Recurring Items (General) (DST)

Sl.No	Item	Jai Narain Vyas University		University of Madras		TOTAL	
		1 st Year	2 nd Year	1 st Year	2 nd Year	JNVU	UM
1	MANPOWER	20% HRA		30% HRA			
	JRF -02 @ Rs. 25,000/- + HRA	360000	360000	390000	390000	720000	780000
2	Consumables	200000	100000	100000	100000	300000	200000
3	Travel	50000	50000	50000	50000	100000	100000
4	Contingency	50000	50000	50000	50000	100000	100000
5	Other cost (Outsourcing)	100000	0	0	0	100000	0
6	Overheads	112100	56000	74500	59000	168100	133500
	Grand Total	872100	616000	664500	649000	1488100	1313500
						₹. 28,01,600/-	
	Industry contribution			300000		₹. 3,00,000/-	
						₹. 31,01,600/-	

Sunita
22/3/16

3. The overhead expenses are meant for the host Institute towards the cost for providing infrastructural facilities and benefits to the staff employed in the project etc.

4. Sanction of the President is accorded for the payment of ₹. 5,16,000/- (Rupees Five Lakh Sixteen Thousand only) i.e. ₹. 3,61,000/- (Rupees Three Lakh Sixty One Thousand only) for Jai Narain Vyas University, Jodhpur-342 001, Rajasthan and ₹. 1,55,000/- (Rupees One Lakh Fifty Five Thousand only) for University of Madras, Chennai under 'Grants for Creation of Capital Assets' and ₹. 15,36,600/- (Rupees Fifteen Lakh Thirty Six Thousand Six Hundred only) i.e. ₹. 8,72,100/- (Rupees Eight Lakh Seventy Two Thousand One Hundred only) for Jai Narain Vyas University, Jodhpur-342 001, Rajasthan and ₹. 6,64,500/- (Rupees Six Lakh Sixty Four Thousand Five Hundred only) for University of Madras, Chennai under 'Grants-in-Aid General' being the first installment of the grant for the year 2015-16 for implementation of the said research project.

8. The sanction of the grant is subjected to the conditions mentioned in annexure-I.

9. The amount of ₹. 8,72,100/- (Rupees Eight Lakh Seventy Two Thousand One Hundred only) will be transferred to the Registrar, Jai Narain Vyas University, Jodhpur through BANK Account Number : 05710400000026, Bank of Baroda, IFSC Code : BARB0UNIJOD, Branch : Uni. Jodhpur Branch and ₹. 6,64,500/- (Rupees Six Lakh Sixty Four Thousand Five Hundred only) will be transferred to the Registrar, University of Madras, Chennai through bank account number : 0914101127581, Canara Bank, IFSC Code : CNRB0000914, Branch : Triplicane Branch..

7. The amount involved is debitible to:

Demand No.86	Department of Science & Technology
3425	OTHER SCIENTIFIC RESEARCH (MAJOR HEAD)
60	OTHERS (SUB - MAJOR HEAD)
60.200	ASSISTANCE TO OTHER SCIENTIFIC BODIES (MINOR HEAD)
26	TECHNOLOGY DEVELOPMENT PROGRAMME
26.01	TECHNOLOGY DEVELOPMENT & TRANSFER
26.01.31	GRANTS-IN-AID GENERAL (PLAN) 2015-2016

8. The sanction has been issued under the powers delegated to the Ministries and with the concurrence of the Integrated Finance Division of Department of Science & Technology vide concurrence No. C/6045/IFD/2015-2016 dated 21.03.2016 and with the approval of Head (TDT) vide his diary No.1031 dated 09.03.3016.

9. It is also certified that this is the **first sanction** for the project and as such the clause related to the submission of the Utilization Certificate to PAO is not applicable.

10. The institute will furnish to the DST, utilization certificate and audited statement of accounts pertaining to the grant immediately after the end of each financial year.

11. All purchases of equipments etc. would be as per GFR and the disposal of the same would be done with prior approval of DST.

12. ***"The Institute/Agency will maintain separate audited accounts for the project and would keep the whole of the grant in a Bank Account earning interest, the interest earned should be reported to the DST. The interest thus earned will be treated as a credit to the Institute/Agency to be adjusted towards further installment of the grant"***.

13. As PER Rule 211 GFRs, the account of the project shall be open to inspection by the sanctioning authority/audit whenever the institution is called upon to do so

14. As per GFR-39, the sanction has been entered in the grants register maintained by the Technology Development & Transfer (TDT) Division and the serial number assigned in the register for the sanction is 109.

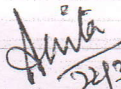
15. It is certified that all the Utilization Certificate in regard of all schemes/programmes/projects, present and previous pertaining to the institute have been received and no UC is pending against the organization as per the details in the PFMS also.


(Dr. Anita Aggarwal)
Scientist-E

The Pay & Accounts Officer
Department of Science & Technology
New Delhi -110 016.

Copy for information and necessary action:

1. Cash Section (3 copies) for preparing the bill and remitting the amount to the above grantee.
2. Accounts Section, DST, New Delhi.
3. IFD, DST, New Delhi.
4. Director of audit (CW&M-II) AGCR Building, IP Estate, New Delhi.
5. Registrar, Jai Narain Vyas University, Jodhpur-342 001, Rajasthan.
6. Registrar, University of Madras, Guindy Campus, Chennai- 600 025, Tamil Nadu.
7. Dr. Sunita Kumbhat, Professor, Biosensor Laboratory, Department of Chemistry, Jai Narain Vyas University, Jodhpur-342 001, Rajasthan.
8. Dr. D. Ravi Shankaran, Associate Professor, National Centre for Nanoscience and Nanotechnology, University of Madras, Guindy Campus, Chennai- 600 025, Tamil Nadu.
9. Mr. Trilok Tak, M/s MindField Technologies Pvt. LTD, H-1/125, Industrial Area, Behind New Power House, Jodhpur - 342003, Rajasthan
10. Sanction folder
11. FICCI Cell, DST.


24/3/16
(Dr. Anita Aggarwal)
Scientist-E

No. IDP/MED/24/2015 (Capital)
Government of India
Ministry of Science & Technology
Department of Science & Technology

Technology Bhavan
New Mehrauli Road
New Delhi- 110 016
Dated: 22.03.2016

ORDER

Subject: Financial assistance for the project entitled "Fabrication of nano-biochip for clinical diagnosis" submitted by Dr. Sunita Kumbhat, Professor, Biosensor Laboratory, Department of Chemistry, Jai Narain Vyas University, Jodhpur-342 001, Rajasthan, Dr. D. Ravi Shankaran, Associate Professor, National Centre for Nanoscience and Nanotechnology, University of Madras, Guindy Campus, Chennai- 600 025, Tamil Nadu and M/s MindField Technologies Pvt. LTD, H-1/125, Industrial Area, Behind New Power House, Jodhpur - 342003, Rajasthan.

With reference to the Sanction Order No. IDP/MED/24/2015 (General) dated 22.03.2016, sanction of the President is accorded for the release of ₹. 5,16,000/- (Rupees Five Lakh Sixteen Thousand only) i.e. ₹. 3,61,000/- (Rupees Three Lakh Sixty One Thousand only) for Jai Narain Vyas University, Jodhpur-342 001, Rajasthan and ₹. 1,55,000/- (Rupees One Lakh Fifty Five Thousand only) for University of Madras, Chennai under 'Grants for Creation of Capital Assets' for the purchase of the equipment's under the project as indicated below:

Non-recurring (Capital Items)

	HEAD	Jai Narain Vyas University	University of Madras	Total
1.	EQUIPMENTS : pH meter, Ultrasonication Elma P 60 H 230V, Digital Magnetic Stirrer with hot plate and supporting rod and Upgradation of existing ESPR; Dropsens Electrochemical Reader	₹. 3,61,000/-	₹. 1,55,000/-	₹. 5,16,000/-
	Total- Capital			₹. 5,16,000/-

2. The amount of ₹. 3,61,000/- (Rupees Three Lakh Sixty One Thousand only) will be transferred to the Registrar, Jai Narain Vyas University, Jodhpur through BANK Account Number : 05710400000026, Bank of Baroda, IFSC Code : BARB0UNIJOD, Branch : Uni. Jodhpur Branch and ₹. 1,55,000/- (Rupees One Lakh Fifty Five Thousand only) will be transferred to the Registrar, University of Madras, Chennai through bank account number : 0914101127581, Canara Bank, IFSC Code : CNRB0000914, Branch : Triplicance Branch.

3. The amount involved is debit to:

Demand No.86	Department of Science & Technology
3425	OTHER SCIENTIFIC RESEARCH (MAJOR HEAD)
60	OTHERS (SUB - MAJOR HEAD)
60.200	ASSISTANCE TO OTHER SCIENTIFIC BODIES (MINOR HEAD)
26.01	TECHNOLOGY DEVELOPMENT & TRANSFER
26.01.35	GRANTS FOR CREATION OF CAPITAL ASSETS (PLAN) 2015-2016 (TSG)

4. The sanction has been issued under the powers delegated to the Ministries and with the concurrence of the Integrated Finance Division of Department of Science & Technology vide concurrence No. C/6046/IFD/2015-2016 dated 21.03.2016 and with the approval of Head (TDT) vide his diary No.1031 dated 09.03.2016.

5. It is also certified that this is the **first sanction** for the project and as such the clause related to the submission of the Utilization Certificate to PAO is not applicable.

6. The institute will furnish to the DST, utilization certificate and audited statement of accounts pertaining to the grant immediately after the end of each financial year.

7. All purchases of equipments etc. would be as per GFR and the disposal of the same would be done with prior approval of DST.

8. **"The Institute/Agency will maintain separate audited accounts for the project and would keep the whole of the grant in a Bank Account earning interest, the interest earned should be reported to the DST. The interest thus earned will be treated as a credit to the Institute/Agency to be adjusted towards further installment of the grant".**

Sunita
22/3/16

P.T.O.

9. As PER Rule 211 GFRs, the account of the project shall be open to inspection by the sanctioning authority/audit whenever the institution is called upon to do so.

10. As per GFR-39, the sanction has been entered in the grants register maintained by the Technology Development & Transfer (TDT) Division and the serial number assigned in the register for the sanction is 110.

11. It is certified that all the Utilization Certificate in regard of all schemes/programmes/projects, present and previous pertaining to the institute have been received and no UC is pending against the organization as per the details in PFMS also.

Anita
22/3/16

(Dr. Anita Aggarwal)
Scientist-E

The Pay & Accounts Officer
Department of Science & Technology
New Delhi -110 016.

Copy for information and necessary action:

1. Cash Section (3 copies) for preparing the bill and remitting the amount to the above grantee.
2. Accounts Section, DST, New Delhi.
3. IFD, DST, New Delhi.
4. Director of audit (CW&M-II) AGCR Building, IP Estate, New Delhi.
5. Registrar, Jai Narain Vyas University, Jodhpur-342 001, Rajasthan.
6. Registrar, University of Madras, Guindy Campus, Chennai- 600 025, Tamil Nadu.
7. Dr. Sunita Kumbhat, Professor, Biosensor Laboratory, Department of Chemistry, Jai Narain Vyas University, Jodhpur-342 001, Rajasthan.
8. Dr. D. Ravi Shankaran, Associate Professor, National Centre for Nanoscience and Nanotechnology, University of Madras, Guindy Campus, Chennai- 600 025, Tamil Nadu.
9. Mr. Trilok Tak, M/s MindField Technologies Pvt. LTD, H-1/125, Industrial Area, Behind New Power House, Jodhpur - 342003, Rajasthan.
10. Sanction folder.
11. FICCI Cell, DST.

Anita
22/3/16

(Dr. Anita Aggarwal)
Scientist-E

DEPARTMENT OF SCIENCE AND TECHNOLOGY
(INSTRUMENT DEVELOPMENT DIVISION)

Terms and Conditions of the Grant

1. Approval of the proposal and the grant being released is for specific project mentioned in the sanction letter and the grant should be exclusively spent on the project for which it has been sanctioned within the stipulated time. Any portion of the amount sanctioned which is not utilized would be required to be surrendered to the Government of India and carry forward of unspent funds to the next financial year for utilization for the same project may be considered only with the specific approval of the Department of Science and Technology.
2. For permanent, semi-permanent assets acquired solely or mainly out of the grant, an audited record in the form of register in the prescribed proforma is required to be maintained by the organization. The term 'assets' here means (i) immovable property and (ii) moveable property of a capital nature, where the value exceeds Rs. 1000/-. The grant will not be utilized for construction of any building. Full facilities by way of accommodation etc., for the project will be provided by the organization.
3. All the assets including equipment and prototypes acquired from the grant will be the property of Government of India and should not without the prior sanction of the Department of Science & Technology, be disposed of, or encumbered or utilized for purposes other than those for which the grant has been sanctioned.
4. At the conclusion of the project, the Government of India will be free to sell or otherwise dispose of assets which are the property of the Government, and the organization shall render to the Government necessary facilities for arranging the sale of these assets. The Government of India has the discretion to gift some of the assets to the organization, if it considers it appropriate.
5. The principal Investigator/organization will be required to furnish progress reports as per prescribed proforma every three months on the progress made on all aspects of the project

including technical progress and expenditure incurred on various approved items during the period.

The monitoring of the progress of the project shall be done by the Department of Science & Technology (DST) or the Monitoring Committee set up by DST.

6. The organization is required to send to Department of Science & Technology at the end of financial year as well as at the time of seeking further installments of grant, a list assets referred to in Para 2 above and a statement of accounts along with the progress report

7. The organization would render to the Department of Science & Technology, Utilization Certificate in the prescribed proforma and an audited statement of the accounts including comments of the Auditor regarding the observance of the conditions governing the grant within six months following the end of each financial year.

8. The Comptroller and Auditor General will have the right to access to the books and accounts of the Organization for grant received from the Government.

9. The organization would maintain separate Audited account for the project. If it is found expedient to keep the grant in a bank account earning interest, the interest thus earned should be reported to the Department of Science & Technology. The interest thus earned will be treated as a credit to the organization to be adjusted towards further installments of the grant.

10. The organization may not entrust the implementation of the work for which the grant is being sanctioned to another institution and to divert the grant receipts as assistance to the later institution. In case the organization itself is not in a position to execute or complete the project, it may be required to refund forthwith to the Government of India, the entire amount of grant-in-aid received by it. In exceptional cases, this condition may be relaxed by the Government of India.

11. The staff that may be employed for the project by the organization are not to be treated as employees of the Government of India and the deployment of such staff at the time termination

of the project will not be the concern/responsibility of the Government of India. The manpower required for the project shall be paid as per the guidelines of the Government of India.

12. The Department of Science and Technology reserves the right to terminate the grant at any stage if it is convinced that the grant has not been properly utilized or appropriate progress is not being made. In the event the Department terminates the grant, the grantee shall refund the unspent amount to DST, and also hand over all documents including technical details, equipment purchased as related to the R&D work.
13. If the Principal Investigator wishes to leave the organization where the project is based, the organization / investigator will inform the same to DST with its consultation evolve steps to ensure successful completion of the project, before relieving the Principal Investigator. The Investigator should submit five copies of complete and detailed report of the work done by them on the project before leaving the organization.
14. Sale proceeds, if any of the components, prototypes, pilot plant etc., fabricated as a result of development of the project arising directly from funds granted by Department of Science and Technology shall be remitted to the Government of India. The Government of India may, at its discretion allow a portion of such receipts to be retained by the organization.
15. The know-how generated from the project would be the property of Government of India / DST. However, for the purpose of technology transfer and intellectual property right, the property rights are delegated to the host institute. The utilization of intellectual property rights and technology transfer will be governed by instructions given in Annexure I (Enclosed). The I host institute will be responsible for exploiting the intellectual property rights and transfer of technology and will be responsible for all the legal aspects concerned with intellectual property rights and technology transfer.
16. The principal Investigator/organization will prepare all the documents that would be required for the transfer of know-how to the production agency/agencies. Three copies of the know-how document will be submitted by the PI/organization to DST within three months after

successful completion of all the activities of the project. The technology transfer document will normally include:

- (i) Complete instrument / system design details including circuit and other diagrams, description of various sub-systems, software details and performance specifications etc.,
- (ii) Calibration and testing procedures; testing and evaluation reports of the final prototype.
- (iii) List of materials and components including standard values, tolerances, sources of availability, their inspection requirement etc.,
- (iv) Technical support requirement in respect of repair/maintenance/trouble shooting, spare part requirement etc, instruction manual for use of the product, and,
- (v) Details of tests and test jigs etc.,

The PI/organization will be responsible to transfer the know-how developed to the production agency/agencies and supply all the needed information in this connection to the production agency / agencies / DST as and when required.

17. The PI / organization will submit a Project Completion Report to DST at the end of the project in the prescribed proforma.

18. The project shall be declared successful and completed when:-

- (i) The prototype of the instrument made by the organization are tested, evaluated & accepted by the production agency / agencies or user agency / agencies.
- (ii) The organization has prepared a comprehensive technology transfer document as specified in 16 above.
- (iii) The Monitoring Committee and the Department of Science & Technology has approved the above.

Annexure-I

Instruction for Technology Transfer and Intellectual Property Right

With a view to encourage the institutions to file patent applications on their innovations, motivate them to transfer their technologies for commercialization and facilitate them to reward their inventors, the following instructions are issued.

1. In these instructions:
 - (a) **"Institution"** means any technical, scientific or academic establishment where research work is carried out through funding by the Central State Government.
 - (b) **"Intellectual Property Right"** include patents, registered designs, copyrights and layout design of integrated circuits.
 - (c) **"Inventor"** means an employee of the institution whose duties involve carrying out of scientific or technical research.
2. **Scope:-** These instructions apply to those institutions receiving funds for research projects from the Ministry of Science and Technology and Department of Ocean Development.
3. **Inventions by Institutions:-** Institutions shall be encouraged to seek protection of Intellectual Property Rights (IPR) to the results of research through R&D projects. While the patents may be taken in the names (s) of inventor(s), the institution shall ensure that the patent is assigned to it. The institution shall get its name entered in the Register of Patents as the proprietor of the patent. The institution shall take necessary steps for commercial exploitation of the patent on exclusive/non-exclusive basis. The institution is permitted to retain the benefits and earnings arising out of the IPR. However, the institution may determine the share of the inventor(s) and other persons from such actual earnings. Such share(s) shall be limited to 1/3rd of the actual earnings.
4. **Invention by institutions and industrial concerns:** IPR generated through joint research by institutions(s) and industrial concern(s) through joint efforts can be owned jointly by them as may be mutually agreed to by them through a written agreement. The institution and industrial

concern them through a written agreement. The institution and industrial concern may transfer the technology to third party for commercialization on exclusive/non-exclusive basis. The third party, exclusively licensed to market the innovation in India, must manufacture the product in India. The joint owners may share the benefits and earnings arising out of commercial exploitation of the IPR. The institution may determine the share of the inventor(s) and other persons from such actual earnings. Such share(s) shall not exceed 1/3 of the actual earnings.

5. *Patent Facilitating fund:-* The institution shall set apart not less than 25% of such earning for crediting into a fund called Patent Facilitating Fund. This fund shall be utilized by the institution for updating innovation, for filing new patent application, protecting their rights against infringements, for creating awareness and building on IPR and related issues.

6. *Information:-* The institutions shall submit information relating to the details of the patent obtained, the benefits and earnings arising of IPR and the turnover of the products periodically to the Department Ministry which was provided funds.

7. *Royalty-Free license:-* The Government shall have a royalty free license for the use of the intellectual property for the purposes of the Government of India.

8. *Review:-* These instructions shall be reviewed by the Central Government after a period of five years.

9. The instructions are issued with the concurrence of the Ministry of Finance, Department of Expenditure vide their O.M. No. 33(5) PF II 99, dated 22nd February, 2000.

Subject: [Fwd: sanction order issued of your project No: DST/TM,
From: "Shantanu Bhattacharya" <bhattacs@iitk.ac.in>
Date: Sun, October 23, 2022 1:40 pm
To: sksingh.jnvu@gmail.com
Priority: Normal
Options: [View Full Header](#) | [View Printable Version](#) | [Download this as a file](#)
[Message Details](#)

Dear Dr. Singh,

Apologies for the delay in sending out this sanction letter of phase II. Please find enclosed the DST email to our project where JNVU, MNT Jaipur and IIT Kanpur were jointly involved. As you may recall the sanction letter was issued to IIT Kanpur and the transactions were enabled from IIT Kanpur from which partial support had reached the collaborators.

It may also perhaps be recalled that we have jointly communicated through the manuscript titled, "Pankaj Singh Chauhan, Aditya Chakraborty, Kirtiman Singh, S.K. Singh, Urmila Bhargava, Shantanu Bhattacharya, "Development of Energy-Efficient Wastewater Treatment Plant using Advanced Oxidation Process with Data-driven Predictive Performance Modeling", 2022, NPJ Clean water (Nature), Under Review.

Sincerely,

Shantanu

Wish you and your family a very very happy Diwali.

----- Original Message -----
Subject: sanction order issued of your project No: DST/TM/WTI/2K16/21
From: "neelima.alam" <neelima.alam@nic.in>
Date: Mon, December 9, 2019 3:20 pm
To: "Shantanu Bhattacharya" <bhattacs@iitk.ac.in>

Dear Dr. Shantanu Bhattacharya,

Please find the attached scan copy of sanction order issued of your project No: DST/TM/WTI/2K16/21(G) 3

Thanking you
WTI Team

Dr. Neelima Alam
Scientist 'E'
Technology Mission Division
Department of Science and Technology
Ministry of Science and Technology

--
Shantanu Bhattacharya (FRSC, FIE, FIETE, Senior Member IEEE, Fellow of ISEI)
Abdul Kalam Technology Innovation National Fellow
Dr. Gurumukh T. and Veena M. Mehta Chair and Professor
Department of Mechanical Engineering
IIT Kanpur
Telephone No. : 0512-259-6056 (Off-Mech.)/0512-259-6611 (Off.- Design)
Fax No.: 0512-259-7408
Homepage: <http://home.iitk.ac.in/~bhattacs/>

Attachments:

No. DST/TM/WTI/2K16/21(G)
Government of India
Ministry of Science and Technology
Department of Science and Technology

Technology Bhavan
New Mehrauli Road
New Delhi-110 016
Date: 27.10.2016

Sanction Order

Subject: Financial support for project entitled "Installation of a pilot plant of 10 KLD capacity comprising ZnO-Graphene based sensitive photo catalytic filter for visible light catalysis and carbon nano-mat fiber filter for the treatment of the effluent of CETP, Jodhpur as a replacement of their secondary treatment unit and development of an alternative low cost process for dye adsorption on acid modified soil" submitted by Dr. Shantanu Bhattacharya, Indian Institute of Technology, Kanpur.

Sanction of the President is hereby accorded to the above-mentioned project at a total cost of Rs 1,19,03,000/- (*Rupees One Crore nineteen lakh three thousand only*) from DST with break up of Rs. 20,08,000 (*Rupees Twenty lakh eight thousand only*) from DST under capital head and Rs. 98,95,000/- (*Rupees Ninety eight lakh ninety five thousand only*) from DST under General head for a duration of 36 months. The items of expenditure for which the total allocation has been approved are given below:

S. No	Item	Amount in lakh							
		1st Year		2nd Year		3rd Year		TOTAL	
		DST	Coll.	DST	Coll.	DST	Coll.	DST	Coll.
A.	Capital- Equipment								
	1. Spin Coater	3.50							
	2. Oven	3.00							
	3. Ultrasonic machine	1.00							
	4. Centrifuge machine	1.00							
	5. Super ES-1 Electrospinning machine	7.00							
	6. Furnace with various gas supply	1.00							
	7. COD Close reflux unit along with photometer and vials	1.38							
	8. Experimental set up including flow control devices	1.20							
	9. Rotary extractor	1.00							
	Total	20.08	---	---	---	---	---	20.08	---
B.	Recurring--General								
1	Manpower RA-I (No.1), JRF (No.3)	14.65		14.65	For civil construction work (unskilled labour)	14.65	For civil construction work (unskilled labour)	43.95	For civil construction work (unskilled labour)

Neel
S.C.E

2	Other Costs & Contingencies	4.00	1.00	3.00	--	5.00	--	12.00	1.00 CETP has own lab for some test
3	Travel	2.50	--	4.50	--	5.00	--	12.00	--
4	Consumable	13.00	--	9.00	--	6.00	--	28.00	--
5	Over head Charges on A+B	1.00	--	1.00	--	1.00	--	3.00	--
	Sub total (General)	35.15	1.00	32.15	--	31.65	--	98.95	1.00
	Grand Total	55.23	1.00	32.15	--	31.65	--	119.03	1.00

2. The sanction of the President is also accorded to the payment of an amount of **Rs 35,15,000/- (Rupees Thirty five lakh fifteen thousand only)** under 'Grants-in-aid General' to **Registrar, Indian Institute of Technology Kanpur**, for the year 2016-17 for implementation of the said project.

3. Sanction of the grants is subject to the conditions as detailed in DST's website www.dst.gov.in. The acceptance of the grant will automatically imply acceptance of DST's term and conditions of the grant. The emoluments to the project manpower would be governed by DST guidelines, terms and conditions mentioned in OM No A. 20020/11/97-IFD dated 31st March 2010 available on DST Website. Overhead expenses are meant for the host Institute towards the cost for providing infrastructural facilities and benefits to the staff employed in the project etc.

4. The amount of **Rs 35,15,000/- (Rupees Thirty five lakh fifteen thousand only)** will be disbursed under 'Grants-in-aid General' to **'Registrar, Indian Institute of Technology Kanpur**, through RTGS as per following details:

Name of the Account Holder	Registrar, IIT Kanpur
Name of the bank	State Bank of India
Branch Address	IIT KANPUR
MICR code	208002041
IFSC code	SBIN0001161
Account Number	10426002126

5. The expenditure involved is debit able to -

- Demand No.77 Department of Science & Technology
- 3425 Other Scientific Research (Major Head)
- 60 Others (Sub-major Head)
- 60.200 Assistance to other Scientific Bodies (Minor Head)
- 26 Technology Development Programme (SERI/WTI)

26.01.31 Grant-in-aid General for the year 2016-2017 (SERI/WTI)

6. The sanction has been issued under the powers delegated to the Ministries, with the concurrence diary No.4113, of IFD, DST, dated: **27.10.2016**


7. The Institute will furnish to the DST, utilization certificate and audited statement of accounts pertaining to the grant immediately after the end of each financial year. All purchases of equipments etc. would be as per GFR and the disposal of the same would be done with prior approval of DST. As per Rule 211 GFRs, the accounts of the project shall be open to inspection by the sanctioning authority/audit whenever the Institute is called upon to do so.

8. The Institute will maintain separate audited accounts for the project. The grant will be kept in a bank account earning interest; the interest earned should be reported to the DST. The interest thus earned will be treated as a credit to the Institute to be adjusted towards further installment of the grant.

Handwritten signature and initials
S P E

9. The Sanction Order is entered in the register of grants of TMD: WTI Division at Sl. No. 114 (WTI) for the Financial Year 2016-17.

10. It is certified that the no UCs/SEs from the grantee(s) are pending under this scheme/ project


(Dr. Neelima Alam)
Scientist-E

Email: neelima.alam@nic.in

To: The Pay and Accounts Officer, DST, New Delhi

Copy for information and necessary action to:

1. Cash Section(3 copies), DST, New Delhi--for preparing the bill and remitting the amount to the grantee
2. Accounts Section, DST, New Delhi, 3. IFD, DST, New Delhi.
4. Director of Audit (CW & M-II), AGCR Building, IP Estate, New Delhi.

5. **Dr. Shantanu Bhattacharya,**

Associate Professor,
Department of Mechanical Engineering,
Indian Institute of Technology, Kanpur
E-mail: bhattacs@iitk.ac.in

6. Sanction folder, 7. Office Copy, 8. Head- TMD


(Dr. Neelima Alam)
Scientist-E

No. DST/TM/WTI/2K16/21(C)
Government of India
Ministry of Science and Technology
Department of Science and Technology

Technology Bhavan
New Mehrauli Road
New Delhi-110 016
Date: 27.10.2016

Sanction Order


Subject: Financial support for project entitled "Installation of a pilot plant of 10 KLD capacity comprising ZnO-Graphene based sensitive photo catalytic filter for visible light catalysis and carbon nano-mat fiber filter for the treatment of the effluent of CETP, Jodhpur as a replacement of their secondary treatment unit and development of an alternative low cost process for dye adsorption on acid modified soil" submitted by Dr. Shantanu Bhattacharya, Indian Institute of Technology, Kanpur.

With reference to the sanction order No. DST/TM/WTI/2K16/21 (G) dated: 27.10.2016, sanction of the President is hereby accorded to the payment of **Rs. 20,08,000 (Rupees Twenty lakh eight thousand only)** as the 'Grant for creation of capital assets' in the above-mentioned project.

2. The sanction of the President is also accorded to the payment of an amount of **Rs. 20,08,000 (Rupees Twenty lakh eight thousand only)** under 'Grants for creation of capital assets' to Registrar, Indian Institute of Technology Kanpur, for the year 2016-17 for implementation of the said project. The items of expenditure for which the total allocation has been approved are given below:

S. No	Item	Amount in lakh							
		1st Year		2nd Year		3rd Year		TOTAL	
		DST	Coll.	DST	Coll.	DST	Coll.	DST	Coll.
A.	Capital- Equipment								
	1. Spin Coater	3.50							
	2. Oven	3.00							
	3. Ultrasonic machine	1.00							
	4. Centrifuge machine	1.00							
	5. Super ES-1 Electrospinning machine	7.00							
	6. Furnace with various gas supply	1.00							
	7. COD Close reflux unit along with photometer and vials	1.38							
	8. Experimental set up including flow control devices	1.20							
	9. Rotary extractor	1.00							
	Total	20.08	---	---	---	---	---	20.08	---

3. Sanction of the grants is subject to the conditions as detailed in DST's website www.dst.gov.in. The acceptance of the grant will automatically imply acceptance of DST's term and conditions of the grant. The emoluments to the project manpower would be governed by

Nul 
SC-E

DST guidelines, terms and conditions mentioned in OM No A. 20020/11/97-IFD dated 31st March 2010 available on DST Website. Overhead expenses are meant for the host Institute towards the cost for providing infrastructural facilities and benefits to the staff employed in the project etc.

4. The amount of **Rs. 20,08,000 (Rupees Twenty lakh eight thousand only)** will be disbursed under 'Grants- for creation of Capital assets to **'Registrar, Indian Institute of Technology Kanpur,** through RTGS as per following details:

Name of the Account Holder	Registrar, IIT Kanpur
Name of the bank	State Bank of India
Branch Address	IIT KANPUR
MICR code	208002041
IFSC code	SBIN0001161
Account Number	10426002126

5. The expenditure involved is debitable to:

Demand No77 Department of Science & Technology
3425 Other Scientific Research (Major Head)
60 Others (sub major heads)
60.200 Assistance to other scientific bodies (Minor head)
26 Technology Development Programme (SERI/ WTI)
26.01.35 Grant for creation of capital assets for the year 2016-2017

6. The sanction has been issued under the powers delegated to the Ministries, with the concurrence diary No. **4114**, of IFD, DST, dated: **27.10.2016**


7. All purchases of equipments etc. would be as per GFR and the disposal of the same would be done with prior approval of DST. Sanction of the grant is subject to the conditions as given on DST's website www.dst.gov.in. The acceptance of the grant will automatically imply acceptance of DST's term and conditions of the grant. The project would be monitored by a monitoring Committee appointed by Department of Science and Technology, Govt. of India. The Principal Investigator of the project has to ensure of obtaining the statutory clearances required for execution of the project.

8. The Institute will furnish to the DST, utilization certificate and audited statement of accounts pertaining to the grant immediately after the end of each financial year. All purchases of equipments etc. would be as per GFR and the disposal of the same would be done with prior approval of DST. As per Rule 211 GFRs, the accounts of the project shall be open to inspection by the sanctioning authority/audit whenever the Institute is called upon to do so.

9. The Institute will maintain separate audited accounts for the project. The grant will be kept in a bank account earning interest; the interest earned should be reported to the DST. The interest thus earned will be treated as a credit to the Institute to be adjusted towards further installment of the grant.

10. The Sanction Order is entered in the register of grants of TMD: WTI Division at Sl. No.113 (WTI) for the Financial Year 2016-17.

11. It is certified that the no UCs/SEs from the grantee(s) are pending under this scheme/project



(Dr. Neelima Alam)
Scientist-E

Email: neelima.alam@nic.in

To: The Pay and Accounts Officer, DST, New Delhi

Copy for information and necessary action to:

1. Cash Section(3 copies), DST, New Delhi--for preparing the bill and remitting the amount to the grantee
2. Accounts Section, DST, New Delhi, 3. IFD, DST, New Delhi.
4. Director of Audit (CW & M-II), AGCR Building, IP Estate, New Delhi.
5. **Dr. Shantanu Bhattacharya,**
Associate Professor,
Department of Mechanical Engineering,
Indian Institute of Technology, Kanpur
E-mail: bhattacs@iitk.ac.in
6. Sanction folder, 7. Office Copy, 8. Head- TMD


(Dr. Neelima Alam)
Scientist-E

F.NO. DST/TM/WTI/2K16/21(G) 3
Government of India
Ministry of Science & Technology
Department of Science & Technology
(Technology Mission Division)

Technology Bhavan, New Delhi
Dated: 06.12.2019

Sanction Order

Subject: Financial support for project entitled "Installation of a pilot plant of 10 KLD capacity comprising ZnO-Graphene based sensitive photo catalytic filter for visible light catalysis and carbon nano-mat fiber filter for the treatment of the effluent of CETP, Jodhpur as a replacement of their secondary treatment unit and development of an alternative low cost process for dye adsorption on acid modified soil." submitted by Dr. Shantanu Bhattacharya, Indian Institute of Technology, Kanpur.

Sanction of the President is hereby accorded to the release of the above mentioned project at a cost of **Rs.25,00,000/- (Rupees twenty five lakh only)** for the above mentioned activity to Indian Institute of Technology, Kanpur, as third installment.

2. The sanction of the President is also accorded to the release of **Rs.25,00,000/- (Rupees twenty five lakh only)** to Indian Institute of Technology, Kanpur, being the third installment of grant under "General Component" for implementation of the above mentioned project

3. Permission to carry forward of unspent balance of Rs.3,599/- (C) (Excluding interest earned) from F.Y.2018-2019 to 2019-2020.

4. The grantee organization will have to enter & upload the Utilization Certificate in the PFMS portal besides sending it in physical form to this Division. The subsequent/final installment will be released only after confirmation of the acceptance of the UC by the Division and entry of previous Utilization Certificate in the PFMS.

5. If the grant has been released under capital head through separate sanction order under the same project for purchase of equipment(s), separate SE/UC has to be furnished for the released Capital head grant.

6. The grant-in-aid being released is subject to the condition that:

a. A transparent procurement procedure in line with the Provisions of General Financial Rules 2017 will be followed by the Institute/Organization under the appropriate rules of the grantee organization while procuring capital assets sanctioned for the above mentioned project and a certificate to this effect will be submitted by the Grantee organization immediately on receipt of the grant:

b. While submitting Utilization Certificate/Statement of Expenditure, the organization has to ensure submission of supporting documentary evidences with regard to purchase of equipment/capital assets as per the provisions of GFR 2017. Subsequent release of grants under the project shall be considered only on receipt of the said documents.

7. The grantee organization will maintain separate audited account for the project and the entire amount of grant will be kept in an interest bearing bank account. For Grants released during F.Y. 2017-8 and onwards, all interests and other earnings, against released Grant shall be remitted to Consolidated Fund of India (through Non-Tax Receipt Portal (NTRP), i.e., www.Bharatkosh.gov.in),

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immediately after finalization of accounts, as it shall not be adjusted towards future release of grant. A certificate to this effect shall have to be submitted along with Statement of Expenditure/Utilization Certificate for considering subsequent release of grant/closure of project accounts.

9. DST reserves sole rights on the assets created out of grants. Assets acquired wholly or substantially out of government grants (except those declared as obsolete and unserviceable or condemned in accordance with the procedure laid down in GFR 2017), shall not be disposed of without obtaining the prior approval of DST.

10. In case the scheme provides for payment of honorarium / remuneration / fellowship / scholarship to the PI, as per may suitably be incorporated in the DSO to the effect that "PI is not drawing any emoluments/ salary/fellowship from any other project either supported by DST or by any other funding agency.

11. The organization named Indian Institute of Technology, Kanpur, agrees to make reservations for Scheduled Castes and Scheduled Tribes or OBC in the posts or services under its control on the lines indicated by the Government of India.

12. Due acknowledgement of technical support / financial assistance resulting from this project grant should mandatory be highlighted by the grantee organization in bold letters in all publications / media releases as well as in the opening paragraphs of their Annual Reports during and after the completion of the project.

13. Failure to comply with the terms and conditions of the Bond will entail full refund with interest in terms of Rule 231 (2) of GFR 2017.

14. The expenditure involved is debit able to-

Demand No 86	Department of Science and Technology for the year 2019-20
3425	Other Scientific Research (Major Head)
60	Others
60.200	Assistance to Other Scientific Bodies (Minor head)
70	Innovation, Technology Development and Deployment
70.00.31	Grants-in-aid General for the year 2019-2020(Plan)
	(Previous: TDP-3425.60.200.26.01.31- (SERI/WTI)

15. The amount of **Rs.25,00,000/- (Rupees twenty five lakh only)** will be drawn by the Drawing and Disbursing Officer, DST and will be disbursed to Indian Institute of Technology, Kanpur. The bank details for electronic transfer of funds through RTGS are given below:-

Name of the Account Holder	Registrar, IIT Kanpur
Name of the bank	State Bank of India
Branch Address	IIT KANPUR
MICR code	208002041
IFSC code	SBIN0001161
Account Number	10426002126

16. As per Rule 234 of GFR 2017, this sanction has been entered at S. No. 512 (TMD,WE) in the register of grants maintained in the Division for the scheme (ITDD).

17. The organization/Institute/University should ensure that the technical support/financial assistance provided to them by the Department of Science and Technology should invariably be highlighted/acknowledged in their media releases as well as in bold letters in the opening paragraph of their Annual Report.

Neebme
S. E

It is important that the information and knowledge generated through the use of these funds are made publicly available as soon as possible. In order to achieve the aforementioned objectives, each institution is encouraged to set up its own inter-operable institutional open access repository ("IR") for its research papers and review articles published in peer reviewed journals. The Ministry of Science and Technology has set up a central harvester (www.sciencecentral.in) that will harvest the full text and metadata of these publications. Kindly update the findings accordingly.

19. The goods (consumables/equipment) available in GeM portal are to be procured mandatorily online through GeM only.

20. This issues with the concurrence of IFD Vide their Concurrence **Dy. No.4518. Dated.05.12.2019**

Neelima Alam
(Dr. Neelima Alam)
Scientist-E

To The Pay and Accounts Officer, DST, New Delhi

Copy for information and necessary action to:

1. Cash Section(3 copies), DST, New Delhi--for preparing the bill and remitting the amount to the grantee
2. Accounts Section, DST, New Delhi, 3. IFD, DST, New Delhi.
4. Director of Audit (CW & M-II), AGCR Building, IP Estate, New Delhi.
5. **Dr. Shantanu Bhattacharya,**
Associate Professor,
Department of Mechanical Engineering,
Indian Institute of Technology, Kanpur
E-mail:bhattacs@iitk.ac.in
6. Sanction folder, 7. Office Copy, 8. Head- TMD

Neelima Alam
(Dr. Neelima Alam)
Scientist-E



Dr. Vinod Kataria <vinodkataria2002@gmail.com>

Approval letter -reg.

4 messages

ShahidulKhair Asstt.ResearchOfficer(Phcgn) <arophg.nmpb@gov.in>

To: aryas@icfre.org

Cc: vinodkataria2002@gmail.com

Mon, Jul 25, 2016 at 6:10 PM

F. No. Z.18017/187/CSS/R&D/RAJ-01/2016-17-NMPB-IV A

Government of India

Ministry of AYUSH

National Medicinal Plants Board

...

Room No: - 309, 3rd Floor,
B-Block, AYUSH Bhawan,
GPO Complex, INA, New Delhi-110023
Phone: - 011-2465-1828
Telefax:- 011-2465-1827
Email:- info-nmpb@nic.in
Date: - 25.07.2016

To,

The Director,

Arid Forest Research Institute (AFRI),

New-Pali Road, Jodhpur-342005,

Rajasthan.

Subject: Approval of the Project Proposal entitled "Clonal Propagation, Characterization and Biochemical Aanalysis of *Leptadenia reticulata* and *Tylophora indica* – Threatened Medicinal Plants" vide Pr. No. R&D/RAJ-01/2016-17–reg.

Sir/Madam,

The undersigned is directed to refer to the project proposal entitled "**Clonal Propagation, Characterization and Biochemical Aanalysis of *Leptadenia reticulata* and *Tylophora indica* – Threatened Medicinal Plants**" and to say that the project was recommended in the 45th PSC meeting held on 27th June, 2016 and approved by the 67th SFC for 3 years at the total cost of **Rs. 41.25 lakh** for both the institutions. One is **Director, Arid Forest Research Institute (AFRI), Jodhpur, Rajasthan**, for the cost of **Rs. 20.35 lakh** (Rupees Twenty Lakh Thirty Five thousand only) and another is **Jai Narain Vyas University (JNVU), Jodhpur, Rajasthan**, for the cost of **Rs. 20.90 lakh** (Rupees Twenty Lakh Ninety Thousand only).

The financial break-up of the Grant-in-aid as approved by the 67th SFC is as below:-

Components	Amount (₹ In lakhs)	Amount (₹ In lakhs)
	AFRI	JNVU
Manpower (JRF - 1)	12.00	12.00
Consumables (Chemicals and glasswares)	2.50	3.00
Travel	2.00	1.00
Contingency etc.	2.00	3.00
Overhead (Inst. Charges @ 10%)	1.85	1.90
TOTAL	20.35	20.90
Grand Total (20.35 +20.90)	41.25	

Self attested
Vijay

-2-

Details of Installments will be as follows:-

Instt.	Total	1 st installment	2 nd installment	3 rd installment
AFRI	Rs. 20.35	Rs. 8.00	Rs. 7.00	Rs. 5.35
JNVU	Rs. 20.90	Rs. 8.00	Rs. 7.00	Rs. 5.90

You are requested to submit the duly filled up Performa of Agency Details (Copy enclosed) for transferring the grant-in-aid through RTGS mode & for online monitoring of the project along with the documents indicated below:

1. Pre-receipt of **1st installment of Rs. 8.00 lakh each** (for both the institutions), duly signed, on Rs. 1/- revenue stamp affixed.
2. A certificate stating that institute / organization is not involved in any proceeding relating to the account or conduct for any of its office bearers.
3. An undertaking that the terms and conditions of the grant are acceptable to the college / organizations.
4. A certified copy duly authenticated by a Gazetted Officer of the documents showing the Constitution of the governing Body or Managing Committee responsible for the running of the organization and that the persons signing the agreement are authorized to operate upon and bind the funds of organizations / Institute.
5. A certificate that the organization has not received any grant from State or Central Govt. or from any other agency for the same proposal.
6. An agreement on Rs. 100/- stamp paper duly executed & signed in the prescribed Performa.

Note: Format copies for Agency Details and S. No. 1, 5 & 6 are attached for convenience. Rest of the certificates/undertaking at S. No. 2 to 4 shall be submitted by the grantee.

Thanking You,

Yours faithfully

-sd/-


(Shahidul Khair)
ARO (Phcg)


Copy to:-


- **Dr. Sarita Arya**, Principal Investigator and Scientist-F, Arid Forest Research Institute (AFRI), New-Pali Road, Jodhpur-342005, Rajasthan.
- **Dr. (Mrs.) Vinod Kataria**, Assistant Professor, Department of Botany, Jai Narain Vyas University (JNVU), Jodhpur-342005, Rajasthan.

4 attachments

 **Agency Details.doc**
60K

 **Agreement.doc**
62K

 **Certificate of Non-Receipt of Fund.doc**
54K

 **Pre-reciept.docx**
12K

vinod kataria <vinodkataria2002@gmail.com>
To: Inder Arya <aryaid@gmail.com>

[Quoted text hidden]

डॉ. (श्रीमती) विनोद कटारिया



OFFICE OF THE SUPERINTENDING ENGINEER (CIVIL),
RAJASTHAN RAJYA VIDHYUT PRASARAN NIGAM LTD.,
NEW POWER HOUSE PREMISES, JODHPUR.

NO.RRVPNL/SE/CIVIL/JU/F/2017/D. 769 DT. 01/09/2017

CETIFICATE

This is to certify that Dr. Archana Bohra Gupta, Associate Professor, Department of Structural Engineering, M.B.M. Engineering College, Jai Narain Vyas University, Jodhpur has delivered a lecture on the topic "Advance Construction Technology for Quality Construction" dated 01.09.2017 during 4:00 pm to 5:30 pm in the Seminar held on Training of Civil Contractors for Quality Manual & Control held in the Conference Hall of RRVPNL, New Power house, Jodhpur.

(Takhat Singh)

Superintending Engineer
RRVPNL, Jodhpur



JODHPUR INSTITUTE OF ENGINEERING & TECHNOLOGY

JIET Universe : N.H. - 65, Mogra, Pali Road, Jodhpur – 342 802 (Raj.)

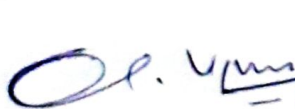
Tel : 0291-2868152/53 | Email : info@jietjodhpur.ac.in | Web : www.jietjodhpur.ac.in

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Dr. Archana Bohra Gupta (Associate Professor, Department of Structural Engineering, MBM Engineering College, JNVU Jodhpur), has delivered an expert lecture in Department of Civil Engineering, JIET, Jodhpur. The details of which is as mentioned below:

<u>S. No.</u>	<u>Particulars</u>	<u>Details</u>
1.	Topic	"Advancements in Steel Design"
2.	Day and Date	11 October 2017
3.	Time & Duration	11:15:00 AM to 1:00 PM (2 Hour Duration)
4.	Audience	Students of Final Year (7th Semester) (82 students) and Faculty Members

The session was very interactive and interesting. We appreciate her for sharing time, knowledge and expertise with us.


Prof. O. P. Vyas
Head
Department of Civil Engineering





TO WHOMSOEVER IT MAY CONCERN

This is to certify that Dr. Archana Bohra Gupta (Associate Professor, Department of Structural Engineering, MBM Engineering College, JNVU Jodhpur), has delivered an expert lecture in Department of Civil Engineering, JIET, Jodhpur. The details of which is as mentioned below:

<u>S. No.</u>	<u>Particulars</u>	<u>Details</u>
1.	Topic	"Practical Aspects of Steel Beam Design"
2.	Day and Date	11 October 2017
3.	Time & Duration	9:00 AM to 11:00 AM (2 Hour Duration)
4.	Audience	Students of Final Year (7th Semester) (82 students) and Faculty Members

The session was very interactive and interesting. We appreciate her for sharing time, knowledge and expertise with us.

Prof. O. P. Vyas
Head

Department of Civil Engineering





केन्द्रीय विद्यालय क्र.1 आर्मी, जोधपुर

KENDRIYA VIDYALAYA NO.1 (ARMY)

Military Area, Ajmer Road, JODHPUR-342010(Rajasthan)

Tele.No.0291-2510230 FaxNo.0291-2514876.

Web site : www.kv1armyjodh.org, e-mail : kv1armyjodh@rediffmail.com

F.No KV1/Army/ Jodh/2017-18/

Date: 26.05.2017

Certificate

It is certified that Dr. Archana Bohra Gupta, Associate Professor, Dept. of Structural Engineering, MBM Engineering College, Jodhpur delivered a lecture on topic; Mechanics during In-service course for PGT (Physics) in K.V. No.1 Army, Jodhpur on dated 26.05.2017 at 09:30AM to 11:00AM.

(A.K. Dwivedi)

Principal

अध्यक्ष / Principal

केन्द्रीय विद्यालय क्र. 1 (आर्मी) K.V. No.1 (Army)
जोधपुर (राज.) / JODHPUR (Raj.)

Applicant

First Name(s): **Robert**
Surname(s): **Popek**
Sex: ☒ M ☐ F Nationality: **Polish**
Place and date of birth: **Plock, Poland, 11.01.1984**
Home address: **Malborska 4/75**
Zip Code: **03-286** City: **Warsaw** Country: **Poland**
Passport No.: **AV 1291284**
Phone number: **+48787245973** E-mail: **robert.popek@gmail.com**
Education level: **Phd.**
Web references (if any):

Home Institution/Company (EU)

Name: **Institute of Dendrology, Polish Academy of Sciences**
Address: **Parkowa 5**
Zip Code: **62-035** City: **Kórnik** Country: **Poland**
Designation of the applicant: **Biologist**
Main responsibilities of the applicant: **Head of the scientific grant: Understanding the importance of trees and shrubs in phytoremediation of particulate matter in the air in urban areas.**
Website: **www.idpan.poznan.pl/**
Contact person (Director or Responsible): **Piotr Karolewski**
Designation of the contact person: **Director of Laboratory of Ecology**
Contact person Tel. No.: **+48-618170033** Email: **idkornik@man.poznan.pl**

Host Institution/Company (INDIA)

Name: **Jai Narain Vyas University**
Address: **New Campus, Jodhpur, Rajasthan, India**
Zip Code: **342001** City: **Jodhpur** Country: **India**
Website: **www.jnvu.edu.in**
Contact person: **Gyan Singh Shekhawat**
Designation of the contact person: **Gyan Singh Shekhawat**
Contact person Tel. No.: **+91-9414279665** Email: **gyans.shekhawat@gmail.com**

Requested grant

Requested duration of the mobility (specify months/days): **2 months**
Period of stay in India (broad period corresponding to invitation from host): **2 months**
More than one person will apply for this project? ☐ YES ☒ NO
Full Name of the other applicant(s):

Please attach: 1) a color scanned copy of the Passport; 2) a personal CV (possibly in EU format); 3) invitation letter from the host Institution/Company; 4) any other document that you think can help us to evaluate your project proposal.

Place and date: **Kórnik, 24.08.2017**

Signature of the Applicant

Signature of the Director of the Home Institution/Company

Faculty of Science
Jai Narain Vyas University, Jodhpur

Prof. Sunita Kumbhat
Dean

No. JNVU/Dean Sc./2017/ 699

28 Dec 2017

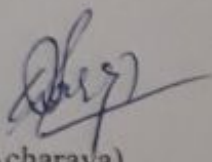
To,
Dr. Laura Micheli
Associate Professor in Analytical Chemistry,
University of Rome Tor Vergata
Via della Ricerca Scientifica 00133-Rome, Italy

Sub: Invitation to Dr. Laura Micheli, under TECO Program: Technological Eco-Innovation for the Quality Control and the Decontamination of polluted waters and Soils

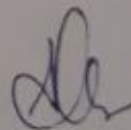
Dear Dr. Micheli,

We are happy to invite you to the Department of Chemistry, Faculty of Science, Jai Narain Vyas University, Jodhpur (Rajasthan) India, as host institute under TECO program and extend Laboratory space and research facilities to carry out research in the field of development of Sensors and Biosensors of environmental importance in collaboration with Dr. Sunita Kumbhat, Professor of Chemistry for a period of 1-2 Months during year 2018.

We look forward for a fruitful scientific collaboration with Department of Chemistry, JNV University, Jodhpur.



(Seema Acharaya)
Head, Department of Chemistry



(Sunita Kumbhat)
Dean, Faculty of Science

DEAN
FACULTY OF SCIENCE
J.N. VYAS UNIVERSITY
JODHPUR



Synthetic and phytochemicals based dipeptidyl peptidase-IV (DPP-IV) inhibitors for therapeutics of diabetes

Anand-Krishna Singh^a, Rameshwar Jatwa^b, Ashok Purohit^a and Heera Ram^a

^aAnimal Physiology Lab, Department of Zoology, Jai Narain Vyas University, Jodhpur 342001, India; ^bMolecular Medicine and Toxicology Lab, School of Life Sciences, Devi Ahilya University, Indore 452001, India

ABSTRACT

Currently antidiabetic therapeutic strategies are mainly based on synthetic hypoglycemic agent. Antidiabetic drugs are associated with significant adverse effects of hypoglycemia, dysfunction of insulin and weight gain. Nowadays, the novel Dipeptidyl peptidase-IV (DPP-IV) inhibitors unique approach for the management of diabetes has been considered to be safe, as DPP-IV inhibitors reduce blood glucose level by monitoring hyperglycemia including positive effects on body weight as it remains neutral, improves glycated hemoglobin levels and do not induce hypoglycemia. Inhibitors help to protect degradation of Glucagon-like peptide-1 (GLP-1) and gastric inhibitory peptide (GIP), gut hormones which helps to suppresses postprandial glucagon release, delay gastric emptying and regulate satiety. Therefore, the innovation of DPP-IV inhibitor based drugs regulates activity of incretin hormones such as GLP-1 and GIP. Commercially available DPP-IV inhibitors are chemically synthesized with good therapeutic value. However, the durability and long-term safety of DPP-IV inhibitors remains to be established. On the other hand, phytochemicals-based DPP-IV inhibitors are alternative and safe to use as compared to synthetic. Numerous novel antidiabetic compounds and group of compounds emerging in clinical development are through DPP-IV inhibition. This review summarized recent progress made on DPP-IV inhibitors from both synthetic as well as from natural sources.

ARTICLE HISTORY

Received 23 June 2016

Accepted 13 March 2017

KEYWORDS

Dipeptidyl peptidase-IV inhibitor; glucagon-like peptide-1; antidiabetic; phytochemicals

1. Introduction

Diabetes mellitus is a chronic and complicated metabolic disease caused by inherited or acquired deficiency in the production of insulin by the beta cells from pancreas, or as a result of the incompetence of the insulin. According to the International Diabetes Federation (IDF) and World Health Organization (WHO), diabetes is the World's fifth leading cause of death and around 415 million people of the world's population have diabetes mellitus in 2015 and by 2040, this will rise up to 642 million and every 6 s a person dies from diabetes [1]. Type 2 diabetes mellitus (T2DM) is the most common form of the disease, accounting for about 90 to 95% of all diagnosed cases of diabetes. As estimated and predicted by the

Faculty of Science
Jai Narain Vyas University, Jodhpur

Prof. Sunita Kumbhat
Dean

No. JNVU/Dean Sc./2017/ 699

28 Dec 2017

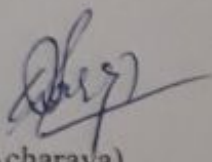
To,
Dr. Laura Micheli
Associate Professor in Analytical Chemistry,
University of Rome Tor Vergata
Via della Ricerca Scientifica 00133-Rome, Italy

Sub: Invitation to Dr. Laura Micheli, under TECO Program: Technological Eco-Innovation for the Quality Control and the Decontamination of polluted waters and Soils

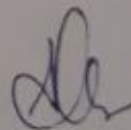
Dear Dr. Micheli,

We are happy to invite you to the Department of Chemistry, Faculty of Science, Jai Narain Vyas University, Jodhpur (Rajasthan) India, as host institute under TECO program and extend Laboratory space and research facilities to carry out research in the field of development of Sensors and Biosensors of environmental importance in collaboration with Dr. Sunita Kumbhat, Professor of Chemistry for a period of 1-2 Months during year 2018.

We look forward for a fruitful scientific collaboration with Department of Chemistry, JNV University, Jodhpur.



(Seema Acharaya)
Head, Department of Chemistry



(Sunita Kumbhat)
Dean, Faculty of Science

DEAN
FACULTY OF SCIENCE
J.N. VYAS UNIVERSITY
JODHPUR



फुटवियर डिजाइन एंड डेवलपमेंट इंस्टीट्यूट
(वाणिज्य एवं उद्योग मंत्रालय, भारत सरकार)

FOOTWEAR DESIGN & DEVELOPMENT INSTITUTE
(MINISTRY OF COMMERCE & INDUSTRY, GOVT. OF INDIA)

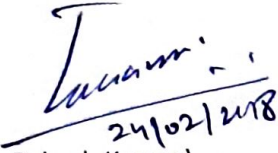
Ref. no.- FDDI/JU/1002-1(1)/Retail/Workshop/RM/2018/09

Date: 24th February, 2018

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Dr. Archana Bohra Gupta**, Associate Professor, Department of Structural Engineering, M.B.M. Engineering College, Jai Narain Vyas University, Jodhpur, delivered a lecture on the topic "Modelling Research: Heuristics and Simulation" on February 23, 2018, from 9:30 AM to 10:30 AM, in the National Workshop on "Research Methodology & Data Analysis (RMDA-2018)" from February 22- 28, 2018 for business analysts, corporates, consultants, researchers and teaching faculty, organised by School of Retail Management, Footwear Design & Development Institute (FDDI), Jodhpur, Ministry of Commerce & Industry, Govt. of India.

Thanking you,


24/02/2018

(Dr. Rakesh Kumar)

Convener (RMDA-2018)

&

HoD, School of Retail Management

(हम हिन्दी में पत्राचार का स्वागत करते हैं)

जोधपुर - नागौर हाईवे, निम्बा निम्बाडी रेलवे फाटक के सामने, मण्डोर, जोधपुर - 342 304 (राजस्थान)
Jodhpur - Nagaur Highway, Opp. Nimba Nimadi Railway Fatak, Mandore, JODHPUR - 342 304 (Rajasthan)
दूरभाष : +91-291-2577555 • वेबसाइट : Website : www.fddiindia.com



JODHPUR INSTITUTE OF ENGINEERING & TECHNOLOGY

JIET Universe : N.H. - 65, Mogra, Pali Road, Jodhpur – 342 802 (Raj.)

Tel : 0291-2868152/53 | Email : info@jietjodhpur.ac.in | Web : www.jietjodhpur.ac.in

Prof. (Dr.) K.R Chowdhary
Campus Director

JIET/DIR/2017-18/222
Date: March 8, 2018

Certificate of Appreciation

This is to certify that Dr. Archana Bohra Gupta (Associate Professor, Department of Structural Engineering, MBM Engineering College, JNVU Jodhpur), delivered an expert lecture on “Advanced Structural Analysis” on March 8, 2018 at Civil Engineering Department, JIET (Coed), Jodhpur. The lecture was attended by faculty members and students of 6th semester (89 Nos.).

The session was interactive and interesting. We appreciate her sharing of time, knowledge and expertise with us.


Prof. (Dr.) K.R Chowdhary
Campus Director



JODHPUR INSTITUTE OF ENGINEERING & TECHNOLOGY

JIET Universe : N.H. - 65, Mogra, Pali Road, Jodhpur – 342 802 (Raj.)

Tel : 0291-2868152/53 | Email : info@jietjodhpur.ac.in | Web : www.jietjodhpur.ac.in

Prof. (Dr.) K.R Chowdhary
Campus Director

JIET/DIR/2017-18/223
Date: March 8, 2018

Certificate of Appreciation

This is to certify that Dr. Archana Bohra Gupta (Associate Professor, Department of Structural Engineering, MBM Engineering College, JNVU Jodhpur), delivered an expert lecture on **"Steel Bridges and Advancements"** on March 8, 2018 at Civil Engineering Department, JIET (Coed), Jodhpur. The lecture was attended by faculty members and students of 8th semester (81 Nos.).

The session was interactive and interesting. We appreciate her sharing of time, knowledge and expertise with us.

Prof. (Dr.) K.R Chowdhary
Campus Director

GOVERNMENT OF RAJASTHAN
Office of the Joint Director, Technical Education, T.T.C. &
L.R.D.C., Jodhpur

Sr.No.89

Date:--09-08-2018

CERTIFICATE

This is to certify that **Dr Archana Bohra Gupta, Associate Professor,** Department of Structural Engg, M.B.M. Engineering College, Jai Narain Vyas University, Jodhpur has rendered her services as an expert on below mentioned topics for short term course on "**Advance Construction Techniques for Roads, Buildings Bridges & other Civil Engineering Structures**" for the faculty members of polytechnic colleges of Rajasthan.

Date	Time	Topic(s)
09.08.2018	9.30 AM to 11.00 AM	Advanced Construction Techniques for Bridges
09.08.2018	11.30 AM to 1.00 PM	Advanced Construction Techniques for Tunnels

The program was held from 30/07/2018 to 10/08/2018. During this tenure, we found her good in giving training to our participants. We wish all the best in her future endeavors.

३२५८
JOINT DIRECTOR

जयपुर
प्राविधिक शिक्षा
जी.डी.सी. एवं ल.आर.डी.सी.
जयपुर (राज.)



Prof. (Dr.) K. R. Chowdhary
Campus Director

JJET/DIR/2018-19/73
Date: October 12, 2018

LETTER OF APPRECIATION

This is to certify that Dr. Archana Bohra Gupta (Associate Professor, Department of Structural Engineering, MBM Engineering College, JNVU Jodhpur), delivered an expert lecture on "Advances in Steel Design" in Civil Engineering Department, JJET Jodhpur, on 12th October 2018, 8:15 AM to 10:00 AM for the students of Final year (VII semester).

We appreciate her for sparing time for this academic concern.

(Prof. (Dr.) K. R. Chowdhary)

Campus Director - JJET

DIRECTOR
JODHPUR INSTITUTE OF ENGG. & TECHNOLOGY
JODHPUR



Prof. (Dr.) K. R. Chowdhary
Campus Director

JIET/DIR/2018-19/72
Date: October 12, 2018

LETTER OF APPRECIATION

This is to certify that **Dr. Archana Bohra Gupta** (Associate Professor, Department of Structural Engineering, MBM Engineering College, JNVU Jodhpur), delivered an expert lecture on "Advanced Concepts in Structural Analysis" in Civil Engineering Department, JIET Jodhpur, on 12th October 2018, 10:15 AM to 12:00 PM for the students of III year (V semester).

We appreciate her for sparing time for this academic concern.

(Prof. (Dr.) K. R. Chowdhary)

Campus Director - JIET



राजस्थान RAJASTHAN

E 627028

कोषालय (शहर)		जोधपुर (राज.)	
15 MAR 2018			
राजस्थान राज्य अधिनियम, 1998 के अन्तर्गत सिविल सेशन वारंट प्रमाणित किया जाता है। 1. अपारम्भिक अवधि: 3.00 बजे, 10/03/2018 2. न्यायाधीश/अधीक्षक न्यायाधीश/अधीक्षक न्यायाधीश (न्यायाधीश) 10/03/2018			

MEMORANDUM OF UNDERSTANDING (MoU)

The term of Memorandum of Understanding [MoU] between All India Institute of Medical Sciences, Jodhpur (Rajasthan) [AIIMS, Jodhpur] and Jai Narain Vyas University, Jodhpur (Rajasthan) [JNVU] is to share the facilities and expertise available and to explore, extend and strengthen the functional collaboration between the two institutions in the areas of Science and Technology. The AIIMS, Jodhpur and JNVU hereby sign a MoU on the terms and conditions stated below:

1. The Research students and faculty members working in AIIMS; Jodhpur and JNVU may visit each other for sharing and utilization of facilities, expertise and for attending special lectures arranged at these centres from time to time.
2. Research students and faculty members shall have access to the research and library at these institutes without any charges.
3. In case required for the smooth functioning of the project, Principal Investigator / Supervisor may jointly opt for Co-Investigator / Co-supervisor from AIIMS, Jodhpur and JNVU as the case may be.

COUNTER SIGNED


REGISTRAR
Jai Narain Vyas University
JODHPUR (Raj.)


Contd.....P2

4. Research students and faculty members working at these Institutes would be permitted to carryout part of their research work at these institutes using the necessary laboratory facilities on recommendations of respective Head of the Institutions.
5. These institutes will provide, if need be, necessary guidance to the Research students and faculty members in the areas of their core competence.
6. The faculty of AIIMS, Jodhpur and faculty of JNVU may apply for collaborative projects jointly to national and international funding agencies within the regulations of respective institutions and will share the facilities at their respective institutes.
7. The research publications out of the jointly supervised work will be authored jointly by the research students and faculty members from both of the institutions. Any patents filed out of such a work will be credited jointly to both of the institutions.

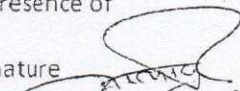
This MoU is signed between All India Institute of Medical Sciences (AIIMS), Jodhpur represented by Mr. Manish Kumar Srivastava, Registrar and Jai Narain Vyas University, Jodhpur represented by Prof. P. K. Sharma (B), Registrar on dated 24.4.18 at Jodhpur.

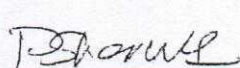
Authorized signatories:


The Registrar on behalf of Jai Narain Vyas University, Jodhpur (Rajasthan)


The Registrar on behalf of All India Institute of Medical Sciences (AIIMS), Jodhpur (Rajasthan)

In presence of

Signature  :
Name: DR. LAL SINGH Rajpurohit
Professor and Head
Zoology Deptt,
J.N.V. Univ, Jodhpur

Signature: 
Name: Dr Baveen Sharma
Dean (Research)

COUNTER SIGNED


REGISTRAR
Jai Narain Vyas University
JODHPUR (Raj.)



राजस्थान RAJASTHAN

AK 728937

MEMORANDUM OF AGREEMENT

This MEMORANDUM OF AGREEMENT is made on this **The 2nd day of July of Two Thousand and Eighteen** BY AND BETWEEN President of India, acting through, Adviser, Department of Biotechnology, Ministry of Science and Technology, Government of India, New Delhi, hereinafter referred to as the 'DBT' (which expression unless excluded by or repugnant to the subject shall mean and include its successor-in-office and assigns) of the ONE PART;

AND

Jai Narain Vyas University (JNVU), Jodhpur, is a State University constituted under section 2 (f) & 12B of the UGC Act, 1956, having its registered office in/at Residency Road, Jodhpur hereinafter referred to as 'JNVU' Jodhpur (which expression shall where the context so admits include its successors and permitted assigns) of the OTHER PART;

WHEREAS DBT being desirous of Agricultural Biotechnology (area of research to be given) decided to support a project submitted by PI Dr. H.S. Gehlot, Department of Botany, J.N.Vyas University, Jodhpur for the attainment of the objectives, hereinafter described in the Annexure I annexed hereto;

This Memorandum of Agreement (MoA) defines the role and responsibilities of the participating agencies, monitoring and other matters related to the "Diversity and molecular characterization of microsymbiont-Legume association in Meghalaya and Nagaland for developing consortia of microsymbionts with wide host range"

COUNTER SIGNED

REGISTRAR

Jai Narain Vyas Uni.
JODHPUR (R)

21- 6-17 8381 0782

[illegible]

Kim

100-361837-2002

NOW THE PARTIES HERETO AGREE AS FOLLOWS: -

1.0 . ROLE OF DEPARTMENT OF BIOTECHNOLOGY, NEW DELHI

To provide funds to the extent of Rs. 37, 20, 996/= (Rupees Thirty Seven Lakh and Twenty Thousand Nine Hundred and ninety Six only) over a period of Three years from the date of sanction of the project, to **Department of Botany, Jai Narain Vyas University, Jodhpur** for undertaking activities as detailed in Annexure 1. Details of the funds to be provided are given in Annexure II.

2.0. ROLE OF DEPARTMENT OF BOTANY, JAI NARAIN VYAS UNIVERSITY, JODHPUR (Institute/NGO)

- 2.1. To provide their contribution of Nil for 3 years from date of sanction of the project as detailed in Annexure – II. *(if a jointly supported project)*
- 2.2 To provide existing facilities as mentioned in the project document.
- 2.3 To be responsible for accomplishing objectives identified and activities listed.
- 2.4 To allow the Scientists authorized by DBT to work with the Research & Development team of the center in all stages of process development and production.
- 2.5 To recruit all scientific and non-scientific staff as sanctioned by DBT.
- 2.6 To prepare and submit all periodical reports and other documents that would be required by DBT.
- 2.7 To maintain a separate audit head of account for the grants received from DBT for the project.
- 2.8 To submit an annual audited statement of expenditure incurred under the project.
- 2.9 To ensure effective utilization of the grant given by DBT for the purpose for which it was granted and to ensure timely progress of project work.
- 2.10 The manpower, both scientific and non-scientific, recruited shall be purely on contractual terms & conditions such that the contract for engagement of the manpower shall run concurrently with the said project period only.

3.0 DURATION OF PROJECT

- 3.1 Duration of project shall be **3 years** from the date the Project has been sanctioned by DBT.

DBT-Twinning Programme for NER 2017-18
Department of Botany
Jai Narain Vyas University, Jodhpur
S. No. BT/PR24584/NER/95/762/2017

COUNTER SIGNED
REGISTRAR
Jai Narain Vyas Univ
JODHPUR (Raj)

4.0 RIGHTS OF OWNERSHIP/TECHNOLOGY TRANSFER AND UTILIZATION

- 4.1 The know-how generated from the project by the **Project PI** will be the joint property of **JNVU, Jodhpur** and **DBT, Government of India**. It shall be the responsibility of **both** to take necessary action for protection of the intellectual property arising out of the **PROJECT** through proper instruments, such as, patents, copy rights, etc.
- 4.2 The know-how developed may be transferred to other entrepreneurs on a non-exclusive basis on such terms and conditions as may be determined by **DBT**.
- 4.3 All the assets including the equipment and produce acquired will be the property of **DBT** and shall not be utilized for purposes other than those for which the grant has been sanctioned. The rights of **Ownership/Technology and Utilization** under this MoA shall not be transferred to any other party without prior approval in writing of **DBT**.
- 4.4 It shall be the responsibility of **PI, Department of Botany, JNVU** to ensure that support of **DBT** is suitably acknowledged in the publications (papers, reports, etc.) arising out of the **PROJECT**.

5.0 SECRECY

It is hereby agreed that the participating agencies shall keep information and data collected completely secret provided that the right to transfer the technology shall rest with the **DBT**.

6.0 MONITORING

- 6.1 The progress of implementation of the project and proper utilization of grant shall be reviewed by the **DBT** and by the Monitoring Committee set up by **DBT**.
- 6.2 The periodic progress of physical achievements and the utilization of funds, statement of expenditure shall be evaluated by the Monitoring Committee.
- 6.3 The Comptroller and Auditor General of India, at his discretion shall have the right of access to the books and accounts of **JNVU, Jodhpur** for the grants received from **DBT** for this project.
- 6.4 The **DBT** may terminate the grant at any stage if it is convinced that the grant has not been properly utilized or appropriate progress has not been made. In the event, **DBT** terminates the grant, **JNVU, Jodhpur** shall hand over all documents including technical details and equipment purchased related to the project.

7.0 DURATION OF MEMORANDUM OF AGREEMENT

This MoA will remain in-force for the duration of the project and until all claims are settled between **DBT** and **JNVU**, Jodhpur.

8.0 ARBITRATION

In the event of any question, dispute or difference whatsoever arising between the parties to this Agreement out of or relating to the construction, meaning, scope, operation or effect of this Agreement or the validity of the breach thereof shall be referred to an Arbitrator to be appointed by mutual consent of both the parties herein. If the parties cannot agree on the appointment of the Arbitrator within a period of one month from the notification by one party to the other of existence of such dispute, then the Arbitrator shall be nominated by the Secretary, Department of Legal Affairs, Ministry of Law & Justice, Government of India. The provisions of the Arbitration and Conciliation Act, 1996 will be applicable and the award made thereunder shall be final and binding upon the parties hereto, subject to legal remedies available under the law. Such differences shall be deemed to be a submission to arbitration under the Indian Arbitration and Conciliation Act, 1996, or of any modifications or reenactments thereof.

9.0. GOVERNING LAW

This Contract shall be governed by the Law of India for the time being in force.

IN WITNESS WHEREOF the parties hereto have signed, sealed and delivered this Agreement on the day, month and year first above written in presence of:

Witnesses:

Signed by -----

1.

(Designation)


2.

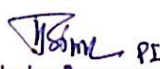
For and on behalf of The President of India

Witnesses:


Signed by -----

1.



(Prof. H.S. G. Bhat)
PI

 PI
DBT-Twinning Programme for NER 2017-18
Department of Botany
Jai Narain Vyas University, Jodhpur
S. No. BT/PR24584/NER/95/762/2017

(Designation) -

COUNTER SIGNED

REGISTRAR
Jai Narain Vyas University
JODHPUR (Raj.)

2.


31/7/18
(Pawan K. Kasera)

For and on behalf of The J.N.Vyas University, Jodhpur

Memorandum of Understanding (MoU)

for

**Technical Collaboration for taking up
Joint Research & Development and Operational Activities**

between

Jai Narain Vyas (JNV) University, Jodhpur

and

**Regional Remote Sensing Centre-West (RRSC-W), Jodhpur
National Remote Sensing Centre (NRSC), ISRO, Dept. of Space**

Signed on this day ____ of May, 2018

Registrar Jai Narain Vyas (JNV) University Residency Road Jodhpur-342011, Rajasthan	Chief General Manager National Remote Sensing Centre (NRSC) ISRO, Dept. of Space, GOI Hyderabad – 500 037
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Memorandum of Understanding

1. PREAMBLE

This Memorandum of Understanding (MoU) is between *Regional Remote Sensing Centre-West (RRSC-W), Jodhpur*, National Remote Sensing Centre (NRSC), ISRO and *Jai Narain Vyas (JNV) University, Jodhpur & its affiliated colleges* with an aim to have partnership for taking up R&D and operational activities in the field of remote sensing applications, mobile apps, Decision Support Systems using GIS modeling, satellite data processing, image classification, data analytics etc.

1.1 Regional Remote Sensing Centre-West (RRSC-W), Jodhpur

Regional Remote Sensing Centre under National Remote Sensing Centre, Hyderabad has prime responsibility of satellite data processing, dissemination and developing applications in the field of remote sensing and GIS. RRSC-W/NRSC caters the need of north western states of the country through applications of geospatial technologies for natural resources management. This regional centre has temporal coverage of various natural resources, the satellite data and wealth of services from these resources. It has acquired large volumes of remote sensing data that may throw new light on how Earth system works, and opens up new challenges in processing, information extraction and mining of this big data to uncover the hidden patterns on earth processes. There is a strong need to develop scalable and efficient algorithms for knowledge extraction from these data sets. Specifically due to these reasons, RRSC-W/NRSC look forward to collaborate in broader research & development and application areas in image processing, data mining, geospatial applications, software engineering and social media.

1.2 Jai Narain Vyas (JNV) University, Jodhpur

Jai Narain Vyas University, formerly known as University of Jodhpur, was established in 1962. It has the onus of transforming life of people of western Rajasthan in particular and western part of the country in general through quality education and programmes of socioeconomic and scientific development. Western Rajasthan has unique geography, geology, history, culture, heritage and environment, fauna and flora. Various aspects have been incorporated in the university curricula to study these assets, and to preserve as well as promote for sustainable development. The university strives to play an important role to study these natural resources, environment as well as biodiversity of this area through implementation of different types of academic and R & D programmes.

Partnership of JNV University, Jodhpur and RRSC-W/NRSC, Jodhpur would go a long way in supporting of geospatial governance through content creation, therefore in consideration of terms and conditions contained herein the parties hereto agree as follows:

2. PARTIES

2.1 Indenting party:

Jai Narain Vyas University, Jodhpur, hereinafter called **JNV University, Jodhpur**.

2.2 Executing party:

Regional Remote Sensing Centre-West, Jodhpur/National Remote Sensing Centre (NRSC), ISRO, Dept. of Space, Govt. of India, hereinafter called as **RRSC-W/NRSC**.

3. AUTHORIZED SIGNATORY

Jai Narain Vyas University, Jodhpur (**JNV University, Jodhpur**) & its affiliated colleges represented by Registrar, (Hereinafter referred to as the **First Party**), and

Regional Remote Sensing Centre-West, Jodhpur/National Remote Sensing Centre (NRSC), ISRO, Department of Space, Government of India, (**RRSC-W/NRSC**) represented by General Manager (Hereinafter referred to as the **Second Party**). The Chief General Manager, National Remote Sensing Centre (NRSC) ISRO, Dept. of Space, GOI, Hyderabad – 500 037 who manages the activities of RRSC-W, Jodhpur will be the authorized signatory.

4. FUNCTIONARIES AND CONTACT ADDRESSES, PHONE, EMAIL

4.1. JNV University , Jodhpur:

Sl. No	Name	Contact Address	Phone / Fax	Email
1	Prof. R. P. Singh	Vice Chancellor Jai Narain Vyas University Residency Road Jodhpur – 342 011	0291-2649465	vcjnvu@gmail.com
2	Prof. P. K. Sharma	Registrar, Jai Narain Vyas University Residency Road Jodhpur – 342 011	0291-2649733	jnvuregistrar1962@gmail.com
3	Prof. S. C. Mathur	Convener, Dept. of Geology Jai Narain Vyas University Residency Road Jodhpur – 342 011	0291-2721947	sureshsushma09@gmail.com

4.2. RRSC-W/NRSC, Jodhpur

Sl.No.	Name	Contact Address	Phone / Fax	Email
1	Dr. S. Srinivasa Rao	General Manager RRSC (West), NRSC/ISRO CAZRI Campus Jodhpur – 342 003	0291-2660801	sitiraju@gmail.com
2	Dr. A. K. Bera	Head Applications RRSC (West), NRSC/ISRO CAZRI Campus Jodhpur – 342 003	0291-2660804	abera70@gmail.com
3	Er. Suparn Pathak	Scientist/Engr. 'SG' RRSC (West), NRSC/ISRO CAZRI Campus Jodhpur – 342 003	0291-2660824	s_pathak@hotmail.com
4	Dr. B. K. Bhadra	Scientist/Engr. 'SG' RRSC (West), NRSC/ISRO CAZRI Campus Jodhpur – 342 003	0291-2660806	bkbhadra63@gmail.com

All correspondence on day to day matters during the course of the project shall be between respective focal points identified in the above table.

5. EFFECTIVE DATE

5.1. Commencement:

This effective date for the commencement of this MoU will be the date of signing of the MoU by RRSC-W/NRSC and JNV University, Jodhpur.

5.2. Duration:

This MoU is valid for a period of 5 years from the date of signing of MoU; and will be extended by mutual consent of the parties in writing.

6. SCOPE OF THE WORK

In light of National Space Meet on “Promoting Space Technology based Tools and Applications in Governance & Development” in New Delhi on 07 September 2015, there is tremendous boost for geospatial technology applications in all ministries at Central and State level. NRSC, ISRO has taken up large number of projects in addition to its own programmes. Hence, collaboration with academic institutions is envisaged to sustain R&D activities and fulfill operational commitments. The activities proposed to be taken-up under this agreement shall have a separate project proposal, wherever financial aspects are involved. Amount, payment conditions, etc. would be spelt out clearly before starting the project activity.

Possible areas of R&D activities may include development, management and conservation of natural resources, environment, ecology, agriculture and allied fields using geospatial technologies, data analytics, mobile application development, geo-tagging, image processing and GIS analysis.

RRSC-W/NRSC and JNV University, Jodhpur recognize their strengths in research and education in disciplines of science and engineering, and their mutual interest in engaging themselves in academic cooperation. Therefore, both parties agree to establish a programme for academic cooperation in areas of mutual interest, and in accordance with terms and conditions set forth in this memorandum of understanding (MoU).

RRSC-W/NRSC and JNV University, Jodhpur agreed on:

- *Joint Research Projects* - Both the parties will permit research activities and joint research projects that can be undertaken in the fields of common interest.
- *Knowledge Sharing* - To exchange information on research and educational programmes.
- *Dissemination of Knowledge* - To jointly organize seminars, conferences, or workshops on topics of mutual interest, and to disseminate of knowledge in the fields of common interest.
- *Utilization of Academic Infrastructure* – Both RRSC-W/NRSC and JNV University will encourage the use of image processing and laboratory facilities whenever necessary. However, this will be subjected to the availability of the facility and approval from the concerned Head of the Department and/or the competent authority.

- **Ph.D. Programme –**

- JNV University will allow Scientist/Engineer, Junior/Senior Research Fellows, Research Associates, Project Scientists working at RRSC-W/NRSC, Jodhpur to register for doctoral programme in the pertinent Faculty of Science/Arts/Engineering/ Management/Commerce/Law, etc. Research work will be jointly supervised by the scientists of RRSC-W/NRSC and faculty of JNV University. Registered Ph.D. candidate will comply with the rules and guidelines of the JNV University for Ph.D. programme.
- RRSC-W/NRSC will allow registered Ph.D. students of JNV University at RRSC-W/NRSC for pursuing mandatory course work as well as thesis work as per Ph.D. regulations of JNV University. Research work will be jointly supervised by the scientist of RRSC-W/NRSC and faculty of JNVU.

7. METHODOLOGY

The technical specifications and methodology of the projects to be taken up will be addressed separately.

8. DELIVERABLES AND GUIDELINES ON DATA / MAP SECURITY

8.1. Deliverables

As per project specifications

8.2. Data Security

Data security as per prevailing Remote Sensing Data Policy would be adhered to. Necessary steps would be taken from both the parties to ensure the data security. In addition, Bhuvan platform would provide necessary infrastructure for ensuring the security of data.

8.3. Guidelines on Data / Map Security

As per prevailing Remote sensing data policy and any other prevailing policies of Government of India relating to the data and maps.

8.4 Working Place

As per the satellite data licensing and security guidelines, the project work will be executed at the campus of RRSC-W/NRSC, Jodhpur.

9. TECHNICAL SPECIFICATIONS:

The required specifications will be given in Standard Operating Procedure of the Project proposal separately.

10. APPLICABLE DOCUMENTS

- A. Remote Sensing Data Policy
- B. Project specific Standard Operating Procedure

11. RESPONSIBILITIES OF EACH PARTY

11.1. RRSC-W/NRSC, Jodhpur:

- RRSC-W/NRSC will collaborate with JNV University, Jodhpur for project specific requirements on case by case basis.
- Execution of modules/components of the ongoing projects of RRSC-W/NRSC through Graduate/Post Graduate students.
- Organizing workshops and conferences together with the expertise of RRSC-W/NRSC scientists related to geospatial technology domains to train, educate and improve understanding of students and staff.
- RRSC-W/NRSC will allow the technical visits of students per its existing policies to provide them with an exposure to various equipment, instrument, processes etc.
- Joint guidance of student projects/thesis in Remote Sensing, GIS & IT based activities
- Collaboration in Research areas of interest to ISRO at JNV University, Jodhpur and RRSC-W/NRSC on mutually agreeable terms.
- RRSC-W/NRSC will allow registered Ph.D. students of JNV University at RRSC-W/NRSC for pursuing mandatory course work as well as thesis work as per the Ph.D. regulations of JNV University. Research work will be jointly supervised by the scientists of RRSC-W/NRSC and faculty of JNV University. Joint guidance of student projects/thesis in GIS & IT based activities.

11.2. JNVU, Jodhpur:

- JNV University will allow Scientist/Engineer, Junior/Senior Research Fellows, Research Associates, Project Scientists working at RRSC-W/NRSC, Jodhpur to register for doctoral programme in the pertinent Faculty of Science/Arts/Engineering/Management/Commerce/Law, subject to availability of seat and the merit of status of the candidate as per Ph.D. regulation of JNV University.
- Research work will be jointly supervised by the scientists of RRSC-W and faculty of JNVUniversity.
- JNV University, Jodhpur takes the responsibility to fulfill the project needs and goals defined as per the specific projects taken up in collaboration with the RRSC-W/NRSC.
- Within its capabilities, the institute will try their utmost best to combine the expertise of different disciplines available in the institute in order to come up with outcomes in the research and development areas of interest withRRSC-W/NRSC. Hereby, they ensure the integral and interdisciplinary approach which is required to cope with its complexity.

12. PROJECT SCHEDULE

As per specific project proposal

13. SCHEDULE OF INSTALLATION, SUPPLY AND ACCEPTANCE TEST

As per specific project proposal

14. CONSIDERATION / SCHEDULE OF PRICES

As per specific project proposal

15. FUNDING & TERMS AND CONDITIONS OF PAYMENT

Financial arrangements for each specific collaboration will be decided on a case-to-case basis and brought on record in each case after due approval from heads of both the Institutions.

16. TRAINING

Project specific training programme will be organized, if required.

17. WARRANTY

As agreed in the project by JNVU, Jodhpur and RRSC-W/NRSC.

18. PROJECT MONITORING

The collaborative program between RRSC-W/NRSC and JNV University, Jodhpur shall be coordinated by a coordination committee appointed by Directors / Authorized signatory of both the parties.

19. CONFIDENTIALITY

The confidentiality of the data / documents or any other materials shall be maintained by both the parties as per the sensitivity defined to it by any prevailing policies.

20. INTELLECTUAL PROPERTY RIGHTS

- The originals of any reports and documents or materials prepared or inventions or information produced as a result of the services and all intellectual property rights therein, unless otherwise specifically stated in the MoU, shall remain with both the parties and either party can commercially exploit the specific IP with permission from the other.
- RRSC-W/NRSC and JNV University, Jodhpur reciprocally guarantee that all technical information and data generated under this MoU shall be treated as confidential and shall not be divulged by either party without prior written consent of the other even after the expiry of this MoU.
- If the outcome of a project related to product development, process technology and design etc. which involves matter of secrecy and concern with security of the State and the Country, the same will not be allowed for publication / printing in any form such as Electronically / verbal, etc. If the outcome of a project results into an intellectual property, for which rights can be secured, it will be decided on case to case basis. Similarly, sharing of expenditure in securing such rights and income accrued through royalty etc. by the parties under the law will be decided on case to case basis after mutual consultation.
- Research supervisors from both the Institutes will be the corresponding authors in any publication resulting from the collaborative work. All the efforts put by the student(s) as a part of this MoU will be accounted for by way of reporting the work in thesis and / or paper publication except the part for which IPR needs be claimed.
- Neither of the supervisors shall publish the work carried out under this MoU without knowledge of the other.

21. CHANGE IN SCOPE OF WORK

Any change in scope of work would be with mutual consent of both the parties.

22. MODIFICATIONS

Any further modifications to this MoU, if required, would be through amendments with mutual consent in writing.

23. FORCE MAJEURE

Neither party shall be held responsible for non-fulfillment of their respective obligation under the agreement due to exigency of one or more of the unforeseen events such as but not limited to Acts of God, war, flood, earthquake, cyclones, strikes, lockouts, epidemics, riots, civil commotion etc. provided on the occurrence and cessation of such events, they effected thereby shall give notice in writing to other party within one month of such occurrence or cessation. If the force-majeure conditions continue beyond six months, the parties shall then mutually decide about the future course of action.

24. INDEMNITY

JNV University and RRSC-W/NRSC shall exercise reasonable skill, care and diligence in the performance of the agreement and indemnify and keep indemnified each other in respect of any loss, damage or claim howsoever arising out of or related to breach of contract, statutory duty or negligence by any of their employees, agents or sub-contractors in relation to the performance or otherwise of the services to be provided under this agreement.

JNV University and RRSC-W/NRSC will indemnify and keep indemnified each other in respect of any loss, damage or claim whatsoever arising out of the use of data hosted by them through the Bhuvan Node server.

25. ARBITRATION

- (i) In the event of any dispute or difference between the parties hereto, such disputes or differences shall be resolved amicably by mutual consultation. If such resolution is not possible, then unresolved dispute or differences shall be referred to arbitration of one of the arbitrators to be appointed by the Director at NRSC, Hyderabad. The venue of such arbitration shall be at Hyderabad. The language of arbitration proceedings shall be English. The arbitrator shall make a reasoned award (the "Award") which shall be final and binding on the parties. The cost of the arbitration shall be shared equally by the parties to the MoU. However, expenses incurred by each party in connection with preparation, presentation should be borne by the parties itself.
- (ii) Pending the submission of and/or decision on a dispute, difference or claim or until the arbitral award is published; the Parties shall continue to perform all of their obligations under this Contract without prejudice to a final adjustment in accordance with such award.

26. JURISDICTION

Place where any dispute arising out by MoU or its terms shall be subject to Hyderabad only.

27. TERMINATION

During the tenure of the agreement, either Party may terminate and nullify this Agreement/MoU by providing prior written notice of 30 days to the other party for any of the reasons - Cause/Convenience/Force Majeure

27.1 Termination for Convenience: For convenience without assigning any reason

27.2 Termination for Cause: For the breach of obligations/responsibilities/conditions of this agreement by the other party, with an opportunity to cure/rectify such a situation within thirty (30) days to the defaulting party and no remedial action is taken to the satisfaction of the aggrieved party.


27.3 Termination for Force Majeure: in the event of "Force Majeure" as defined in this MoU.

27.4 Obligations upon Termination

Following termination or expiration of this Agreement, in addition to any other obligations existing hereunder or otherwise at law or in equity,

- (a) The rights and obligations of the parties thereto shall be settled by mutual discussion; the financial settlement if any shall take into consideration not only the expenditure incurred but also the expenditure committed by the parties hereto.
- (b) The agreement arrived at between the parties hereto for the utilization of the intellectual property (defined in clause #20) shall survive the termination of the agreement.
- (c) Termination shall not affect the projects/ assignments agreed to be undertaken by both the parties before such termination and both the parties should complete such projects/ assignments as if this MoU is in operation.
- (d) On termination, the Partner Institute shall handover the data and disk which were used for processing to the NRSC.

IN WITNESS WHEREOF, the Parties hereto have caused this MoU to be signed in their respective names on this __ day of May, 2018

<p style="text-align: center;">Registrar Jai Narain Vyas (JNV) University Residency Road Jodhpur – 342 011</p> <p>(Seal)</p>	<p style="text-align: center;"> Chief General Manager National Remote Sensing Centre (NRSC) ISRO, Dept. of Space, GOI Hyderabad – 500 037</p> <p style="text-align: center;">(उदय राज/Uday Raj) मु. महाप्रबंधक-क्षे.कें., एनआरएससी CGM (RCs), NRSC</p> <p>(Seal)</p>
<p>Witness:</p> <p>1. Name: Address:.....</p> <p>2. Name: Address:.....</p>	<p>Witness:</p> <p>1. Name: Address:.....</p> <p>2. Name:..... Address:.....</p>

No. BT/PR24584/NER/95/762/2017
GOVERNMENT OF INDIA
MINISTRY OF SCIENCE & TECHNOLOGY
DEPARTMENT OF BIOTECHNOLOGY

Appl. No.: Agri/2017/08

Block 2, 6-8th Floors
CGO Complex, Lodhi Road,
New Delhi- 110 003
Dated: 06/06/2018

ORDER

Sanction of the President is hereby accorded, under Rule 18 of the Delegation of Financial Powers Rules, 1978, for the implementation of the project entitled: "**Diversity and molecular characterization of microsymbiont-Legume association in Meghalaya and Nagaland for developing consortia of microsymbionts with wide host range**" for a period of 3 Year 0 Month at a total cost of Rs. 10526988 (Rupees One Crores Five Lakhs Twenty Six Thousand Nine Hundred and Eighty Eight Only) on the terms and conditions detailed here under:-

2 The Project :

2.1 Title : "**Diversity and molecular characterization of microsymbiont-Legume association in Meghalaya and Nagaland for developing consortia of microsymbionts with wide host range**"

2.2 Details of the Investigators:

Project Coordinator

Prof. Chitta Ranjan Deb

Professor

Department of Botany

Nagaland University

Department of Botany,

Nagaland University, Headquarters: Lumami 798627, Zunheboto,
Nagaland, 798627

Principal Investigators:

M. Asha

Generated through ePromIS

COUNTER SIGNED

Prima
(PE)

Prima

M
REGISTRAR
Jal Narain Vyas University
JODHPUR (Raj.)

Prof. Chitta Ranjan Deb
Professor
Department of Botany
Nagaland University
Department of Botany,
Nagaland University, Headquarters:
Lumami 798627,
Zunheboto, Nagaland, 798627

Prof. Hukam Singh Gehlot
Professor
Botany
Jai Narain Vyas University
Department of Botany, Faculty of
Science, New Campus, Pali Road,
J.N.Vyas University, Jodhpur PIN:
342001, Jodhpur, Rajasthan,
342001

Prof. Satyawada Rama Rao
Professor
Department of Biotechnology and
Bioinformatics
North-Eastern Hill University
Department of Biotechnology &
Bioinformatics,
North-Eastern Hill University,
Shillong 793022,
Shillong, Meghalaya, 793022

CO-PI:

Dr. Asosii Paul
Assistant Professor
Botany
Nagaland University
Department of Botany, Nagaland University,
Lumami-798627, Zunheboto - 798627,
Nagaland

Dr. Nisha Tak
Assistant Professor
Botany
Jai Narain Vyas University
Department of Botany, Faculty of Science, New
Campus, Pali Road, J.N.Vyas University,
Jodhpur, Jodhpur - 342001, Rajasthan

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REGISTRAR
Jai Narain Vyas University
JODHPUR (Raj.)

Dr. Nisha Tak
(PE)

Dr. Asosii Paul

2.3 Objectives:

Overall Objectives:

1. Survey of legumes in the selected sites of Nagaland; Herbarium sheets preparation their digitalization; Collection and storage of germplasm; recording of nodule types and study of nodule anatomy
2. Isolation, purification, phenotypic characterization of Nagaland-RNB strains and assessment of their genetic diversity based on RAPD profiles; Identification and molecular phylogeny based on 16S rRNA and recA gene sequences of N fixing Nagaland-RNB strains.
3. Symbiotic characterization and phylogeny based on nodA/nodC and nifH gene sequences to identify major symbiotic groups of Nagaland-RNB strains.
4. Bio-assay work: To perform authentication and cross-inoculation experiments of Nagaland-RNB strains in glass house for determining their host range. To study nitrogen fixing efficiency using ARA (As recommended by Expert Committee assay to be carried out at NEHU, Shillong).
5. Multi locus sequence analysis studies using protein-coding housekeeping genes (glnII, dnaK, rpoB, gyrB, atpD) of selected Nagaland-RNB strains (screened on the basis of novelty in recA and 16S rRNA gene phylogeny). To perform concatenated phylogenetic analysis based on housekeeping and symbiotic genes.
6. Development of consortium using identified and well characterized efficient nitrogen fixing rhizobial strains having broad host range. Deposition of promiscuous and novel RNB strains at the national microbial depositories

Institute wise Objectives:

Jai Narain Vyas University

1. Survey of legumes in the selected sites of Nagaland; Herbarium sheets preparation their digitalization; Collection and storage of germplasm; recording of nodule types and study of nodule anatomy.
2. Isolation, purification, phenotypic characterization of Nagaland-RNB strains and assessment of their genetic diversity based on RAPD profiles; Identification and molecular phylogeny based on 16S rRNA and recA gene sequences of N fixing Nagaland-RNB strains.
3. Symbiotic characterization and phylogeny based on nodA/nodC and nifH gene sequences to identify major symbiotic groups of Nagaland-RNB strains.
4. Bio-assay work: To perform authentication and cross-inoculation experiments of Nagaland-RNB strains in glass house for determining their host range. To study nitrogen fixing efficiency using ARA (As recommended by Expert Committee assay to be carried out at NEHU, Shillong).
5. Multi locus sequence analysis studies using protein-coding housekeeping genes (glnII, dnaK, rpoB, gyrB, atpD) of selected Nagaland-RNB strains (screened on the basis of novelty in recA and 16S rRNA gene phylogeny). To perform concatenated phylogenetic analysis based on housekeeping and symbiotic genes.
6. Development of consortium using identified and well characterized efficient nitrogen fixing rhizobial strains having broad host range. Deposition of promiscuous and novel RNB strains at the national microbial depositories.

Nagaland University

1. Survey of legumes in the selected sites of Nagaland; Herbarium sheets preparation their digitalization; Collection and storage of germplasm; recording of nodule types and study of nodule anatomy.
2. Isolation, purification, phenotypic characterization of Nagaland-RNB strains and assessment of their genetic diversity based on RAPD profiles; Identification and molecular phylogeny based on 16S rRNA and recA gene sequences of N fixing Nagaland-RNB strains

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Jai Narain Vyas University
JODHPUR (RAJ.)

3. Symbiotic characterization and phylogeny based on nodA/nodC and nifH gene sequences to identify major symbiotic groups of Nagaland-RNB strains.
4. Bio-assay work: To perform authentication and cross-inoculation experiments of Nagaland-RNB strains in glass house for determining their host range. To study nitrogen fixing efficiency using ARA (As recommended by Expert Committee assay to be carried out at NEHU, Shillong).
5. Multi locus sequence analysis studies using protein-coding housekeeping genes (glnII, dnaK, rpoB, gyrB, atpD) of selected Nagaland-RNB strains (screened on the basis of novelty in recA and 16S rRNA gene phylogeny). To perform concatenated phylogenetic analysis based on housekeeping and symbiotic genes.
6. Development of consortium using identified and well characterized efficient nitrogen fixing rhizobial strains having broad host range. Deposition of promiscuous and novel RNB strains at the national microbial depositories

North-Eastern Hill University

1. Survey of legumes in the selected sites of Nagaland; Herbarium sheets preparation their digitalization; Collection and storage of germplasm; recording of nodule types and study of nodule anatomy.
2. Isolation, purification, phenotypic characterization of Nagaland-RNB strains and assessment of their genetic diversity based on RAPD profiles; Identification and molecular phylogeny based on 16S rRNA and recA gene sequences of N fixing Nagaland-RNB strains.
3. Symbiotic characterization and phylogeny based on nodA/nodC and nifH gene sequences to identify major symbiotic groups of Nagaland-RNB strains.
4. Bio-assay work: To perform authentication and cross-inoculation experiments of Nagaland-RNB strains in glass house for determining their host range. To study nitrogen fixing efficiency using ARA (As recommended by Expert Committee assay to be carried out at NEHU, Shillong).
5. Multi locus sequence analysis studies using protein-coding housekeeping genes (glnII, dnaK, rpoB, gyrB, atpD) of selected Nagaland-RNB strains (screened on the basis of novelty in recA and 16S rRNA gene phylogeny). To perform concatenated phylogenetic analysis based on housekeeping and symbiotic genes.
6. Development of consortium using identified and well characterized efficient nitrogen fixing rhizobial strains having broad host range. Deposition of promiscuous and novel RNB strains at the national microbial depositories.

2.4 Time Schedule:

The duration of the project is 3 Year 0 Month from the date of this sanction order.

2.5 Project Cost:

The total cost of the project is Rs. 10526988/- (Rupees One Crores Five Lakhs Twenty Six Thousand Nine Hundred and Eighty Eight Only) as per details given below :

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Institute	Year I	Year II	Year III	Total Cost(Rs.)
1. Jai Narain Vyas University	1908000	910000	902996	3720996
2. Nagaland University	1782000	880000	869996	3531996
3. North-Eastern Hill University	1461000	910000	902996	3273996
Total (Rs.)	5151000	2700000	2675988	10526988

Institute wise details are:

Budget Head	Year I	Year II	Year III	Total(Rs.)
1. Jai Narain Vyas University				
Equipment	998000.00			998000.00
Manpower	360000.00	360000.00	402996.00	1122996.00
Travel	50000.00	50000.00	50000.00	150000.00
Overhead	100000.00	100000.00	100000.00	300000.00
Consumables	350000.00	350000.00	300000.00	1000000.00
Contingency	50000.00	50000.00	50000.00	150000.00
Total (Rs.)	1908000.00	910000.00	902996.00	3720996.00
2. Nagaland University				
Equipment	902000.00			902000.00
Manpower	330000.00	330000.00	369996.00	1029996.00
Overhead	100000.00	100000.00	100000.00	300000.00
Contingency	50000.00	50000.00	50000.00	150000.00
Travel	50000.00	50000.00	50000.00	150000.00
Consumables	350000.00	350000.00	300000.00	1000000.00
Total (Rs.)	1782000.00	880000.00	869996.00	3531996.00
3. North-Eastern Hill University				
Equipment	551000.00			551000.00
Manpower	360000.00	360000.00	402996.00	1122996.00
Consumables	350000.00	350000.00	300000.00	1000000.00

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Travel	50000.00	50000.00	50000.00	150000.00
Overhead	100000.00	100000.00	100000.00	300000.00
Contingency	50000.00	50000.00	50000.00	150000.00
Total (Rs.)	1461000.00	910000.00	902996.00	3273996.00

2.6 Equipment:

The details of the equipment sanctioned for the Implementation of the project at
Annexure-I

2.7 Manpower:

The details of the manpower sanctioned for the Implementation of the project at
Annexure-II

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Dr. Nareln Vyas University
JODHPUR (Raj.)

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3. Head of Account:

The **Non-Recurring** expenditure involved is debitable to:

Demand No. 85	Department of Biotechnology
3425	Other Scientific Research 2018-2019
3425.60	Others (Sub Major Head)
3425.60.200	Assistance to other Scientific Bodies (Minor Head)
3425.60.200.29	Biotechnology Research and Development
3425.60.200.29.17	Assistance for Research and Development
3425.60.200.29.17.35	Grants for creation of capital assets

The **Recurring** expenditure involved is debitable to:

Demand No. 85	Department of Biotechnology
3425	Other Scientific Research 2018-2019
3425.60	Others (Sub Major Head)
3425.60.200	Assistance to other Scientific Bodies (Minor Head)
3425.60.200.29	Biotechnology Research and Development
3425.60.200.29.17	Assistance for Research and Development
3425.60.200.29.17.31	Grants-In-Aid General

4. Terms & Conditions:

Additional Terms and Conditions specific for Twinning R and D program for NER:

- Both NER and Rest of India RoI Institutions scientists should work together for the objectives stated in the sanction of the project and any deviation from this would attract closure of the project at any point of time.
- In the project review meetings, both the PIs from NER and RoI Institutions should participate and make presentation.
- The outcomes of the project such as research papers, patents, copy rights etc. should be made jointly.
- The NER Scientists are to be trained at the collaborating institute appropriately to empower the NER Scientists.
- The project personal such as Research Associate, JRF or SRF, Research Assistant are also to be trained at least once in the collaborating national institute.
- The collaborating institute scientist should visit NER Institutions more frequently to guide NER scientists in design and conduct of experiments.

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Jawahar Vyas University
JODHPUR (Rd.)

- 4.1 The other terms and conditions governing this sanction are attached at Annexure- III.
- 4.2A Memorandum of Agreement (MoA) will be signed between the Department of Biotechnology and the grantee institution on Non-Judicial stamp paper Rs. 100/- in the enclosed format and the second release/installment will be made only after signing of MoA by the grantee institutions and its acceptance by DBT. In case of NGO or Private Institution, MOA signed is mandatory first release. A format of the MoA is enclosed in Annexure-IV
- 4.3The Institute/Agency will keep the whole of the grant in a Bank Account earning Interest, and the interest so earned should be reported to DBT in the Utilisation Certificate and Statement of Expenditure. The Interest so earned will be treated as created to the Institute/Agency and shall be adjusted towards further installment of the grant and or at the time of Final Settlement of Accounts.
- 5.No International Travel will be undertaken from the sanctioned project grant unless specified otherwise.
- 6.The Registrar, Jai Narain Vyas University, Jodhpur, Rajasthan and The Registrar, Nagaland University, Zunheboto, Nagaland and The Registrar, North-Eastern Hill University, Shillong, Meghalaya would be responsible for submission of Statements of Expenditure (SoE), utilization certificates (UC), Assets Certificates, Manpower staffing & expenditure details in prescribed DBT formats to DBT in respect of grants released in this project from time to time.
- 7.PI's of DBT sponsored projects can consider appointment of JRF from Category-II merit list of DBT-BET exam so that candidates can be paid fellowships at par with NET/GATE/BET qualified candidates as per DST OM No. A.SR/S9/Z-09/2012 dated on 21 Oct 2014. However, there is no compulsion on PI's to select candidates for JRF in their projects from Category-II of DBT-BET.
- 8.As per Rule 236 (1) of GFR 2017, the accounts of all Grantee Institutions or Organisations shall be open to inspection by the sanctioning authority and audit, both by the Comptroller and Auditor General of India under the provision of CAG(DPC) Act 1971 and Internal audit by the Principal Accounts Office of the Ministry or Department, whenever the Institution or Organisation is called upon to do so.
- 9.If the Research Project involves biological resource, the obligations under the Biological Diversity Act 2002 as applicable shall be complied with by the Project Investigator, the details of such obligations can be accessed at www.nbaIndia.org
- 10.This Issues under the power delegated to this Department and with the concurrence of IFD vide their SAN No.102/IFD/SAN/348/2018-2019 dated May, 15 2018.
- 11.This sanction order has been noted at serial no. 42-44 in the Register of Grants.


(Dr. Mohd Aslam)
Adviser

To,
The Pay & Accounts Officer,
Department of Biotechnology,
New Delhi - 110 003.

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REGISTRAR
Jai Narain Vyas University
JODHPUR (Raj.)


(PE)



Copy to:

- 1 The Principal Director of Audit (Scientific Departments), DACR Building, New Delhi- 110 002.
- 2 Prof. Chitta Ranjan Deb(Project Co-ordinator), Department of Botany, Nagaland University, Lumami 798 627, Nagaland, India
- 3 The Registrar, Jal Narain Vyas University, Mohanpura Overbridge, Ratanada, Jodhpur - 342003, Rajasthan
- 4 The Registrar, Nagaland University, ., Zunheboto - 798627, Nagaland
- 5 The Registrar, North-Eastern Hill University, P.O: NEHU Campus, Mawkyntoh Umshing,, Shillong - 793022, Meghalaya
- 6 Dr. Asosli Paul, Assistant Professor, Botany, Nagaland University, Department of Botany, Nagaland University, Lumami-798627, Zunheboto - 798627, Nagaland
- 7 Dr. Nisha Tak, Assistant Professor, Botany, Jal Narain Vyas University, Department of Botany, Faculty of Science, New Campus, Pali Road, J.N.Vyas University, Jodhpur, Jodhpur - 342001, Rajasthan
- 8 Prof. Chitta Ranjan Deb, Professor, Department of Botany, Nagaland University, Department of Botany, Nagaland University, Headquarters: Lumami 798627, Zunheboto - 798627, Nagaland
- 9 Prof. Hukam Singh Gehlot, Professor, Botany, Jal Narain Vyas University, Department of Botany, Faculty of Science, New Campus, Pali Road, J.N.Vyas University, Jodhpur PIN: 342001, Jodhpur - 342001, Rajasthan
- 10 Prof. Satyawada Rama Rao, Professor, Department of Biotechnology and Bioinformatics, North-Eastern Hill University, Department of Biotechnology & Bioinformatics, North-Eastern Hill University, Shillong 793022, Shillong - 793022, Meghalaya
- 11 Cash Section, DBT (2 copies).
- 12 Sanction Folder.
- 13 File Copy.

Mohd. Aslam
(Dr. Mohd Aslam)
Adviser

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(PE)

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REGISTRAR
Jal Narain Vyas University
JODHPUR (Ref.)

Annexure -I

Details of the Equipment sanctioned for the implementation of the project titled "Diversity and molecular characterization of microsymbiont-Legume association in Meghalaya and Nagaland for developing consortia of microsymbionts with wide host range":

Jai Narain Vyas University			
SNo.	Name of Equipment	No.	Cost(Rs.)
1.	High Tech Poly house- Size: 16 X 32 feet	1	502000.00
2.	Growth Chamber/Glass house Size: 14' x 10' x 10' : 8' feet (L x W x H on one side : at other side)	1	266000.00
3.	High capacity (1000 lits) vertical refrigerators (1-10 degree Celsius) with stabilizer	1	230000.00
Total			998000.00
Nagaland University			
SNo.	Name of Equipment	No.	Cost(Rs.)
1.	96 well Gradient Thermal Cycler with 2 KVA UPS	1	402000.00
2.	Electrophoresis systems with power pack (4 channel power supply) and accessories (gel caster, gel tray, combs etc)	1	160000.00
3.	-20 Degree Celsius Deep Freezer (Vertical) with stabilizer	1	160000.00
4.	1-10 Degree Celsius Laboratory Freezer with stabilizer (625 lits)	1	180000.00
Total			902000.00
North-Eastern Hill University			
SNo.	Name of Equipment	No.	Cost(Rs.)
1.	Gas Chromatograph (GC) for Acetylene Reduction Assay (ARA)	1	551000.00
Total			551000.00

Mohd. Aslam
(Dr. Mohd Aslam)
Adviser

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Jai Narain Vyas University
JODHPUR (RAJ.)

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Annexure -II

Details of the manpower sanctioned for the implementation of the project titled "Diversity and molecular characterization of microsymbiont-Legume association in Meghalaya and Nagaland for developing consortia of microsymbionts with wide host range":

Head	No. of Position	Year I	Year II	Year III	Total (Rs.)
1. Jal Narain Vyas University					
Junior Research Fellow Rs. 25000.00 (1st and 2nd year), Rs. 28,000.00 3rd year + 20% HRA	1	360000.00	360000.00		720000.00
Senior Research Fellow Rs. 25000.00 (1st and 2nd year), Rs. 28,000.00 3rd year + 20% HRA	1			402996.00	402996.00
Total(Rs.)		360000.00	360000.00	402996.00	1122996.00
2. Nagaland University					
Junior Research Fellow Manpower + 10% HRA	1	330000.00	330000.00		660000.00
Senior Research Fellow Manpower + 10% HRA	1			369996.00	369996.00
Total(Rs.)		330000.00	330000.00	369996.00	1029996.00
3. North-Eastern Hill University					
Junior Research Fellow Rs. 25000.00 (1st and 2nd year), Rs. 28,000.00 3rd year + 20% HRA	1	360000.00	360000.00		720000.00
Senior Research Fellow Rs. 25000.00 (1st and 2nd year), Rs. 28,000.00 3rd year + 20% HRA	1			402996.00	402996.00
Total(Rs.)		360000.00	360000.00	402996.00	1122996.00

Emoluments detail of research personal(s) mentioned in table(s) of Annexure-II shall be applicable only if candidate(s) met educational qualification and eligibility criteria as per DST OM No.SR/S9/Z-09/2012 dated 21.10.2014.

Mohd. Aslam
(Dr. Mohd Aslam)
Adviser

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REGISTRAR
Jal Narain Vyas Univ
JODHPUR (Raj)



शुष्क वन अनुसंधान संस्थान

(भारतीय वानिकी अनुसंधान एवं शिक्षा परिषद्
पर्यावरण एवं वन मंत्रालय, भारत सरकार की स्वायत्तशासी संस्था)
आकषर : कृषि उपज मंडी, न्यू पाली रोड, जोधपुर - 342004

ARID FOREST RESEARCH INSTITUTE

(Indian Council of Forestry Research & Education,
An Autonomous Body of the Ministry of Environment & Forests, Govt of India)
PO : Krishi Upaj Mandi, New Pali Road, Jodhpur - 342005

No. **763**/5(110)/FPD/AFRI/2018

Dated: 22 January, 2019

TO WHOMSOEVER IT MAY CONCERN

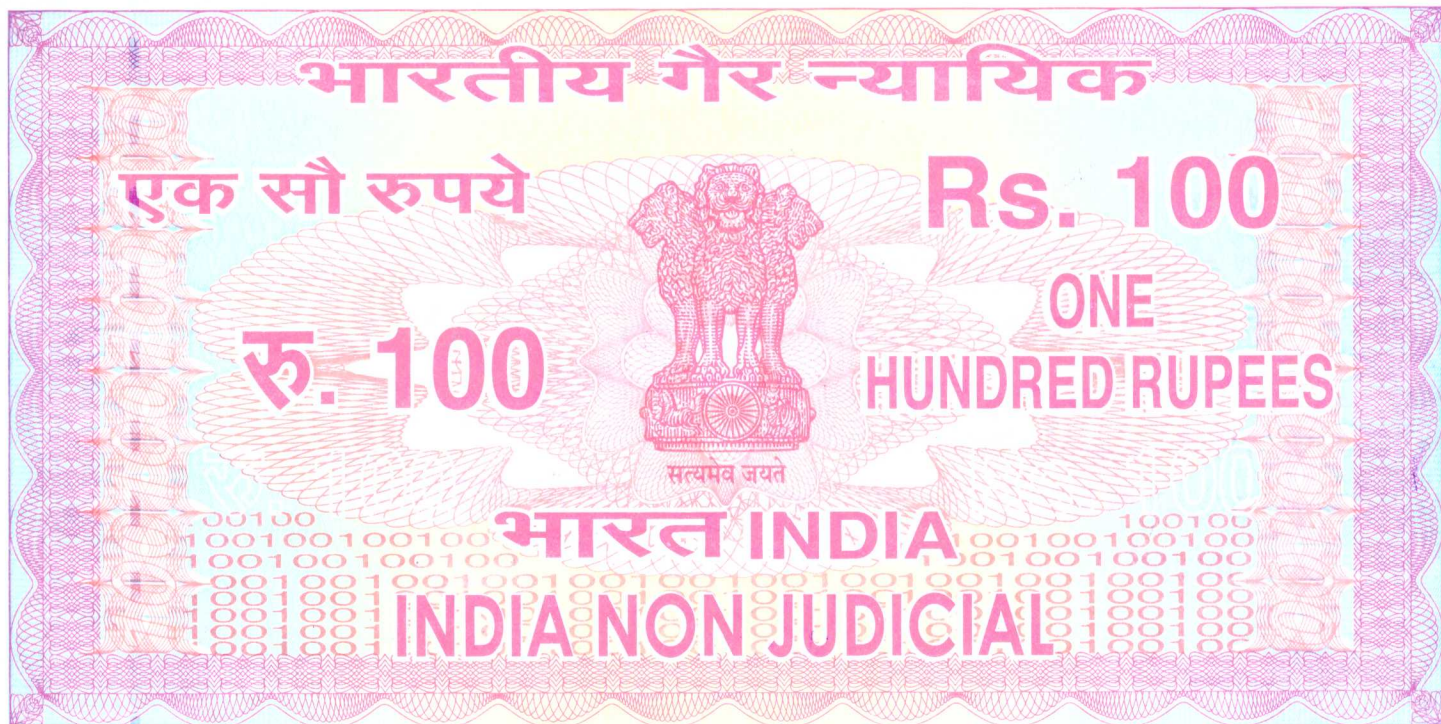
This is to certify that **Dr. Archana Bohra Gupta**, associate professor, Department of Structural Engineering, M.B.M Engineering College, Jai Narain Vyas University, Jodhpur, delivered lecture on the topics "**Inventorisation of Construction and demolition waste**" and "**Collection, transport and disposal**" on January 22nd 2019 from 10.00 A.M to 1.00 P.M, in the Green Skill Development Programme on "Waste Management" organized by Arid Forest Research Institute, Jodhpur.

Thanking You,

(Dr. Sangeeta Singh)

Scientist-E, Forest Protection Division &

Course Coordinator for GSDP on waste management



राजस्थान RAJASTHAN

AS 106203



MEMORANDUM OF UNDERSTANDING (MOU) FOR ACADEMIC COLLABORATION

BETWEEN

Dr. Krishna Saharan, AGRICULTURE UNIVERSITY JODHPUR

AND

Dr. Nisha Tak, JAI NARAIN VYAS UNIVERSITY, JODHPUR

This MoU is entered into on the 24th day of April, 2019 by and between **Dr. Krishna Saharan**, Assistant Professor at Agriculture University Jodhpur (hereinafter called AUJ) situated at Mandor, Jodhpur (Rajasthan) established by the State Govt. Act. No. 21 of 2013

Dr. Nisha Tak, Assistant Professor at Jai Narain Vyas University (hereinafter called JNVU), Jodhpur, a State University constituted under section 2 (f) & 12B of the UGC Act, 1956, having its registered office in/at Residency Road, Jodhpur.

The aforesaid Universities are hereinafter referred to individually as *University* and collectively as *Universities*.

This Memorandum of understanding (MoU) defines the academic role and responsibilities of the participating investigators of the project titled **“Bio-Fertilizer efficacy on important Pulses and arid Legumes; Development of Mass Production Strategies & Bio-Formulations.”** to be submitted to DST, government of India.

Ksahan

[Signature]

[Signature]

[Signature]

1. The objectives of the MoU are to promote:

- i) Joint research activities under DST project
- ii) Exchange of academic and research (non-transgenic) materials and other information under DST project

2. Technical areas of collaboration

- i) To provide academic interaction by delivering special lectures at AUJ/ Department of Botany, JNVU on topics related to Microbiology and Biotechnology.
- ii) To provide necessary help in organizing short term training to the manpower sanctioned under DST project at AUJ/BNF and Microbial Genomics Lab., Department of Botany, JNVU for enhancement of skills.
- iii) Usage of academic infrastructure of AUJ/BNF and Microbial Genomics Lab., Department of Botany, JNVU by the manpower sanctioned under DST project
- iv) Joint supervision of PG thesis/ dissertation work as per the norms of AUJ and JNVU.

3. Proposed mode of Collaboration

Dr. Krishna Saharan and Dr. Nisha Tak propose to collaborate through the following:

- i) As per the expertise available training to students will be provided depending upon the availability of resources under DST project.
- ii) Role & responsibility of collaborators under the submitted DST project will be as following:

	Role	Responsibility
Principal Investigator at Implementing Organization: Dr. Krishna Saharan	<ol style="list-style-type: none">1. Study the effect of consortium bio-fertilizers (PGPRs, AMF and N-fixing rhizobia) on growth, yield and quality of pulses and arid legume crops in glass house and field conditions.2. Evaluate new isolated rhizobium consortia for growth promotion on chosen pulses and legume cultivars in glass house conditions.3. Optimize a culture media for cost effective Mass Production and Develop Bio-formulations of isolated rhizobium strains	PI will extend all types of basic research related to Bio-fertilizers effect on selected crops; will conduct development of bio-formulation; will share her expertise related to mass production technology, culture media optimization through statistic approach (PBD & RSM); qualitative and quantitative analysis of metabolites; identification of new antifungal compound etc.
Collaborator at JNVU: Dr. Nisha Tak	<ol style="list-style-type: none">1. Isolation and characterization of novel rhizobium strains from selective arid crop legumes	Co-PI will extend all types of basic training related to rhizobium technology;



	2. Screening of efficient N fixing crop-rhizobia using cross-inoculation experiments	Will share her expertise related to characterization (phenotypic, biochemical, molecular levels) of RNB strains and Glass house-pot experiments for cross inoculation studies.
--	--	--

4. Terms and conditions

- i) The cost of infrastructure development at AUJ should be borne by AUJ. No financial arrangements will be made by JNVU if DST sanctions this project.
- ii) Usage of AUJ / BNF and Microbial Genomics Lab., Department of Botany, JNVU academic infrastructure can be allowed, subject to its availability, approval of the respective Head of the facility/ department and/or respective University norms.
- iii) This cooperative endeavor work shall not demand any additional consumables from the Botany Department store/JNVU.
- iv) This MoU may be amended, renewed and terminated by mutual written agreement of Dr. Krishna Saharan and Dr. Nisha Tak at any time.

5. Confidentiality

- i) Dr. Krishna Saharan and Dr. Nisha Tak agree to hold in confidence all information/data designated by the Universities as being confidential which is obtained from either *University* or created during the performance of the MoU and will not disclose the same to any third party without consent of the other *University*.
- ii) The above confidential clause under the MoU excludes the information/data possessed by either *University* before entering into this MoU or independently developed and/or information already available through public domain.

6. Duration of MoU

This MoU, unless extended by mutual written consent of the Dr. Krishna Saharan and Dr. Nisha Tak, shall expire in five years after the effective date specified in the opening paragraph. However, on review, the MoU shall be extended for another two years on mutual consent.

7. Intellectual Property Rights

The intellectual property (IPR) rights that arise as a result of joint research and collaborative activity under this submitted DST project the agreement will be worked out on a case to case basis and will be consistent with officially laid down IPR policies of the two *Universities*.

The know-how generated from this submitted DST project by the **Project PI** (Dr. Krishna Saharan) and **Co-PI** (Dr. Nisha Tak) will be the joint property of AUJ and JNVU.

Ksah

[Signature]

Nisha

[Signature]

It shall be the responsibility of **both investigators** to take necessary action for protection of the intellectual property arising out of this DST PROJECT through proper instruments, such as, patents, copy rights, etc.

By signing below, Dr. Krishna Saharan and Dr. Nisha Tak have caused this Memorandum of Understanding to be executed, effective as of the day and year first written above.



Dr. Krishna Saharan
Agriculture University, Jodhpur
Assistant Professor (Microbiology)
College of Agriculture, Jodhpur
Rajasthan-342304



Dr. Nisha Tak
Jai Narain Vyas University, Jodhpur
Assistant Professor
Department of Botany
Jai Narayan Vyas University
JODHPUR

Representatives from Institute/University:



Prof. Ummed Singh
Dean
College of Agriculture
Agriculture University, Jodhpur

Dean
College of Agriculture
Mandor, Jodhpur (Raj.)-342304



Prof. Pawan K Kasera
Head of Department
Department of Botany
Jai Narain Vyas University, Jodhpur

PROFESSOR & HEAD
DEPARTMENT OF BOTANY
J. N. VYAS UNIVERSITY
JODHPUR-342005 (RAJ.)

RESEARCH ARTICLE

Dual Inhibition of DPP-4 and Cholinesterase Enzymes by the Phytoconstituents of the Ethanolic Extract of *Prosopis cineraria* Pods: Therapeutic Implications for the Treatment of Diabetes-associated Neurological Impairments

Heera Ram^{1,*}, Noopur Jaipal¹, Pramod Kumar¹, Purbajyoti Deka³, Shivani Kumar², Priya Kashyap², Suresh Kumar², Bhim Pratap Singh³, Abdulaziz A. Alqarawi⁴, Abeer Hashem^{5,6}, Baby Tabassum⁷ and Elsayed Fathi Abd Allah⁴

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Abstract: Background: Insulin resistance causes decreased uptake of glucose which promotes the susceptibility of type 2 associated neurological impairments.

Methods: The study was aimed to evaluate the inhibition potential of the ethanolic extract of *Prosopis cineraria* (EPC) pods against DPP-4 and cholinesterase enzymes by *in-vitro*, *in-vivo* and *in-silico* assessments. The present study consists of *in vivo* studies on a diabetes-induced rat model by HOMA (Homeostasis model assessment) and related parameters, *in vitro* studies through the DPP-4 enzyme assay and cholinesterase assays using Ellman's reaction. The *in-silico* studies were conducted by the molecular docking of Cinerin C with targeted enzymes. The phytochemical characterization of the extract was demonstrated through LCMS studies. The antioxidant studies on the extract were performed by FRAP and TEAC assays.

Results: The extract showed 64.8% maximum inhibition of DPP-4, 34.91% inhibition of AChE and 74.35% inhibition of BuChE. The antioxidant capacity of the extract was observed to be $847.81 \pm 16.25 \mu\text{M Fe}^{2+}$ equivalent in the FRAP assay and 0.40 ± 0.08 mmol/l of Trolox equivalent in the TEAC assay. The *in vivo* study showed competent glycaemic control against significant HOMA IR (1.5), HOMA % β (26.5) and HOMA % S (68.8) as well as pancreatic cell mass proliferation. The *in-silico* analysis also revealed positive interactions of Cinerin C with targeted enzymes (DPP4 and cholinesterase).

Conclusion: It can be concluded that the phytoconstituents of *Prosopis cineraria* pod extract can be significantly considered in neuropharmacology to resolve insulin resistance-induced neurological complications as it showed inhibition against DPP-4, AChE and BuChE target enzymes.

Keywords: *Prosopis cineraria*, diabetes mellitus, Alzheimer's disease, DPP-4, acetylcholinesterase (AChE), butyrylcholinesterase (BuChE).

1. INTRODUCTION

The occurrence of diabetes mellitus (DM) and Alzheimer's disease (AD) is increasing worldwide [1]. Insulin resistance is considered as the main cause of type 2 diabetes mellitus (T2DM) which causes fluctuations in blood sugar levels and potential complications, such as neurodegenera-

tion and cognitive impairments [2]. The rise in blood sugar levels in diabetic patients can be controlled through the commercially available medications, however, complications can persist even after abnormal glucose levels are controlled, which makes effective treatment more challenging [3]. A recent study suggested that insulin desensitization in the brain may be one of the causes of neurodegeneration and numerous reports have identified T2DM as a potential causative factor for the neurodegeneration associated with AD [4]. Previous studies demonstrated that there was a strong asso-

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Eminent Speakers

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Dr. Mahendra Bhadu, GEC, Bikaner

Who can attend?

A potential participant would be the Faculty Members of Electrical Engineering.

For Correspondence

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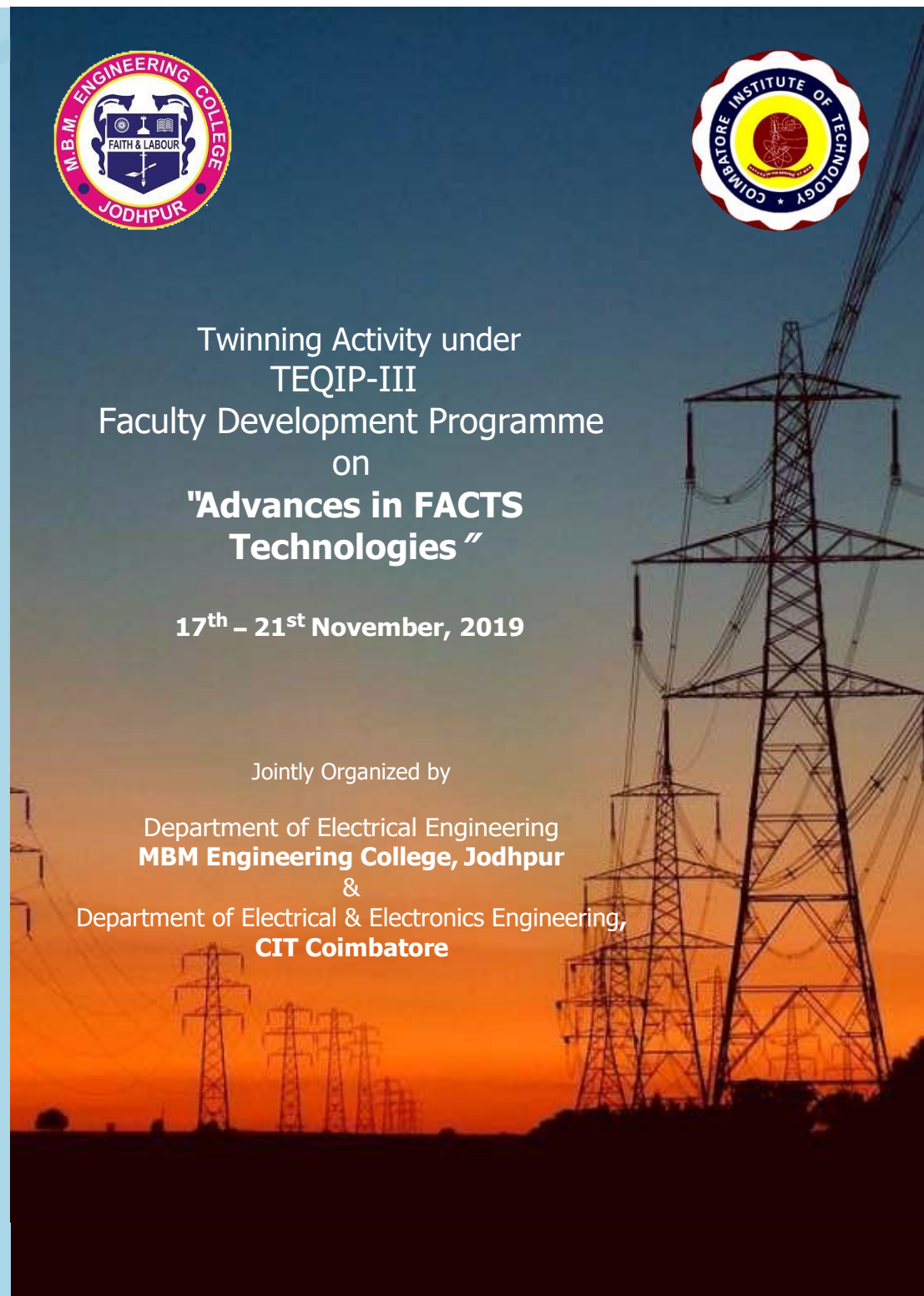


Twinning Activity under TEQIP-III Faculty Development Programme on "Advances in FACTS Technologies"

17th – 21st November, 2019

Jointly Organized by

Department of Electrical Engineering
MBM Engineering College, Jodhpur
&
Department of Electrical & Electronics Engineering,
CIT Coimbatore



About the Organizers

MBM Engineering College is one of the oldest colleges in India. It was established on 15 August 1951, by the Government of Rajasthan and offers the degrees of Bachelor of Engineering in thirteen disciplines, Master of Engineering and Doctor of Philosophy (Ph.D.). The college is committed to providing its students with quality education and promotes rigorous academic study in ambitious, integrated and influential environment that will best serve the society and the nation.

CIT is one of the most reputed and prestigious educational institutions in South India since 1956. The V. Rangasamy Naidu Educational Trust devoted to the cause of promoting technical and scientific literacy, established Coimbatore Institute of Technology (CIT) in 1956. The Institute backed by World Class research and development attained autonomous status in 1987 and is affiliated to the Anna University. The Institute boasts of strong academic-industrial interaction and a high quality of research and consultancy. CIT, managed by a pedigreed lineage for the past 50 years, enjoys national repute. The Institute has the services of competent qualified faculty, and visionary management to enhance the quality of education at all levels and maintain its position in emerging global scenario.

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Power system operation and its control play a very important role in the world of Electrical Engineering. The electrical utility industry is probably the largest and the most complex industry in the world. Challenging problems are required to be handled continuously by power engineers particularly, in designing futuristic power system to deliver increasing amounts of electrical energy. This calls for perfect understanding, analysis and fast decision making for efficient operation and control of the system. FACTS have emerged as an area of cutting edge research and development for secure and safe operation of the power system with assurance of power quality.

This programme is specifically designed for continuous education of faculty members in order to further enlighten their understanding of FACTS devices technologies and their application. This programme will familiarize them with the FACTS devices and custom power devices alongwith active/reactive power control. This programme will also provide hands on experience to motivate faculty members to pursue innovative research in this emerging area.

Registration link: shorturl.at/euCT5



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Schedule of 5 day FDP on Advances in FACTS Technologies

Day-1 (17/11/2019)		
S.No.	Time	Topics Covered
1.	9:00 AM- 10:30 AM	Inauguration
2.	10:30AM-10:45 AM	Break
3.	10:45 AM- 12:15 PM	Introduction to FACTS and its application: Dr. Vasantharathna (Head, EEE, CIT Coimbatore)
4.	12:15 PM- 1:15 PM	Lunch break
5.	1:15 PM- 2:45 PM	An introduction to Power Quality: Dr. E. Chandra Sekiran (Professor, CIT Coimbatore)
6.	2:45 PM- 3:00 PM	Break
7.	3:00 PM – 4:30 PM	Prof. Kothari

Day-2 (18/11/2019)		
S.No.	Time	Topics Covered
1.	9:00 AM- 10:30 AM	Custom Power Devices: Development of Dynamic Voltage Restorer : Dr. E. Chandra Sekiran (Professor, CIT Coimbatore)
2.	10:30AM-10:45 AM	Break
3.	10:45 AM- 12:15 PM	
4.	12:15 PM- 1:15 PM	Lunch break
5.	1:15 PM- 2:45 PM	
6.	2:45 PM- 3:00 PM	Break
7.	3:00 PM – 4:30 PM	Lab Session: Power Quality Analyzer : Dr. E. Chandra Sekiran (Professor, CIT Coimbatore)

Day-3 (19/11/2019)		
S.No.	Time	Topics Covered
1.	9:00 AM- 10:30 AM	Power Quality and Reactive Power Management: Er. Chandra Sekar (AGM BHEL Bengalore)
2.	10:30AM-10:45 AM	Break
3.	10:45 AM- 12:15 PM	Power Quality and Reactive Power Management: Er. Chandra Sekar (AGM BHEL Bengalore)
4.	12:15 PM- 1:15 PM	Lunch break



(TEQIP – III)
M.B.M. Engineering College
Faculty of Engineering and Architecture, J.N.V. University Jodhpur.



5.	1:15 PM- 2:45 PM	
6.	2:45 PM- 3:00 PM	Break
7.	3:00 PM – 4:30 PM	

Day-4 (20/11/2019)		
S.No.	Time	Topics Covered
1.	9:00 AM- 10:30 AM	HVDC back to back converters: Er. Chandra Sekar (AGM BHEL Bangalore)
2.	10:30AM-10:45 AM	Break
3.	10:45 AM- 12:15 PM	Practical aspects of HVDC and substations: Er. Chandra Sekar (AGM BHEL Bangalore)
4.	12:15 PM- 1:15 PM	Lunch break
5.	1:15 PM- 2:45 PM	
6.	2:45 PM- 3:00 PM	Break
7.	3:00 PM – 4:30 PM	

Day-5 (21/11/2019)		
S.No.	Time	Topics Covered
1.	9:00 AM- 10:30 AM	Transient stability improvement using FACTS
2.	10:30AM-10:45 AM	Break
3.	10:45 AM- 12:15 PM	
4.	12:15 PM- 1:15 PM	Lunch break
5.	1:15 PM- 2:45 PM	Lab Session
6.	2:45 PM- 3:00 PM	Break
7.	3:00 PM – 4:30 PM	Valedictory function



Twinning Activity under
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on



Advances in FACTS Technologies"

17th - 21st November, 2019

Organisers:

Department of Electrical Engineering
MBM Engineering College, Jodhpur
&

Department of Electrical & Electronics
Coimbatore Institute of Technology

Seminar Hall, MBM Engineering College

Prof. Avdesh Sharma
Coordinator FDP

Prof. S. K. Parthasarathy
Presiding Guest

18th June 2019

CERTIFICATE OF SANCTION

This is to certify that a Research Proposal entitled, “**Design & Implementation of IoT Based System for Condition Monitoring of Distribution Transformer**” has been approved under “**TEQIP Collaborative Research Scheme**” to the team of following Collaborators:

1	Mr. DEEPAK PATEL	Principal Investigator	MBM Engineering College, Jodhpur
2	Dr. (Mrs.) JAYASHRI VAJPAI	Co-Principal Investigator	MBM Engineering College Jodhpur
3	Dr. KHALEEQUR REHMAN NIAZI	Co-Principal Investigator	Malaviya National Institute of Technology, Jaipur
4	Dr. (Mrs.) S. SUJA	Co-Principal Investigator	Coimbatore Institute of Technology, Coimbatore
5	Ms. KHUSHBOO SHAH	Co-Principal Investigator	MBM Engineering College, Jodhpur

A grant of **₹1581000** (*Rupees Fifteen Lakh Eighty One Thousand Only*) has been sanctioned for the project, as per following details:

S.No.	Expenditure Head	Sanctioned Amount (₹)
1	Non-recurring	1139333
2	Recurring	
	(i) Domestic Travel	133333
	(ii) Contingencies	83333
	(iii) Consumables	150000
	(iv) Miscellaneous	75000
	Total	1581000

The project is to be completed with expected outcomes achieved on or before 30th Sept 2020.



Prof. (Dr.) P M Khodke
Central Project Advisor



Saurabh Chopra <saurabhchopra567@gmail.com>

Release of revised Sanction Certificate and Advance Installment of CRS Project funds (CRS Application ID: 1-5728654504)**Anusha Gupta** <anusha.teqip@gmail.com>

Fri, Aug 14, 2020 at 1:52 PM

To: Saurabh Chopra <saurabhchopra567@gmail.com>

Cc: SPIU RAJASTHAN <spiu.rajasthan@gmail.com>, NPIU MHRD <npiu-mhrd@gov.in>, CPA NPIU <cpa.npiu@gmail.com>, rekha choudhary <rekhaparth2003@yahoo.co.in>

Dear Sir,

With reference to your email, as per the attached institute approved application and based on the recommendations from the domain experts in review-2, the budget is revised as follows:

Subtotal Non-Recurring Amount Recommended	Domestic Travel Amount Recommended	Contingencies Amount Recommended	Consumables Amount Recommended	Miscellaneous Amount Recommended	Total Amount (Round-off)
1,482,396	75,000	50,000	66,667	36,667	1,710,730

Furthermore kindly refer CRS guidelines 2.0 clause 2.7 point a) for Sanction letter.

SPIU, kindly verify the procurement plan submitted by the PI.

Regards,

Anusha Gupta

Consultant

National Project Implementation Unit (NPIU)

(A unit of Ministry of HRD, Govt of India)

Copia Corporate Suites

301-302, 3rd Floor,

Jasola Vihar New Delhi - 110025

On Wed, Jun 10, 2020 at 1:58 PM Saurabh Chopra <saurabhchopra567@gmail.com> wrote:

[Quoted text hidden]

18th June 2019

CERTIFICATE OF SANCTION

This is to certify that a Research Proposal entitled, “**Path Tracking Control of All-Terrain Rover (ATR) with manipulator under Actuator Failure Conditions.**” has been approved under “**TEQIP Collaborative Research Scheme**” to the team of following Collaborators:

1	Mr. SAURABH CHOPRA	Principal Investigator	MBM Engineering College, Jodhpur
2	Dr. JAYASHRI VAJPAI	Co-Principal Investigator	M.B.M. Engineering College, Jodhpur
3	Dr. MANAVAALAN GUNASEKARAN	Co-Principal Investigator	Coimbatore Institute of Technology
4	Dr. ALOK SINGH GAHLOT	Co-Principal Investigator	M.B.M. Engineering College, Jodhpur
5	Mr. ADITYA KACHHWAHA	Co-Principal Investigator	MBM Engineering College Jodhpur

A grant of ₹**1100000** (*Rupees Eleven Lakh Only*) has been sanctioned for the project, as per following details:

S.No.	Expenditure Head	Sanctioned Amount (₹)
1	Non-recurring	872000
2	Recurring	
	(i) Domestic Travel	75000
	(ii) Contingencies	50000
	(iii) Consumables	66667
	(iv) Miscellaneous	36667
	Total	1100000

The project is to be completed with expected outcomes achieved on or before 30th Sept 2020.



Prof. (Dr.) P M Khodke
Central Project Advisor



JAI NARAIN VYAS UNIVERSITY, JODHPUR
(DEVELOPMENT SECTION)

No.: JNVU/Dev./2019/1825

Date: 19/06/19

Dr. Archana Bohra Gupta
Associate Professor
Department of Structural Engineering
Faculty of Engineering
Jai Narain Vyas University
Jodhpur

Sub.: Co PI for the project of Ms. Kiran Bhoot.

Ref.: Your letter No. JNVU/FE/PSE/2019/907 dated 30/05/2018.

Madam,

With reference to above, the Hon'ble Vice-Chancellor has been please to permit you to act as a Collaborative Principal Investigator of the Research Project entitled "Manufacturing of Paver Blocks Using plastic Waste" sanctioned to Mrs. Kiran Bhoot, Associate professor, Department of Civil Engineering, Jodhpur Institute of Engineering and Technology (JIET) .


OFFICER-IN-CHARGE

Copy to:

1. The Head, Department of Structural Engineering, M.B.M. Engg. College, Jai Narain Vyas University, Jodhpur
2. Mrs. Kiran Bhoot, Associate professor, Department of Civil Engineering, Jodhpur Institute of Engineering and Technology (JIET) .


OFFICER-IN-CHARGE
Shankar. O/C

18th June 2019

CERTIFICATE OF SANCTION

This is to certify that a Research Proposal entitled, “**Development of Energy management Scheme to utilize Hybrid source for efficient working of EV**” has been approved under “**TEQIP Collaborative Research Scheme**” to the team of following Collaborators:

1	Mr. ADITYA KACHHWAHA	Principal Investigator	MBM Engineering College, Jodhpur
2	Dr. AKHIL RANJAN GARG	Co-Principal Investigator	M.B.M. Engineering College, Jodhpur
3	Dr. DEEPAK M FULWANI	Co-Principal Investigator	Indian Institute of Technology, Jodhpur
4	Dr. E. CHANDIRA SEKARAN	Co-Principal Investigator	Coimbatore Institute of Technology, Coimbatore
5	Mr. MUKESH KUMAR	Co-Principal Investigator	M.B.M. Engineering College, Jodhpur

A grant of **₹1565000** (*Rupees Fifteen Lakh Sixty Five Thousand Only*) has been sanctioned for the project, as per following details:

S.No.	Expenditure Head	Sanctioned Amount (₹)
1	Non-recurring	1173333
2	Recurring	
	(i) Domestic Travel	116667
	(ii) Contingencies	133333
	(iii) Consumables	100000
	(iv) Miscellaneous	41667
	Total	1565000

The project is to be completed with expected outcomes achieved on or before 30th Sept 2020.



Prof. (Dr.) P M Khodke
Central Project Advisor

18th June 2019

CERTIFICATE OF SANCTION

This is to certify that a Research Proposal entitled, “**Design and Development of Film Bulk Acoustic Resonator as a platform**” has been approved under “**TEQIP Collaborative Research Scheme**” to the team of following Collaborators:

1	Dr. RAJU PATEL	Principal Investigator	MBM Engineering College, Jodhpur
2	Prof. RAJESH BHADADA	Co-Principal Investigator	MBM Engineering College, JNV University, Jodhpur
3	Prof. KAMALJIT RANGRA	Co-Principal Investigator	IIT Jodhpur
4	Prof. D. BOOLCHANDANI	Co-Principal Investigator	MNIT, Jaipur
5	Dr. DEEPAK BANSAL	Co-Principal Investigator	KJ Rangra

A grant of ₹**1638000** (*Rupees Sixteen Lakh Thirty Eight Thousand Only*) has been sanctioned for the project, as per following details:

S.No.	Expenditure Head	Sanctioned Amount (₹)
1	Non-recurring	1170000
2	Recurring	
	(i) Domestic Travel	121667
	(ii) Contingencies	128333
	(iii) Consumables	170000
	(iv) Miscellaneous	48333
	Total	1638000

The project is to be completed with expected outcomes achieved on or before 30th Sept 2020.



Prof. (Dr.) P M Khodke
Central Project Advisor

18th June 2019

CERTIFICATE OF SANCTION

This is to certify that a Research Proposal entitled, “**GROUNDWATER QUALITY ASSESSMENT IN JODHPUR CITY, RAJASTHAN**” has been approved under “**TEQIP Collaborative Research Scheme**” to the team of following Collaborators:

1	Dr. JYOTI CHAUBEY	Principal Investigator	MBM Engineering College, Jodhpur
2	Dr.SURESH SINGH	Co-Principal Investigator	MBM Engineering College, Jodhpur
3	Dr.C. S. P. OJHA	Co-Principal Investigator	IIT Roorkee
4	Mr. HIMANSHU ARORA	Co-Principal Investigator	MBM Engineering College, Jodhpur
5	Mr. VARUN	Co-Principal Investigator	MBM Engineering College, Jodhpur

A grant of **₹805000** (*Rupees Eight Lakh Five Thousand Only*) has been sanctioned for the project, as per following details:

S.No.	Expenditure Head	Sanctioned Amount (₹)
1	Non-recurring	491833
2	Recurring	
	(i) Domestic Travel	183333
	(ii) Contingencies	75000
	(iii) Consumables	41667
	(iv) Miscellaneous	13333
	Total	805000

The project is to be completed with expected outcomes achieved on or before 30th Sept 2020.



Prof. (Dr.) P M Khodke
Central Project Advisor

18th June 2019

CERTIFICATE OF SANCTION

This is to certify that a Research Proposal entitled, “**Regionalization of Hydrological model parameters for Indian rivers**” has been approved under “**TEQIP Collaborative Research Scheme**” to the team of following Collaborators:

1	Mr. ANKUSH GUPTA	Principal Investigator	MBM Engg College, Jodhpur
2	Mr. UMESH KUMAR	Co-Principal Investigator	M.B.M. Engineering College, Jodhpur
3	Mr. RAMJI DWIVEDI	Co-Principal Investigator	MNNIT, Allahabad
4	Dr. PRAMOD SONI	Co-Principal Investigator	MNNIT Allahabad
5	Ms. RIMPY KHOKHAR	Co-Principal Investigator	M.B.M. Engineering College, Jodhpur

A grant of **₹905000** (*Rupees Nine Lakh Five Thousand Only*) has been sanctioned for the project, as per following details:

S.No.	Expenditure Head	Sanctioned Amount (₹)
1	Non-recurring	660000
2	Recurring	
	(i) Domestic Travel	112500
	(ii) Contingencies	50000
	(iii) Consumables	50000
	(iv) Miscellaneous	32500
	Total	905000

The project is to be completed with expected outcomes achieved on or before 30th Sept 2020.



Prof. (Dr.) P M Khodke
Central Project Advisor

AMELIORATION IN INSULIN RESISTANCE AND β -CELL FUNCTION BY DPP-4 INHIBITION POTENTIAL OF *TRIGONELLA FOENUM* SEED EXTRACT IN TYPE-2 DIABETIC RATS

Heera Ram^a, Anand Krishna^a, Kashyap P.^b and Kumar S.^b

(Received 16 March 2019) (Accepted 04 July 2019)

ABSTRACT

The current study was aimed to evaluate amelioration in insulin resistance, β -cell function and pancreas protection by DPP-4 inhibition potential of *Trigonella foenum* (TF) seed extract in corticosteroid induced type-2 diabetic rats by *in silico*, *in vitro* and *in vivo* assays. The corticosteroid induced diabetic status of animal model was considered at the HOMA indices, insulin and glucose levels. The *in vitro* assay of DPP-4 inhibition showed up to 60.4 \pm 2.8% and activity of DPP-4 in serum was observed to be 39.12 \pm 1.3% in TF seed extract treated groups. Furthermore, the FTIR spectra interpreted availability of potent functional groups in possessing bioactive compounds. Additionally, HPLC studies confirmed that gallic acid is the leading compound present in TF seed extract and shows significant binding energy obtained from -3.6 to -3.7 with DPP-4 residues LYS-71, ASN-74, GLU-91, THR-94, PHE-95, ILE-102, ASN-103, and ASP-104 via hydrophobic bonds. Significant changes were observed in HOMA indices, histopathology and others supportive parameters in treated groups. The study revealed promising results against insulin resistance, β -cell function and protective alterations in pancreas.

Keywords: β -cell function, pancreas protection, HOMA, HbA1C, Insulin resistance, TF(TF).

INTRODUCTION

Dietary combinations are formulated from ancient times for therapeutics of various ailments in the Ayurveda, Unani, Chinese and other medical systems of old civilizations¹. Moreover, some potent drugs such as aspirin, metformin, anti-cancers drugs, digitalis and other leading drugs have been invented from herbal resources². All together less than 1% of higher plants have been pharmacologically evaluated and some of them are having antidiabetic potential³. The reported several plants have been used individually or in formulations for treatment of diabetes and its complications. But the major glitches with herbal formulations are the active constituents: not being well defined with their interactive interpretations⁴. Thus, it is absolutely necessary to recognize the active constituents and their molecular interactions which lead to therapeutic effectiveness of the product and correspondingly to standardize the product and explore to mode of action of plants using model systems¹. Plants have a peculiar plethora of potent bioactive phytochemicals, with a capacity to

resolve different metabolic disorders by following free radical scavenging activities and targeting key enzymes inhibitions⁵. In similar context, several studies concluded that most of the antidiabetic bioactive phytochemicals target in individual or multiple manner to key enzymes i.e. dipeptidyl-peptidase-4 (DPP-4), α -glucosidase, α -amylase, lipase, aldose reductase and protein tyrosine phosphatase 1B (PTP1B) and other key catabolic carbohydrate metabolism enzymes for therapeutics of diabetes^{6,7}. Recently, several studies have focussed on the inhibition of DPP-4 enzyme for therapeutics of diabetes, which is one of the serine based proteolytic enzyme cleave to GLP-1 and reduced internal insulin secretion⁸. Therefore, the DPP-4 inhibition considered as the main therapeutic target by synthetic and herbal DPP-4 inhibitors. *Trigonella foenum* (TF) seeds are one of oldest Indian food ingredients used in numerous food recipes used in folklore medicines for therapeutics of various ailments⁹. It is also reported that seed of TF possesses potent bioactive compounds such as alkaloids, polyphenols, saponins, flavonoids, steroids and others¹⁰. The current study was made to evaluate effect of DPP-4 inhibition potential of TF seed extract on insulin resistance, β -cell function and pancreas protection in corticosteroid induced type-2 diabetic rats.

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Anti-Aggregation Property of Allicin by *In Vitro* and Molecular Docking Studies

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²Department of Zoology, Jai Narain Vyas University, Jodhpur, India.

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DOI: 10.1177/1179069519866185



ABSTRACT: Amyloidogenesis is the process in which amyloid beta (A β) peptide aggregation results in plaque formation in central nervous system (CNS) are associated with many neurological diseases such as Alzheimer's disease. The peptide aggregation initiated from peptide monomers results in formation of dimers, tetramers, fibrils, and protofibrils. The ability of allicin, a lipid-soluble volatile organosulfur biological compound, present in freshly crushed garlic (*Allium sativum* L.) to inhibit fibril formation by the A β peptide in vitro was investigated in the present study. Inhibition of fibrillogenesis was measured by a Thioflavin T (ThT) fluorescence assay and visualized by transmission electron microscopy (TEM). The molecular interaction between allicin and A β peptide was also demonstrated by in silico studies. The results show that allicin strongly inhibited A β fibrils by 97% at 300 μ M, compared with control (A β only) ($P < .001$). These results were further validated by visual of fibril formation by transmission microscopy and molecular interaction of amyloid peptide with allicin by molecular docking. A β forms favourable hydrophobic interaction with Ile32, Met35, Val36, and Val39, and oxygen of allicin forms hydrogen bond with the amino acid residue Lys28. Allicin anti-amyloidogenic property suggests that this naturally occurring compound may have potential to ameliorate and prevent Alzheimer's disease.

KEYWORDS: Alzheimer's disease, allicin, amyloid β , fibrillogenesis, transmission electron microscope, Thioflavin T fluorescence assay, molecular docking

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Introduction

The amyloid plaques deposited extracellularly in central nervous system (CNS) have been identified as one of the major pathological characteristics of Alzheimer's disease (AD).¹ The fundamental element of amyloid plaque revealed the presence of 1–40 and 1–42 amino acid sequences, termed the amyloid beta (A β) peptide. In brain, the disturbance between production and clearance of A β peptides formed by proteolytic cleavage of amyloid precursor protein (APP) directly correlated with the development of AD.^{2,3} The A β monomer is an unfolded, unstructured ~4kD peptide, rich in hydrophobic residues. It has been proposed that the smallest stable form of the A β peptide exists as a dimer, trimer, or a tetramer. Furthermore, A β fibrillogenesis is a process where A β monomers are more susceptible to self-aggregate and form oligomers and fibrils. Amyloid fibrils contain characteristic crossed β sheets which specifically bind to dyes such as Congo red and Thioflavin T (ThT) used in light microscopical staining and spectrophotometric/fluorescence techniques that are often used to analyse these fibrils.

The formation of well-ordered fibrillar aggregates consisting of A β plays a significant role in neurodegeneration and is considered one of the main pathogenic factors related to AD. Currently, there is no approved drug to target A β fibrillar assemblies. One possible strategy is the use of small molecules that efficiently and specifically inhibit the fibrillogenesis process. Previous studies have reported that some of the natural compounds such as polyphenols, curcumin, rosmarinic acid,

tannic acid, catechin, and quercetin inhibit the formation of fibrillar assembly in vitro.⁴ Present study evaluated the anti-amyloidogenic potential of allicin measured by ThT assay validated by transmission electron microscopy (TEM) and molecular docking studies.

Materials and Methods

Chemicals/reagents

Allicin ((R, S)-diallyl disulfide-S-oxide) was purchased from Caymen chemical, India. A β peptide (A β _{1–42}) was purchased from Abcam, India. Other chemicals such as cholesterol, uranyl acetate, glycine, sodium hydroxide, ThT were purchased from Sigma-Aldrich (India). All reagents were prepared in Milli-Q water (Millipore, India).

Thioflavin T fluorescence assay

ThT assay was used to quantify amyloid formation, in which the fluorescence intensity remarkably increases with the degree of β -sheet formation.⁵ ThT binds specifically to A β fibrils and this produces a shift in emission spectrum, the amount of β sheet formed being proportional to the fluorescent signal. A β was dissolved in Milli-Q water at a concentration of 11 μ M. A mixture of A β with or without allicin solution (37.5–300 μ M) was then incubated overnight at 37°C with constant rotation. After 24h, 80 μ L of ThT (10 μ M) in glycine-NaOH buffer (pH 9.0) was added to each well with 20 μ L of the A β with or without different concentrations of allicin in 96-well micro titration black



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National Project Implementation Unit
 A UNIT OF MINISTRY OF HIGHER EDUCATION, GOVERNMENT OF INDIA
 IMPLEMENTATION OF NATIONAL LEVEL SANCTIONED PROJECTS IN HIGHER EDUCATION

18th June 2019**CERTIFICATE OF SANCTION**

It is to certify that a Research Proposal entitled, "Development of visible light active catalysts induced oxidation for treatment of textile wastewater" has been approved under "TEQIP Collaborative Research Scheme" to the team of following Collaborators:

1	Dr. VIJAYALAKSHMI GOSU	Principal Investigator	MBM Engg College, Jodhpur
2	Mr. SUSHIL SARASWAT	Co-Principal Investigator	MBM Engineering College
3	Mr. SUBBARAMAIAH V	Co-Principal Investigator	MNIT JAIPUR
4	Mr. SIVAKUMAR V.M.	Co-Principal Investigator	CIT Coimbatore

A grant of ₹1617000 (Rupees Sixteen Lakh Seventeen Thousand Only) has been sanctioned for the project, as per following details:

S.No.	Expenditure Head	Sanctioned Amount (₹)
1	Non-recurring	1276667
2	Recurring	
	(i) Domestic Travel	83333
	(ii) Contingencies	40000
	(iii) Consumables	183333
	(iv) Miscellaneous	33333
	Total	1617000

The project is to be completed with expected outcomes achieved on or before 30th Sept 2020.


Prof. (Dr.) P M Khodke
Central Project Advisor

RESEARCH

Open Access



Phytoconstituents of an ethanolic pod extract of *Prosopis cineraria* triggers the inhibition of HMG-CoA reductase and the regression of atherosclerotic plaque in hypercholesterolemic rabbits

Heera Ram^{1*} , Noopur Jaipal¹, Jaykaran Charan², Priya Kashyap³, Suresh Kumar³, Rashmi Tripathi⁴, Bhim Pratap Singh⁵, Chandra Nayaka Siddaiah⁶, Abeer Hashem^{7,8}, Baby Tabassum⁹ and Elsayed Fathi Abd_Allah¹⁰

Abstract

Background: The HMG-CoA reductase is key enzyme of cholesterol biosynthesis which potentially contributes in management of hypercholesterolemia. The present study was designed to assess the inhibitory effect of phytoconstituents of an ethanolic extract of *Prosopis cineraria* pods on HMG – CoA reductase and regression potential of atherosclerotic plaque.

Methods: Healthy, adult male, albino rabbits in which hypercholesterolemia was induced by supplying the high fat diet and a supplement of cholesterol powder with coconut oil (500 mg/5 ml/Day/kg body weight) for 15 days, were used as a disease model. Phytochemical analysis of an ethanolic extract *Prosopis cineraria* pods was conducted using LCMS, GCMS and FTIR analysis. Further, in-vitro, in-vivo and *in-silico* assessments were performed.

Results: The in-vitro assessment of HMG –CoA reductase activity indicated a 67.1 and 97.3% inhibition by the extract and a standard drug (Pravastatin), respectively. Additionally, an *in-silico* evaluation was made using appropriate docking software and results also indicated as significant interactions of the identified compounds with the target enzyme. Treatment of rabbits with the ethanolic extract of *P. cineraria* pod resulted in significant ($P \leq 0.001$) reductions in total cholesterol, LDL cholesterol, VLDL cholesterol, and triglyceride. Accordingly, reductions were occurred in atherosclerotic plaque, intima and media of aortal wall along with lumen volume of the aorta significantly increased ($P \leq 0.001$).

Conclusion: It can be illustrating that the ethanolic extract of *Prosopis cineraria* pod contains potent bioactive phytocompounds might be inhibit HMG – CoA reductase and have regression potential of atherosclerotic plaque.

Keywords: HMG-CoA reductase, Hypercholesterolemia, Lipid profile, Antioxidants, *Prosopis cineraria*, Atherosclerosis

Introduction

Appropriate diets and dietary supplements have the potential for use in the management of various metabolic syndromes and their complications [1]. The fast food and/or junk food associated with many developed countries are having a drastic impact on the health of youth, as well as many adults with insufficient exercise. These types of food are typically rich in

free fatty acids and contain a large amount of fatty substances, all of which promote diabetes, hypercholesterolemia, cancer, and other metabolic syndromes [2]. In fact, three metabolic syndromes, cardiovascular diseases, diabetes, and cancer are the cause of up to 60–70% of mortality, worldwide [3]. Hypercholesterolemia is an independent risk factor that alone or together with the consumption of unhealthy foods can accelerate the development of atherosclerosis and further resulted in atherosclerotic plaque [4]. An increased generation of intracellular free radicals has also been demonstrated

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Ministry of Environment, Forest and Climate Change



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CERTIFICATE OF COMPLETION

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at Arid Forest Research Institute, Jodhpur from 20th February 2020 to 21th March 2020

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Article

In Vivo Studies of Inoculated Plants and In Vitro Studies Utilizing Methanolic Extracts of Endophytic *Streptomyces* sp. Strain DBT34 Obtained from *Mirabilis jalapa* L. Exhibit ROS-Scavenging and Other Bioactive Properties

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Abstract: Reactive oxygen species (ROS) and other free radicals cause oxidative damage in cells under biotic and abiotic stress. Endophytic microorganisms reside in the internal tissues of plants and contribute to the mitigation of such stresses by the production of antioxidant enzymes and compounds. We hypothesized that the endophytic actinobacterium *Streptomyces* sp. strain DBT34, which was previously demonstrated to have plant growth-promoting (PGP) and antimicrobial properties, may also have a role in protecting plants against several stresses through the production of antioxidants. The present study was designed to characterize catalase and superoxide dismutase (SOD), two enzymes involved in the detoxification of ROS, in methanolic extracts derived from six endophytic actinobacterial isolates obtained from the traditional medicinal plant *Mirabilis jalapa*. The results of a preliminary screen indicated that *Streptomyces* sp. strain DBT34 was the best overall strain and was therefore used in subsequent detailed analyses. A methanolic extract of DBT34 exhibited significant antioxidant potential in 1,1-diphenyl-2-picrylhydrazyl (DPPH) and 2,2'-azino-bis-3-ethylbenzthiazoline-6-sulphonic acid (ABTS) assays. The cytotoxicity of DBT34 against liver hepatocellular cells (HepG2) was also determined. Results indicated that methanolic extract of *Streptomyces* sp. strain DBT34 exhibited significant catalase and SOD-like activity with 158.21 U resulting in a 55.15% reduction in ROS. The IC₅₀ values of a crude methanolic extract of strain DBT34 on DPPH radical scavenging and ABTS radical cation decolorization were 41.5 µg/mL and 47.8 µg/mL, respectively. Volatile compounds (VOC) were also detected in the methanolic extract of *Streptomyces* sp. strain DBT34 using GC-MS analysis to correlate their presence with bioactive

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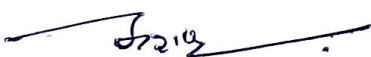
CERTIFICATE


OF APPRECIATION

This certificate is presented to

Dr. Archana Bohra Gupta

**for delivering the Webinar on
"Earthquake Resistant Design Philosophy"
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3.7.1.1: Total number of Collaborative activities with other institutions/ research establishing/industry for research and academic development of faculty and students year wise during the last five years							
Sl. No.	Title of the collaborative activity	Name of the collaborating agency with contact details	Name of the participant	Year of collaboration	Duration	Nature of the activity	Link to the rele
1	Asteroid search Campaigns	DST Rajasthan (International astronomical search collibration)	BHERA RAM	2020	14/04/2020 to 12 /05/2020	Asteroid Search	
2	Asteroid search Campaigns	DST Rajasthan (International astronomical search collibration)	Hemakshi parmar	2020	14/04/2020 to 12 /05/2020	Asteroid Search	
3	Asteroid search Campaigns	DST Rajasthan (International astronomical search collibration)	Dimpy choudhary	2020	14/04/2020 to 12 /05/2020	Asteroid Search	
4	Asteroid search Campaigns	All India Asteroid Search Campaign 2020 (aiasc@space-india.com)	BHERA RAM	2020	12/06/2020 TO 10/07/2020	Asteroid Search	
5	Asteroid search Campaigns	All India Asteroid Search Campaign 2020 (aiasc@space-india.com)	BHERA RAM	2020	13/07/2020 TO 10/08/2020	Asteroid Search	
6	Asteroid search Campaigns	All India Asteroid Search Campaign 2020 (aiasc@space-india.com)	KAJOL KASERA	2020	13/07/2020 TO 10/08/2020	Asteroid Search	
7	Asteroid search Campaigns	All India Asteroid Search Campaign 2020 (aiasc@space-india.com)	SONU CHOJHAN	2020	13/07/2020 TO 10/08/2020	Asteroid Search	
8	Asteroid search Campaigns	All India Asteroid Search Campaign 2020 (aiasc@space-india.com)	PRAVEEN KUMAR	2020	13/07/2020 TO 10/08/2020	Asteroid Search	
9	Asteroid search Campaigns	International astronomical search collibration	BHERA RAM	2020	12/06/2020 TO 10/07/2020	Asteroid Search	
10	Asteroid search Campaigns	International astronomical search collibration	BHERA RAM	2020	12/08/2020 TO 08/09/2020	Asteroid Search	
11	Asteroid search Campaigns	International astronomical search collibration	Hemakshi parmar	2020	12/08/2020 TO 08/09/2020	Asteroid Search	
12	Asteroid search Campaigns	International astronomical search collibration	Dimpy choudhary	2020	12/08/2020 TO 08/09/2020	Asteroid Search	
13	Asteroid search Campaigns	DST Rajasthan (International astronomical search collibration)	Anitra godra	2020	09/10/2020 TO 03/11/2020	Asteroid Search	
14	Asteroid search Campaigns	DST Rajasthan (International astronomical search collibration)	Heena kanwar	2020	09/10/2020 TO 03/11/2020	Asteroid Search	
14	Asteroid search Campaigns	DST Rajasthan (International astronomical search collibration)	Heena kanwar	2020	02/08/2020 TO 27/08/2020	Asteroid Search	
15	Asteroid search Campaigns	DST Rajasthan (International astronomical search collibration)	Akhita awasti	2020	12/08/2020 TO 08/09/2020	Asteroid Search	
16	Application of geoinformatics in ecology	INDIAN INSTITUTE OF REMOTE SENSING	Kajol Kasera	2020	13/07/2020 TO 24/07/2020	online mode	
17	Earth Observation for carbon cycle stud	INDIAN INSTITUTE OF REMOTE SENSING	Urvashi soni	2021	21/06/2021 TO 25/06/2021	online mode	
18	Earth Observation for carbon cycle stud	INDIAN INSTITUTE OF REMOTE SENSING	Anjali Palariya	2021	21/06/2021 TO 25/06/2021	online mode	
19	Asteroid search Campaigns	International astronomical search-collibration	Ram raj mali	2020	09/10/2020 TO 03/11/2020	Asteroid Search	
20	Asteroid search Campaigns	DST Rajasthan (International astronomical search collibration)	Shobha kumari	2020	12/08/2020 TO 08/09/2020	Asteroid Search	
21	Asteroid search Campaigns	DST Rajasthan (International astronomical search collibration)	Praveen Kumar	2020	12/08/2020 TO 08/09/2020	Asteroid Search	



Prof. & Head
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A
Report On
Two Weeks Training Program
On
SMART GRID TECHNOLOGIES
As A Part Of Twinning Activity Under TEQIP-III, NPIU, MHRD,
Government Of India

Organized By



Department Of Electrical And Electronics Engineering
Coimbatore Institute Of Technology,
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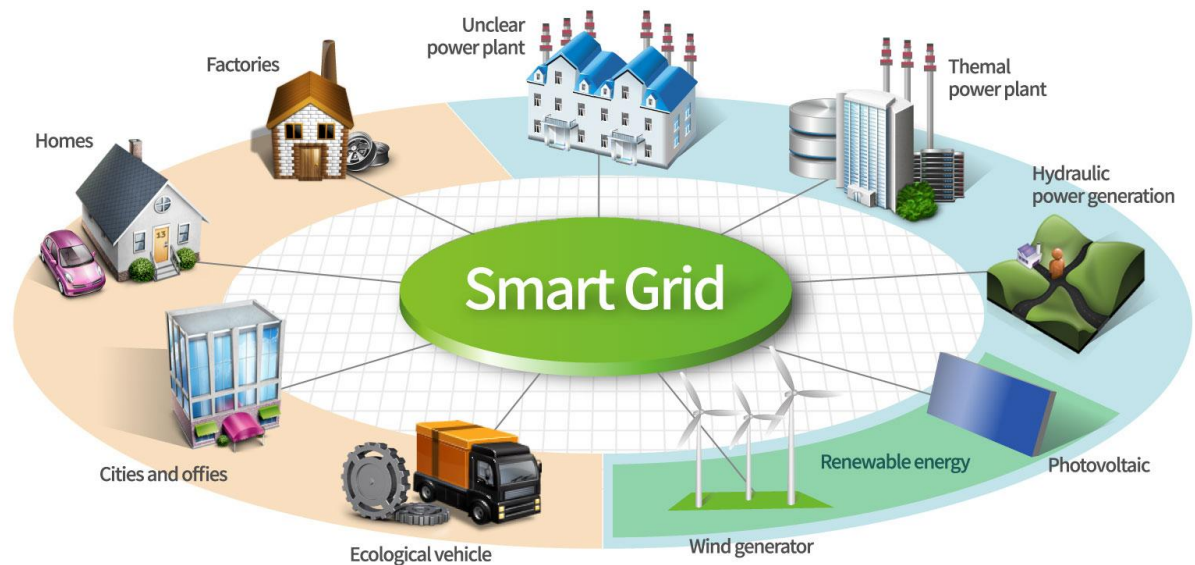
Course Contents

- Introduction to smart grid
- Fundamentals of solar photovoltaic
- Design of solar PV system design
- Wind energy conversion system
- Plug in hybrid electrical vehicles in smart grid
- Energy storage technologies
- Demand response management
- Protection in smart grid
- Distribution system automation
- Communication technologies for smart grid
- Cyber , physical and system security of smart grid
- AI and ML in smart grid
- Data analytics in smart grid
- Distribution business and power trading
- Hands on training of solar PV cell Fabrication
- Hands on training of the characteristics of solar PV module
- ARM and IoT laboratory
- Industrial visit to solar PV plant and wind farm

Introduction to Smart Grid

(30/12/2019) By Dr.V. Manikandan

“Prepare for an electric system that is cleaner and more efficient, reliable, resilient and responsive” – a smart grid.



- Electric industries make the transformation from a centralized, producer-controlled network to one that is less centralized and more consumer-interactive.
- This promises to change the industry's entire business model and its relationship with
 - ✓ all stakeholders
 - ✓ utilities
 - ✓ regulators
 - ✓ energy service providers
 - ✓ technology and automation vendors
 - ✓ all consumers of electric power

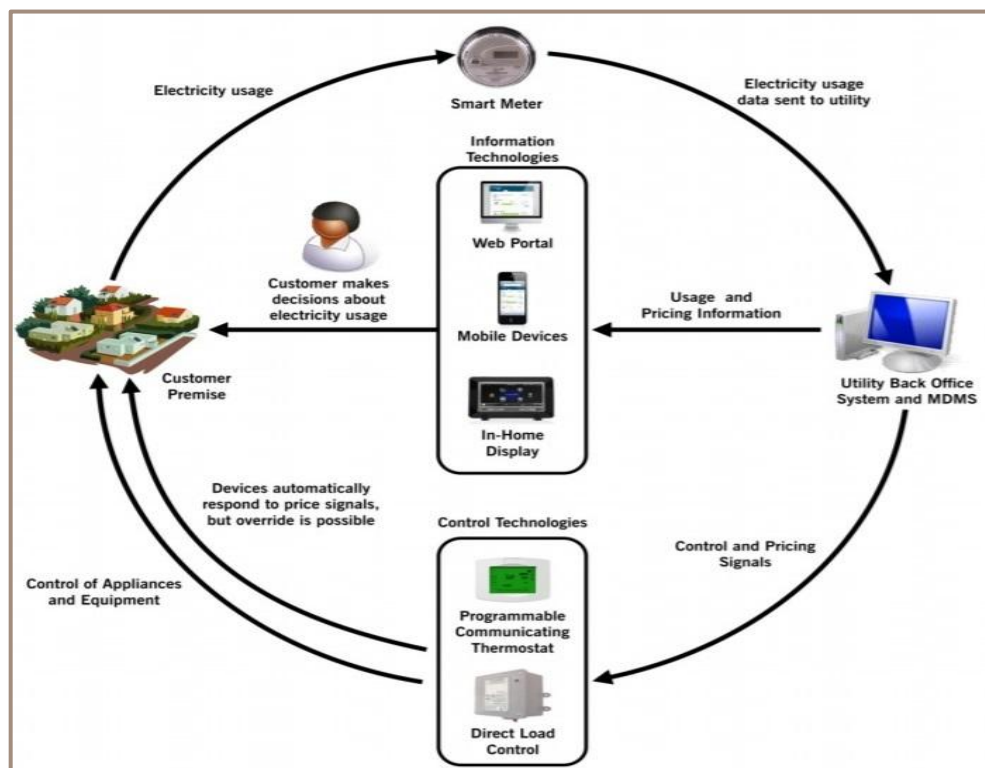
- A smart grid makes this transformation possible by bringing *concepts and technologies that enabled the internet to the utility and the electric grid.*

Concepts in Action

- Two-way Digital Communication
- Enabling Technologies
- Plug-and-Play Capabilities
- Interoperability Based on Standards,
- Low-Cost Communication and Electronics

Advanced Metering Infrastructure (AMI)

- An approach to integrating consumers based upon the development of open standards.
- Consumers with the ability to use electricity more efficiently
- Utilities with the ability to detect problems on their systems and operate them more efficiently.
- AMI enables consumer-friendly efficiency concepts like “Prices to Devices”



Fundamental Of Solar Photovoltaics

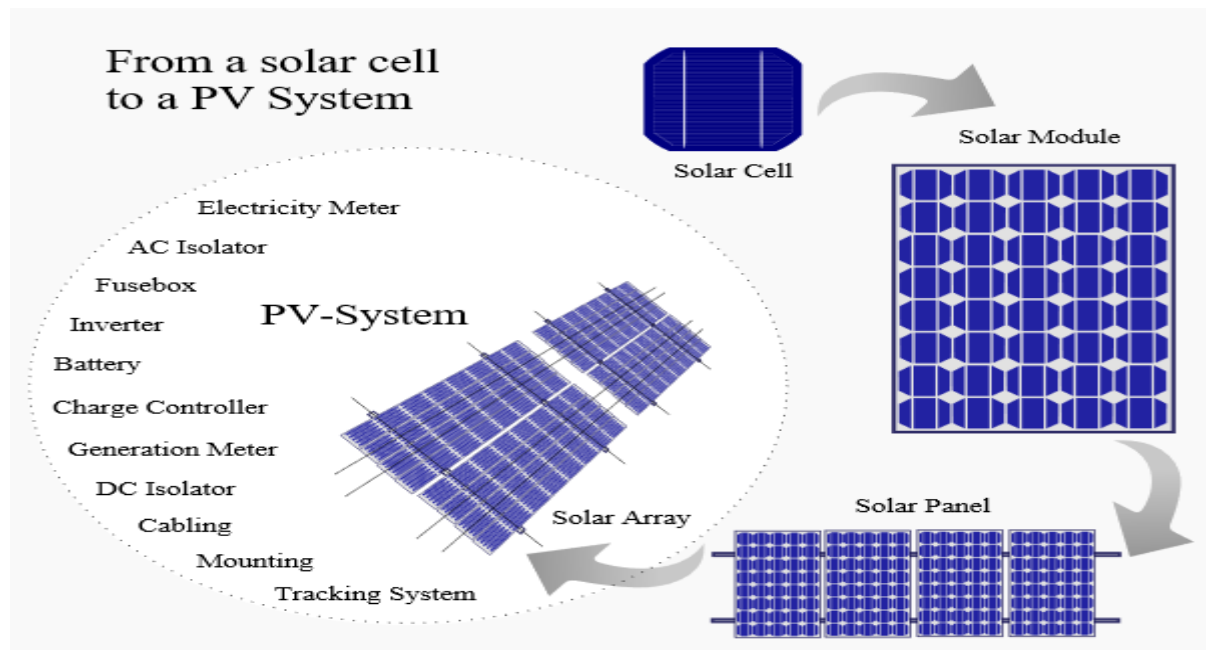
(30/12/2019) By Dr.E.Chandira shekhran

Photovoltaics (PV) is the conversion of light into electricity using semiconducting materials that exhibit the photovoltaic effect, a phenomenon studied in physics, photochemistry, and electrochemistry.

PV has become the cheapest source of electrical power in regions with a high potential in 2020. Panel prices have dropped by the factor of 10 within a decade. This competitiveness opens the path to a global transition to sustainable energy which would be required help to mitigate global warming.

2 to meet the 1.5 degree target would be used up in 2028 if emissions remain on the current level. However, the use of PV as a main source requires energy storage systems or global distribution by High-voltage direct current power lines causing additional costs.

Solar PV has specific advantages as an energy source: once installed, its operation generates no pollution and no greenhouse gas emissions, it shows simple scalability in respect of power needs and silicon has large availability in the Earth's crust.



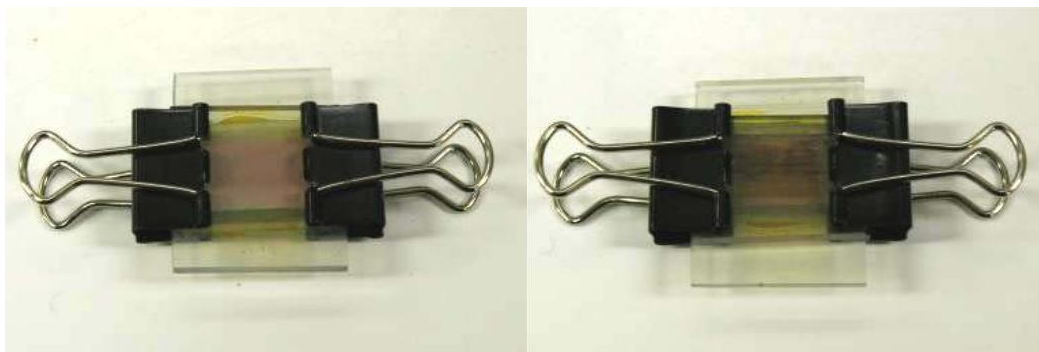
Hands on Training of the Solar PV cell fabrication

(30/12/2019)

Fabrication procedure of dye-sensitized solar cells

Materials

- ITO(Indium doped Tin Oxide) glass (2 x 2 cm, 2 slides for 1 cell)
- Dye (Eosin Y, Eosin B, etc.)
- Ethanol
- TiO_2 paste
 - Suspend 3.5g of TiO_2 nano-powder P25 in 15ml of ethanol.
 - Sonicate it at least for 30 min.
 - Add 0.5ml of titanium(IV) tetraisopropoxide into the suspension.
 - Mix until the suspension is uniform.
- Liquid electrolyte
 - 0.5M lithium iodide and 0.05M iodine in acetonitrile. γ -Butyrolactone or 3-methoxypropionitrile is also recommended as a solvent to improve its volatility.
- Binder clips (small, 2 pieces for 1 cell)



Front side (TiO_2 /dye electrode) Back side (counter electrode side)

Equipment

- Light source (OHP, Halogen lamp, Xe lamp, etc.)
- Cables
- Variable resistance
(or switchable fixed resistances

ex. 50, 100, 200, 500, 800, 1k, 2k, 5k, 10k, 20k, 40k, 80k, 100k, 200k, 400k and 800k Ω)

- Voltmeter

1. Connect solar cell, variable resistance and voltmeter with cables.
2. Shine the light from the side of TiO_2 /dye electrode.

(Note; Light intensity has to be known in advance to calculate power conversion efficiency. It can be measured by a power meter or a calibrated photodiode.)

3. Set the resistance at maximum value and record voltage.
4. Decrease the resistance and record voltage.
5. Repeat 4 until the voltage reaches nearly zero and turn the light off.

6. Calculate corresponding current at each recorded point.

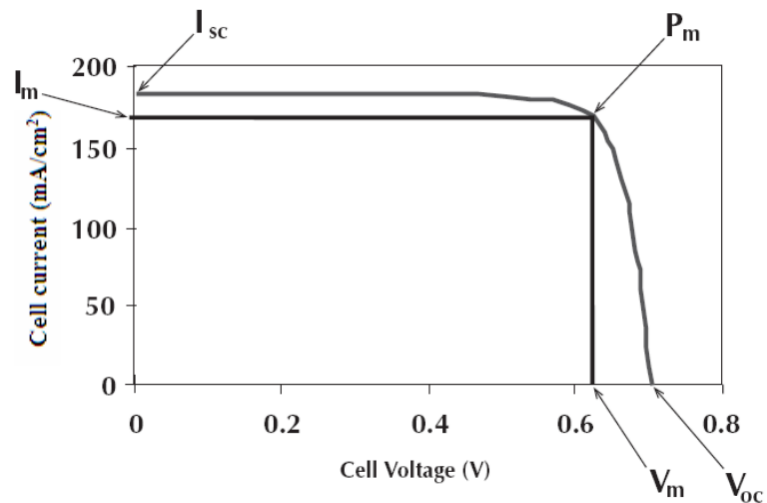
$$I = V/R$$

7. Plot voltage (X-axis) vs current (Y-axis).

8. Plot voltage (X-axis) vs power (Y-axis) to find P_m .

9. Calculate fill-factor (ff).

$$ff = \frac{I_m \times V_m}{I_{sc} \times V_{oc}} = \frac{P_m}{I_{sc} \times V_{oc}}$$



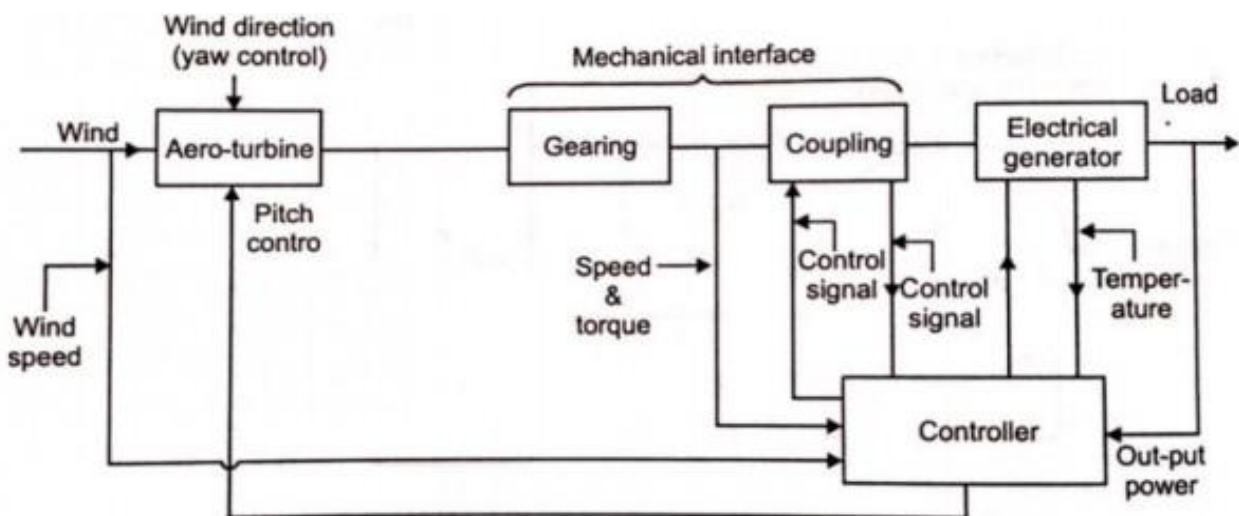
I-V characteristics of a typical solar cell

Wind Energy Conversion System

(31/12/2019)By Dr.J.Devishree

Wind power production has been under the main focus for the past decade in power production and tremendous amount of research work is going on renewable energy, specifically on wind power extraction. Wind power provides an ecofriendly power generation and helps to meet the national energy demand when there is a diminishing trend in terms of non-renewable resources.

The wind energy conversion system (WECS) includes wind turbines, generators, control system, interconnection apparatus. Wind Turbines are mainly classified into horizontal axis wind turbines (HAWT) and vertical axis wind turbines (VAWT). Modern wind turbines use HAWT with two or three blades and operate either downwind or upwind configuration. This HAWT can be designed for a constant speed application or for the variable speed operation. Among these two types variable speed wind turbine has high efficiency with reduced mechanical stress and less noise. Variable speed turbines produce more power than constant speed type, comparatively, but it needs sophisticated power converters control equipments to provide fixed frequency and constant power factor



Cyber , Physical and System Security of Smart Grid

(31/12/2019) By Dr. M. Sangeeta

Cyber:

Cyber refers to imaginary space, which is created when the electronic

devices communicate, like network of computers.

Cyber Crime:

Cyber Crime is nothing but where the computer used as an object or subject of crime.

There are three types of hackers:

- White
- Black
- Grey (W+B)

Traditionally, power grid automation systems have been physically isolated from the corporate network. This has been changing, perhaps due to the cost effectiveness of utilizing public networks. Using public networks considerably increases the vulnerability of power grids to cyber attacks by increasing the exposure surface of these networks.

Design Principle:-

Three layers:

- Power
- Automation & Control
- Security

➤ Provides clear demarcation of control and security functionalities.

- Scalability: security performance remain unabated with increase in load and system volume.
- Extendibility: able to handle any future state of power grid.
- Can be integrated into the existing, legacy systems in a non-intrusive fashion.

Plug In Hybrid Electrical Vehicles In Smart Grid

(31/12/2019) By Dr. G. Manavlan

The Plug-in Electric Vehicles (PEVs) are the Battery Electric Vehicles (BEVs) and Plug-in Hybrid Electric Vehicles (PHEVs). PEVs will dominate the transportation in the personal mobility mode and in the automobile market by 2030. Widespread adoption of PEVs brings potential, social and economic benefits. The focus on promoting use of electric vehicles in road transportation is very essential to meet the climate change targets and manage the ever hiking prices of fast depleting fossil fuels. However, there are lots of uncertainties in the market about the acceptability of PEVs by customers due to the capital and operation costs and inadequate infrastructure for charging systems. The penetration level in the market is not encouraging, in spite of incentives offered by Governments. Manufacturers are also not sure of the market, even though predictions are strong and attractive. Major manufacturers, however, are already ready with their plans to introduce electric vehicles to mass market. The use of PEVs has both technological and market issues and impacts. Series of research works have been reported to address the issues related to technologies and its impacts on political, economic, environmental, infrastructural and market potential aspects. Works dealing with suitable infrastructure such as charging stations and use of smart grids are reported. These steps are aimed to bring down the capital and operational costs that are comparable to the costing of conventional transport vehicles. The penetration level of PEVs in transportation will accordingly increase and keep the climate targets met and conserve fossil fuels for use in other economic segments.

Energy Storage Technologies

(31/12/2019) By Prof. S. Elango

Energy storage technologies involve the process of converting energy that is difficult to store to more conveniently or economically storable forms. A variety of energy storage systems are available and the efficiency of the system mainly depends upon the identification and implementation of the right system based on the parameters such as storage capacity, cost, reliability, size and lifetime.

Another most important factor to be considered is the environmental impact.

Based on the storage period, the energy storage system can be classified as follows,

Long-term energy storage system:

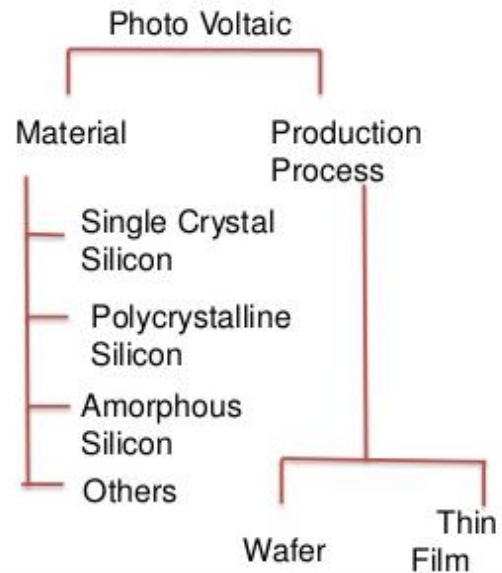
- 1) Compressed air energy storage,
- 2) Battery,
- 3) Hydrogen storage.

Short-term energy storage system:

- 1) Super capacitor,
- 2) Flywheel

Design of solar PV system design

(02/01/2020) By Dr. E. Chaindra Shekhar



Cell: The basic photovoltaic device that is the building block for PV modules.

Module: A group of PV cells connected in series and/or parallel and encapsulated in an environmentally protective laminate.

Panel: A structural group of modules that is the basic building block of a PV array.

Array: A group of panels that comprises the complete direct current PV generating unit.

Inverter: Inverters take care of four basic tasks of power conditioning:

- Converting the DC power coming from the PV modules or battery bank to AC power
- Ensuring that the frequency of the AC cycles is 60 cycles per second
- Reducing voltage fluctuations
- Ensuring that the shape of the AC wave is appropriate for the application, i.e. a pure sine wave for grid-connected systems

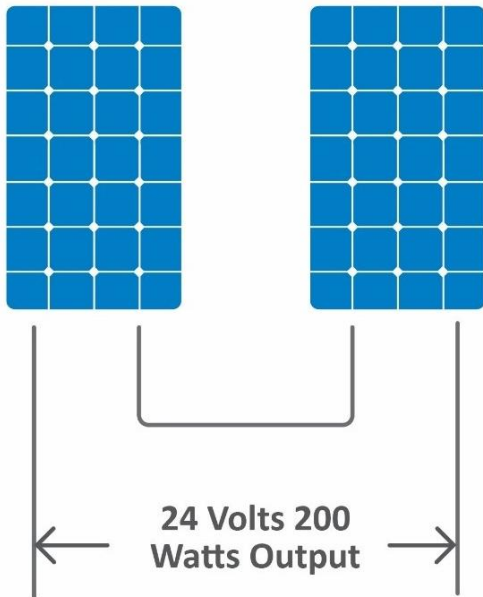
System Components: Pre-engineered photovoltaic systems can be purchased that come with all the components you will need, right down to the nuts and bolts. Any good dealer can size and specify systems for you, given a description of your site and needs. Nevertheless, familiarity with system components, the different types that are available, and criteria for making a selection is important.

Basic components of grid-connected PV systems with and without batteries are:

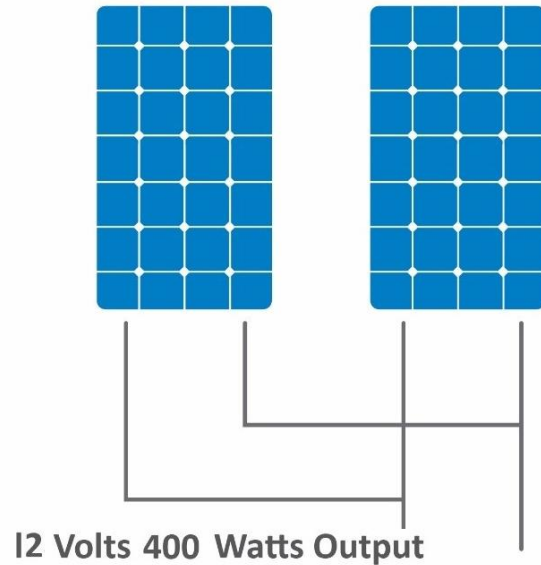
- Solar photovoltaic modules
- Array mounting racks
- Grounding equipment
- Combiner box
- Surge protection (often part of the combiner box)
- Inverter
- Meters – system meter and kilowatt-hour meter

Hands On Training Of The Characteristics Of Solar PV Module

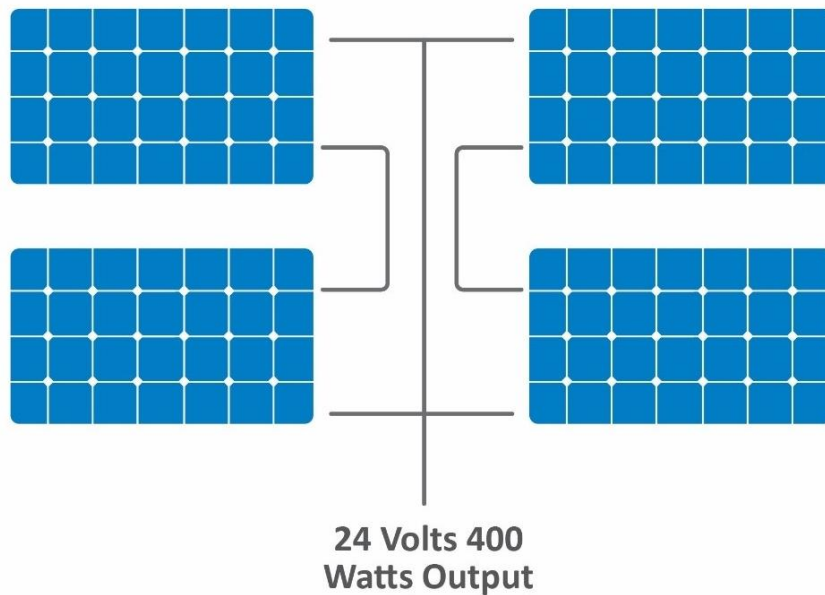
Series Connection



Parallel Connection



Series - Parallel Connection

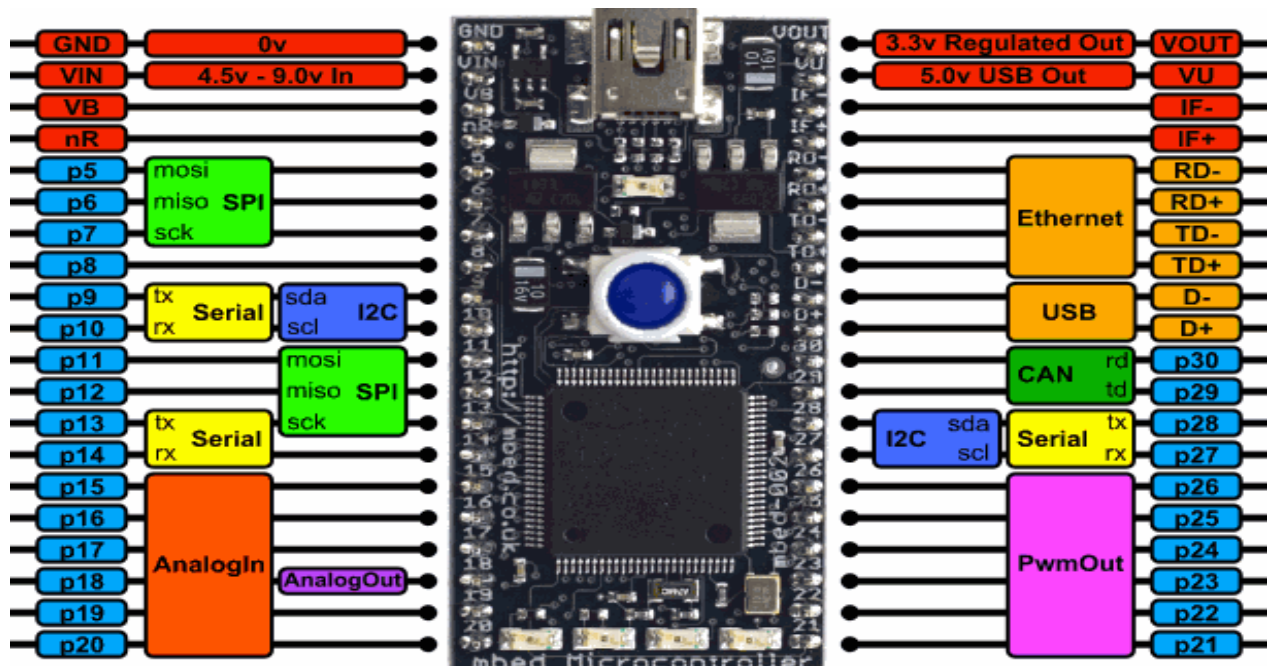


ARM and IoT Laboratory

The Internet of Things (IoT) is a system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers (UIDs) and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction.

An embedded system is a computer system—a combination of a computer processor, computer memory, and input/output peripheral devices—that has a dedicated function within a larger mechanical or electrical system. It is *embedded* as part of a complete device often including electrical or electronic hardware and mechanical parts. Because an embedded system typically controls physical operations of the machine that it is embedded within, it often has real-time computing constraints. Embedded systems control many devices in common use today. Ninety-eight percent of all microprocessors manufactured are used in embedded systems.

The embedded system used in the hands-on experience was arm mbed LPC 1768.



Industrial Visit

(4/01/2020)

1) Swelect Energy Ltd.

Private solar energy park majorly used for research and development purpose. Plant size of 1.1MW and two types of panels are used over their :

- Cadmium telluride(thin film)
- Silicon PV(thin film)

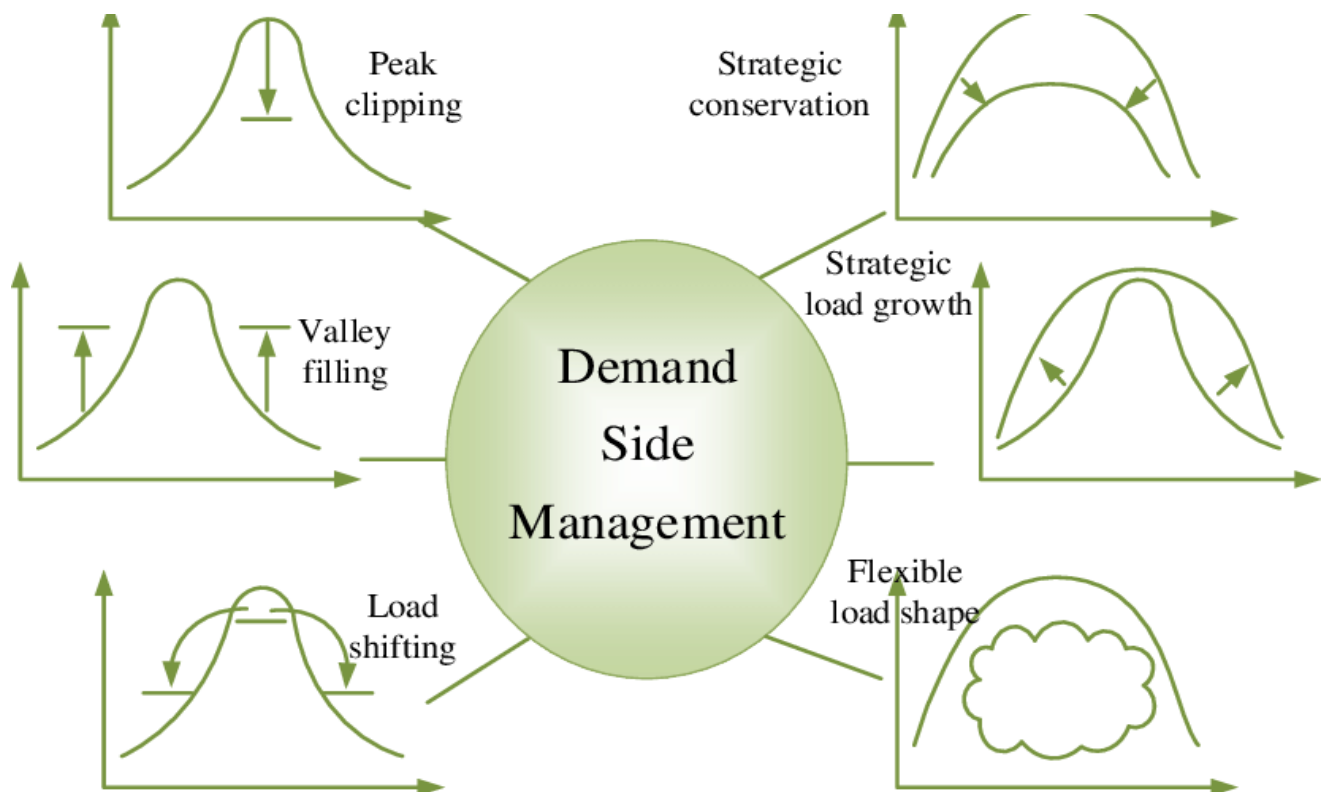
Plant uses solar tracking system with help of stepper motor and Solar irradiance meter. The plant also has a Zero Mass Water Source-SOURCE that machine is used to absorb moisture contains in air to make water to drink.

2) Swathi Wind Farm



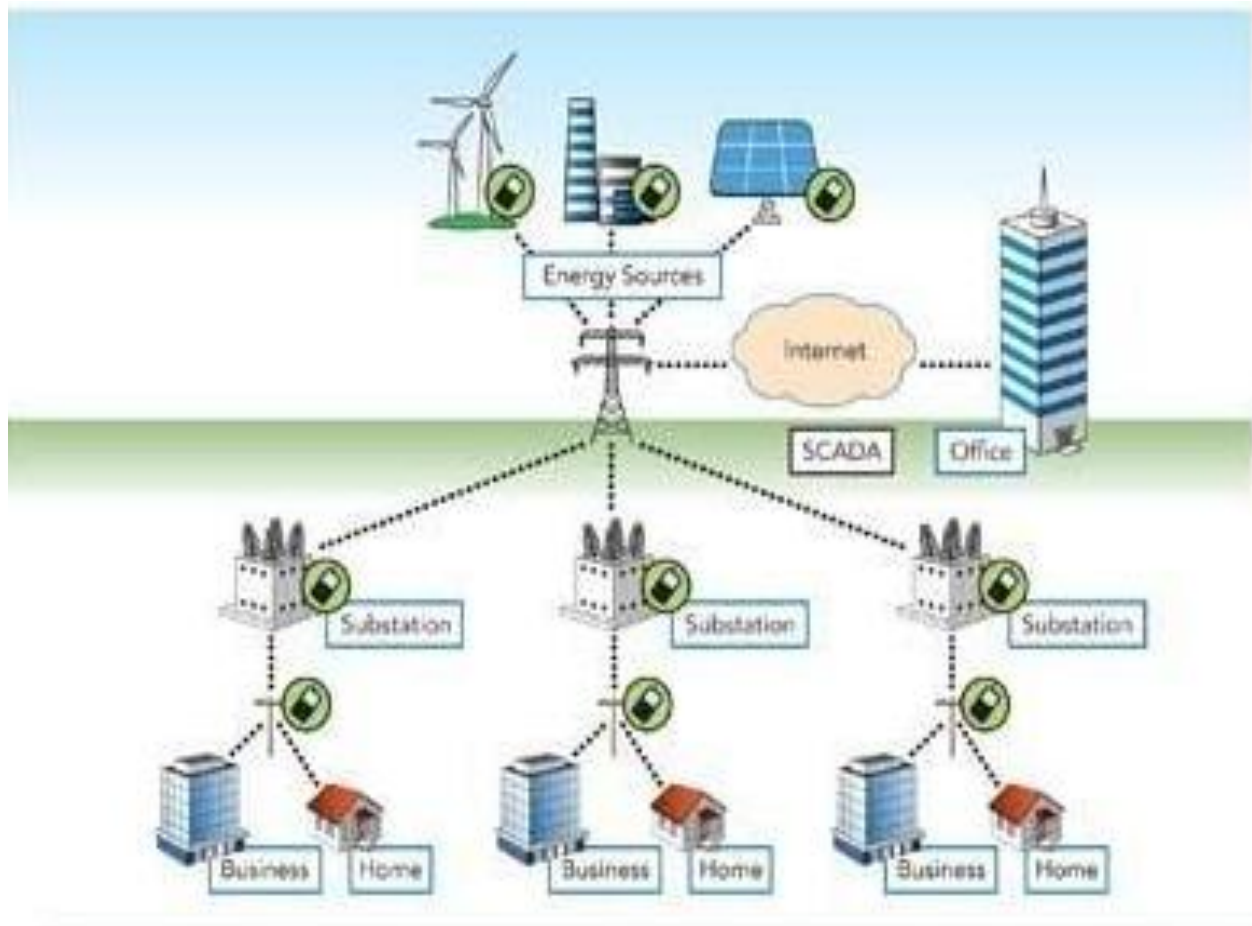
Demand Response Management

Demand response is a change in the power consumption of an electric utility customer to better match the demand for power with the supply. Until recently electric energy could not be easily stored, so utilities have traditionally matched demand and supply by throttling the production rate of their power plants, taking generating units on or off line, or importing power from other utilities. There are limits to what can be achieved on the supply side, because some generating units can take a long time to come up to full power, some units may be very expensive to operate, and demand can at times be greater than the capacity of all the available power plants put together. Demand response seeks to adjust the demand for power instead of adjusting the supply.



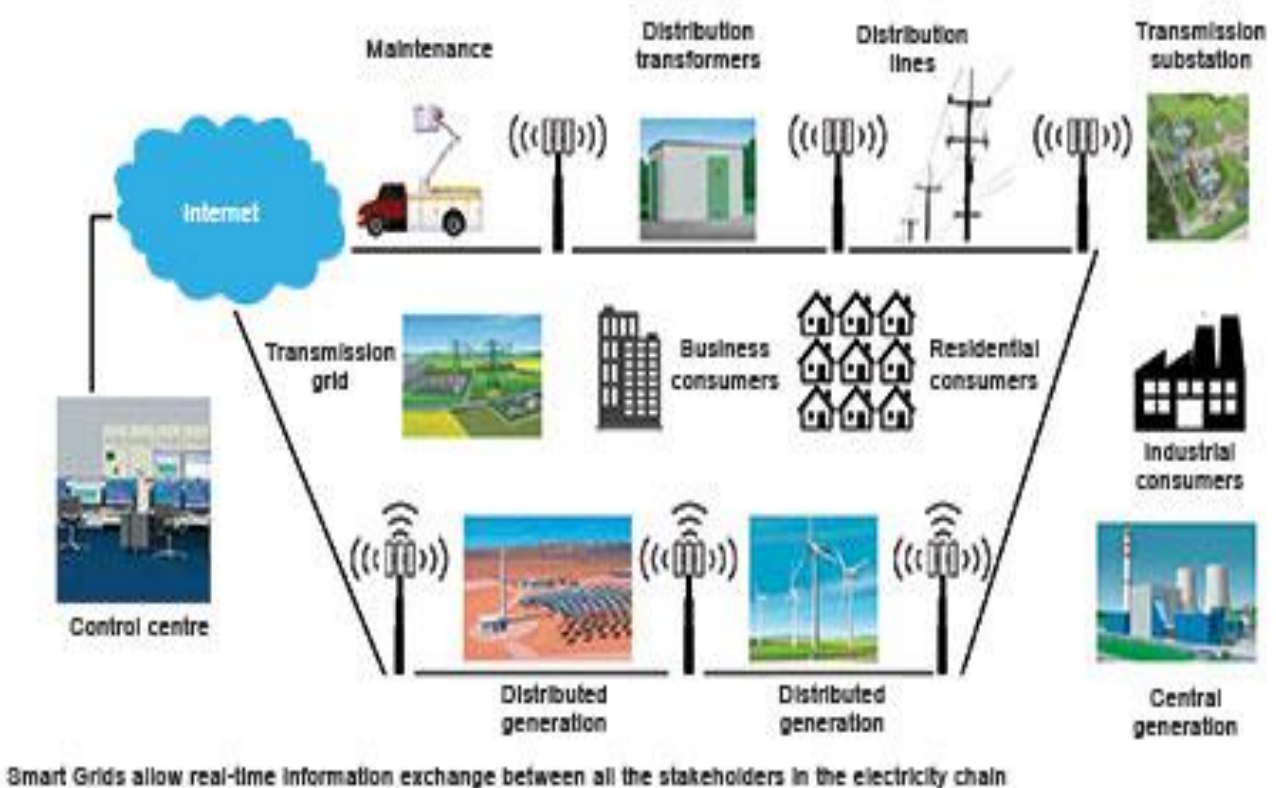
Distribution System Automation

Distribution automation (DA) optimizes a utility's operations and directly improves the reliability of its distribution power system. Adding targeted distribution automation capabilities can be economical when they are an extension of your existing SCADA investments and the communication infrastructure. The success or failure of an automation program hinges on proper selection of equipment and communications to seamlessly integrate data into the utility control room. The key is to choose equipment that leverages your current assets wherever possible. With the latest in high speed communication technology, there has never been a better time for utilities to extend their automation beyond the substation.



Communication Technologies For Smart Grid

The smart grid is a new generation of standard power distribution grid. The communication infrastructure is critical for the successful operation of the modern smart grids. The use of communication technologies ensures the reduction of energy consumption, optimal operation of the smart grid and coordination between all smart grids' components from generation to the end users. The Smart Grid can be defined as an electric system that uses information, two-way, cyber-secure communication technologies, and computational intelligence in an integrated fashion across the entire spectrum of the energy system from the generation to the end points of consumption. The availability of new technologies such as distributed sensors, two-way secure communications, advanced software for data management, and intelligent and autonomous controllers have opened up new opportunities for changing the energy system. The main objective is to develop a measurement science toward communication networking with the specific aim of strengthening modeling capabilities and determining the potential impact on critical infrastructure.



Protection In Smart Grid

The smart grid brings opportunities and challenges to the power system protection and control. Fast advancement in communication and measurement techniques accelerates the development of wide-area protection, based on the wide-area measurement system. Smart microgrid is essential in modern power systems to supply electrical energy in abnormal conditions and ensure the continuity of power throughout the day under islanded mode. It is the simple power grid integrated with renewable energy sources, power modulators, and modern communication systems. This work is concentrated with various faults occurred in microgrid and its protection with digital relays. Smart Microgrid uses Solar and wind energy systems combined with AC grid and supplies energy via transmission and distribution network. On grid solar inverter is used to convert solar power in to AC power required for grid connection.

AI And ML In Smart Grid

In recent years, there is a rush in Artificial Intelligence (AI) research to produce practical solutions for the Smart Grid, the anticipated new generation of energy (primarily electricity) networks that will be able to make efficient use of renewable energy sources, support real time and efficient demand response, as well as the large-scale deployment of electric vehicles (EVs). AI techniques and methodologies can be instrumental in addressing sustainability problems, for example to increase the efficiency and effectiveness of the way we manage and allocate our natural and societal resources. The drive to use AI for the Smart Grid has in turn led to novel questions and challenges for AI research, and to the realization that only the cross-fertilization of ideas and mixing of various techniques originating in different (sub-)fields can lead to the Holy Grail of an electricity Grid that takes full advantage of AI technologies to deliver power that is at the same time “green”, stable, affordable, and accessible to all. This Special Issue brings together research questions and approaches originating in different (sub-)fields – such as multiagent systems, machine learning, optimization, and statistics. As such, it provides an overview of a broad spectrum of ongoing Smart Grid research.

Data Analytics In Smart Grid

Data analytics are now playing a more important role in the modern industrial systems. Driven by the development of information and communication technology, an information layer is now added to the conventional electricity transmission and distribution network for data collection, storage and analysis with the help of wide installation of smart meters and sensors.

With the fast development of digital technology and cloud computing, more and more data are produced through digital equipment and sensors, such as smart phones, computers, advanced measuring infrastructures, etc., as well as through human activities and communications. For instance, the size of data on the internet is now measured in exabytes (10^{18}) and zettabytes (10^{21}). Rational, effective and efficient analysis of these data brings huge value and benefit to our daily life and company activities. However, the collected data are mounting at an exponential growth, and the structure of them is also becoming much more complicated. The processing and analysis method of these large volume data is a new challenge but opportunity at the beginning of this century with the concept of “big data”

Conclusion

Because of the potential importance of smart grid, this comprehensive survey explores the technologies used in smart grid. We have studied the main smart grid projects/programs/trials and three major technical systems smart grid: intelligent system infrastructure, intelligent management system, and intelligent protection system. We have outlined challenges and future research lines worth exploring for each of these three systems.

We divided further intelligent infrastructure into three subsystems: intelligent power subsystem, the subsystem of intelligent information, and intelligent communication subsystem. For intelligent energy subsystem, we have reviewed the work of generation, transmission, and distribution. We have also described two important new paradigms of the grid: microgrid and G2V/V2G. For the subsystem of intelligent information, we reviewed the work in the measurement information, measurement and management. For intelligent communication subsystem, we reviewed the wireless communication technologies and cable and communication management from end to end.



International e-Conference

on

Recent Advancement on Civil Engineering, Construction Techniques and Materials

RACECTAM - 2020

CERTIFICATE OF APPRECIATION

This is to certify that

Archana Bohra Gupta

Prof./Dr. has been

Reviewer Committee member of RACECTAM - 2020. We appreciate his/her valuable time sharing for

International e-Conference on "Recent Advancement on Civil Engineering, Construction Techniques

and Materials" organized by Department of Civil Engineering, JIET, Jodhpur on 21-22 July, 2020.

Technical Association :



Prof. (Dr.) K.K. Paliwal
Chairman, RACECTAM-2020

Prof. (Dr.) Arvind Dewangan
Convener, RACECTAM - 2020

Prof. Kiran Bhoot
Convener, RACECTAM - 2020

Prof. Kamlesh Parihar
Co-Convener, RACECTAM - 2020

Prof. Abhishek Arya
Co-Convener, RACECTAM - 2020



Institution of Engineers (India), Jodhpur Local Center

In Association with

Indian Institute of Technology, Jodhpur

and

MBM Engineering College, Jodhpur



Cordially Invite You To Attend Inaugural Function of
*36th National Convention of Electrical Engineers and
Conference on
"Future Electricity Systems: Challenges and Current Trends"*

on 27 November at 10 AM at
Hotel Chandra Imperial
Sardar Club Scheme. opp. Polo Ground, Jodhpur, Rajasthan

Prof. (Dr.) Santanu Chaudhury

Director, IIT Jodhpur
Chief Guest

Er. Ravindra Kumar

Director, DRDO Jodhpur
Presiding Guest

Dr. S.K. Calla

Ex-CMD, RRVNL, Council Member, IE(I)
Guest of Honour

Dr. Rajesh Bhadada
Coordinator

Dr. Kailash Chaudhary
Co-Coordinator

Dr. Akhil Ranjan Garg
Chairman, IEI, JLC

Dr. Ghanshyam Vaishnav
Secretary, IEI, JLC

Inaugural function will be followed by lunch
Please follow COVID-19 guidelines
Kindily occupy your seat by 9:45 AM



राजस्थान RAJASTHAN

M 647117

MEMORANDUM OF UNDERSTANDING (MoU)

The term of Memorandum of understanding (MoU) between Indian Institute of Technology Jodhpur (IIT Jodhpur) and Jai Narain Vyas University, Jodhpur (Rajasthan) [JNVU] is to share the facilities and expertise related to Bioscience available and to explore, extend and strengthen the functional collaboration between the two institutions in the areas of bioscience related research. The Indian Institute of Technology, Jodhpur and JNVU hereby sign a MoU on the terms and conditions stated below;

1. The Research students and faculty members working in the domain of bioscience research, Jodhpur and JNVU may visit each other for sharing and utilization of facilities, expertise and for attending special lectures arranged at these centres from time to time.
2. In case required for the smooth functioning of the project, Principal Investigator / Supervisor may jointly opt for Co-Investigator / Co-supervisor from IIT Jodhpur and JNVU as the case may be.
3. Research students and faculty members working at these Institutes in the domain of bioscience research would be permitted to carryout part of their research work at these

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JODHPUR (Raj.)


institutes using the available research facilities on recommendations of respective Head of the Institutions.

4. These institutes will provide, if need be, necessary guidance to the Research students and faculty members in the areas of bioscience research.
5. The faculty of IITJ and faculty of JNVU may apply for collaborative projects jointly to national and international funding agencies within the regulations of respective institutions and available facilities related to bioscience research.
6. The research publications related to bioscience research out of the jointly supervised work will be authored jointly by the research students and faculty members from both of the institutions. Any patents filed out of such a work will be credited jointly to both of the institutions.

This MoU is signed between Indian Institute of Technology (IIT), Jodhpur represented by Professor Surajit Ghosh, Dean (R&D) and Jai Narain Vyas University, Jodhpur represented by Mrs. Chanchal Verma (RAS), Registrar on dated 05.11.2020 at Jodhpur.

Authorized signatories:


The Registrar on behalf of
Jai Narain Vyas University
(Rajasthan) **Registrar**
Jai Narain Vyas University
Jodhpur


Dean (R&D)
Indian Institute of Technology Jodhpur
(Rajasthan)

Witness :

1. Prof. G.S. Shekawat

Witness :

1. Lalit Mohan.

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JODHPUR (Raj.)



Ph: 0291-2670404 (R)
0291-2512710(O)
8209036225 (M)

Department of Civil Engineering
M.B.M. Engineering College
Faculty of Engineering & Architecture
Jai Narain Vyas University, Jodhpur-342011

Dr. S.K. Singh, Ph.D, PGD(Fin Mgt), M.E. (Civil Engg), BE (Civil)
Professor & Head

No: jnvu/civil/20/83 .

Date: 15-12-2020

To
The Hon'able Vice Chancellor
Jai Narain Vyas University Jodhpur

Sub: Regarding MOA Information
Ref.: office communication via mail on 8-12-2020

Hon'able Sir,

In reference to above mentioned subject, an MOA was signed with IIT Kanpur in which Faculty of Engineering & Architecture (M.B.M. Engineering College) as a Member Institution (MI) along with IIT Kanpur as Lead Institution (LI) for the **Centre for Ganga River Basin Management and Studies [cGanga] a project of Ministry of Jal Shakti, Government of India.**

Head, Civil Engineering Department is the Institute coordinator and single point of contact for this MOA.

As per the instruction, Copy of MOA is enclosed for perusal.

With regards

Yours faithfully

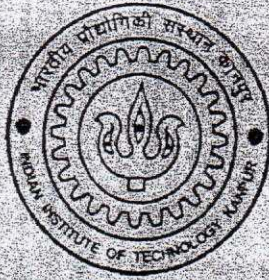
(Dr. S.K. Singh)
(Dr. Suresh Kumar Singh)
Professor & HEAD
Department of Civil Engineering
Faculty of Engineering & Architecture
M.B.M. Engineering College
Jai Narain Vyas University
JODHPUR

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Jai Narain Vyas University
JODHPUR (Raj.)

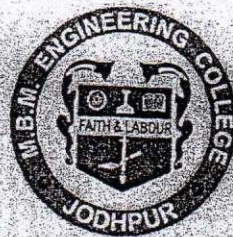
MEMORANDUM OF AGREEMENT

BETWEEN



INDIAN INSTITUTE OF TECHNOLOGY KANPUR [IITK]

AND



FACULTY OF ENGINEERING & ARCHITECTURE
(M.B.M. ENGINEERING COLLEGE)
JAI NARAIN VYAS UNIVERSITY JODHPUR

FOR

CENTRE FOR GANGA RIVER BASIN MANAGEMENT AND STUDIES
[CGANGA]

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SUPPORTED BY

NATIONAL MISSION FOR CLEAN GANGA
MINISTRY OF JAL SHAKTI, NEW DELHI, INDIA

REGISTRAR
Jai Narain Vyas University
JODHPUR (Raj.)





Centre for Ganga River Basin
Management and Studies [cGanga]
Transforming Ganga | Valuing Water



**Memorandum of Agreement
between IIT Kanpur and Faculty of Engineering & Architecture
(M.B.M. Engineering College) Jai Narain Vyas University Jodhpur**

This Memorandum of Agreement (herein after referred to as MOA) is signed between the Indian Institute of Technology Kanpur (herein after referred to as IITK) as the Lead Institute (herein after also referred to as LI) of the Centre for Ganga River Basin Management and Studies (cGanga) having its registered office at IIT Kanpur, Kanpur, UP India and Faculty of Engineering & Architecture (M.B.M. Engineering College) Jai Narain Vyas University Jodhpur (herein after referred to as MBMEC) as a Member Institute (herein after also referred to as MI) having its registered office at Residency Road, Jodhpur (Rajasthan).

In this MOA, "IITK" and "MBMEC" are collectively referred to as the "Parties", and individually as a "Party", or "LI" for IITK, or "MI" for MBMEC, as appropriate, wherever the context so requires.

WHEREAS

- I. LI has signed a Memorandum of Agreement with the Ministry of Jal Shakti (formerly Ministry of Water Resources, River Development and Ganga Rejuvenation) for establishment of Centre for Ganga River Basin Management and Studies (hereinafter referred to as cGanga).
- II. cGanga is mandated to lead the Consortium of Science and Technology Institutions (CSTI) within India and outside as per requirement, and interest and capabilities of the member institutes. The Consortium is to be dynamic where member institutes and associated professionals may change with time.
- III. The MI under CSTI shall nominate a senior level faculty member/scientist/officer/executive, as the case may be, as Institute Coordinator for the CSTI.

This Memorandum of Agreement witnesses as follows:

Page 2 of 6



[Signature]
JAI NARAIN VYAS UNIVERSITY
FACULTY OF ENGINEERING
M.B.M. ENGINEERING COLLEGE
JODHPUR

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[Signature]
REGISTRAR

Jai Narain Vyas University
JODHPUR (Raj.)

1. Purpose of the Memorandum

- 1.1. The main purpose of this MOA is to facilitate the multi-institutional approach to achieve the mandate of cGanga and to set up understandings that lead to cooperation and coordination of activities within the scope of cGanga.
- 1.2. Where appropriate, the MI shall encourage its faculty members and researchers to develop and execute project proposals on the subject area and support activities which involve areas of broad co-operation including dynamic evolution of Ganga River Basin Management Plan (herein after referred to as GRBMP) prepared by Consortium of IITs, detailing of various Missions Reports of GRBMP and supporting the implementation of GRBMP through knowledge inputs.
- 1.3. Each MI should have a single point of contact with LI as its Institute Coordinator for all administrative and financial matters related to the execution of cGanga Projects.

2. Responsibility of the MI

- 2.1. The MI shall develop separate implementing agreements or arrangements with LI, or other MIs if necessary, to support any agreed specific collaborative activities (cGanga Projects) under the purview of this MOA.
- 2.2. This MOA will enable the MI to act in conformity with their internal rules.
- 2.3. The MI shall be responsible for:
 - 2.3.1. Management and coordination of activities, which will be referred as cGanga at MI, under the auspices of this MOA.
 - 2.3.2. Designation of appropriate officials to manage and coordinate joint activities.
 - 2.3.3. Where required and possible, provision of exchange of necessary facilities/services within institute and with LI and other MIs to facilitate the project activities.
- 2.4. Notwithstanding any other provision of this MOA, all activities under this MOA will be conducted in accordance with, and are subject to, all applicable laws and to all executive orders, guidelines and policies related to the subject matters of cGanga by the Ministry of Jal Shakti or any other Ministry of the Government of India (herein after referred to as Sponsoring Agency) which deals with or will deal with subject matters related to cGanga.

3. Financial Arrangements

- 3.1. Funds as mentioned in respective Implementing Agreement will be released by LI to the MI as "Grant".
- 3.2. All funds released by the LI shall be kept in the "Mother Project" at the MI.
- 3.3. The expenditure of "sub/daughter" projects shall be charged to the Mother Project after consolidation regularly at the end of certain periods (monthly, quarterly, half yearly, etc.) as may be decided by MI and communicated to LI.

Page 3 of 6



S. K. Singh
DEAN
FACULTY OF ENGINEERING
JNMV ENGINEERING COLLEGE
J. N. V. UNIVERSITY
JODHPUR

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Jai Narain Vyas University
JODHPUR (Raj.)

- 3.4. Expenditure Statement for each daughter/sub project and Utilization Certificate of Mother Project shall be submitted by the MI to the LI for every financial year within 30 days after the end of the financial year and as may be required by the Sponsoring Agency.
- 3.5. Interest earned, if any, will be appropriately accounted and shown in the Utilization Certificate for each financial year by the MI, and any unutilized amount shall be returned to the LI within 30 days of closure of all daughter/sub projects to cGanga by the MI.

4. Implementing Agreements or Arrangements

- 4.1. Details of specific projects undertaken to implement the collaborative activities identified including tasks, responsibilities, milestones, deliverables, resources, and related conditions will be worked out by the Parties and any other cooperating/implementing entities/agencies as deemed appropriate and will be embodied as Implementing Agreements or Arrangements under this MOA. This MOA shall govern all such Implementing Agreements or Arrangements unless expressly stated otherwise. Projects established under this MOA will be coordinated through the heads of the two Parties or their designees. Coordinators and working groups may be appointed by mutual consent of the Parties, as required, to consider and act on matters related to the implementation of this MOA.
- 4.2. Dr Vinod Tare, Professor, Department of Civil Engineering and Founding Head, cGanga will execute the responsibilities mentioned in this MOA on behalf of LI (cGanga at IIT Kanpur).
- 4.3. The Vice Chancellor, Jai Narain Vyas University or his designee will execute the responsibilities mentioned in this MOA on behalf of the MI (cGanga at MI).
- 4.4. Periodic reports on the progress towards achieving the purpose of the MOA, including status reports on each of the projects undertaken shall be submitted to the LI by the MI. Such reports should outline future activity areas, represent proceedings of working groups, seminars or meetings and document the progress and results of various projects by the MI under this MOA.

5. Data/Information Exchange

- 5.1. Each Party shall provide the other Party necessary project specific information, data and other documents for successful achievements of the objectives of this MOA. Information that may be exchanged under the auspices of this MOA may include information that is intended to acquaint the Parties, to identify common interests, and other such matters as may be necessary to properly define the appropriate level of cooperation between the Parties. In addition to the exchange of reports and other documents, such exchange of information may include workshops and other collaborative sessions that focus on research outcomes and the planning of collaborative activities.

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FACULTY OF ENGINEERING
MBM ENGINEERING COLLEGE
J. N. V. UNIVERSITY
JODHPUR

5.2. Any data/information collected/generated by MI on behalf of cGanga or to carry out any activity or any daughter/sub project shall be made available to the LI in original/digital form.

5.3. Each Party will use the information provided to it only for the purpose intended and will give all possible protection to information, data and products of a confidential nature provided by the other Party. The details will be included in the specific implementation agreements, but at a minimum, this protection will include the same protection, which a Party accords its own information, data and products.

5.4. The application or use of any information exchanged or transferred between Parties under this MOA will be the responsibility of the receiving Parties. The supplying Party does not guarantee the sufficiency and appropriateness of such information for any particular application.

5.5. Each Party will retain the right to release public information regarding its own activities under this MOA. In cases where the activities of the other Party are also concerned, prior consultation shall be undertaken for releasing any public information.

6. Intellectual Property Rights

6.1. The treatment of intellectual property created in the course of collaborative activities under this MOA and relevant funding terms shall conform to the existing policies of the Parties and as may be agreed by the Parties separately for each project executed under this MOA.

7. Confidentiality

7.1. The Parties agree that all information or discussions relating to this Memorandum of Agreement, the fields of research or to the business affairs of the other Party which are of a confidential nature or which ought reasonably to be considered confidential ("Confidential Information"), shall not be disclosed by a Party to any third party without the prior written consent of the other Party.

7.2. Neither Party shall disclose or use any Confidential Information without the other Party's prior written permission. These obligations of confidentiality and non-use shall not apply to any information: (i) that it was lawfully in the receiving Party's possession before being disclosed to it by the disclosing Party; (ii) that lawfully enters the public domain; (iii) that was independently developed by the receiving Party without reference to the Confidential Information received from the disclosing Party; or (iv) which is required to be disclosed by law.

7.3. Both the Parties must ensure that their respective agents, employees and research partners who receive, or may receive, Confidential Information, are aware of, and are bound by, these confidentiality provisions.

8. Disputes

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MBM ENGINEERING COLLEGE
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JODHPUR

8.1. Any disputes regarding interpretation or implementation of this MOA or its associated implementing agreements or arrangements will be resolved through mutual discussion by Heads of the Institutions of Parties.

9. Entry into Force and Term

9.1. Unless superseded by virtue of the Parties having entered into a subsequent implementation agreement, the MOA shall be effective from the date of signing of this MOA and shall remain in force for five calendar years. Thereafter, it may be renewed for any additional period as per mutual agreement in writing.

9.2. Either Party, upon ninety days written notice to the other Party in advance, may terminate this MOA at any time.

9.3. Unless otherwise agreed, termination or expiration of the MOA shall not affect the validity, terms and conditions, or duration of projects or programmes under this MOA that have been initiated prior to such termination.

10. Amendments

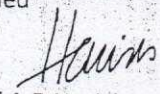
10.1. This MOA may be amended or extended by mutual agreement of the Parties. All such amendments/ extensions shall be in writing and signed by both the Parties. All amendments/ modifications/additions agreed upon by the Parties shall become part of this Agreement from the date of its signing by the Parties.

Signatures

In witness whereof the Parties hereto have caused this agreement in duplicate to be executed hereunto set their respective hands on

Party 1: Lead Institute – IIT Kanpur

Signed

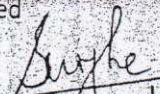

अधिष्ठाता
DEAN
अनुसंधान एवं विकास
Research & Development
आई.आई.टी. कानपुर
I. I. T. KANPUR

Prof A R Harish
Dean, Research and Development
Indian Institute of Technology Kanpur
KANPUR – 208016, INDIA

11/10/20

Party 2: Member Institute – Faculty of Engineering & Architecture (M.B.M. Engineering College), Jai Narain Vyas University Jodhpur

Signed


12/11/2020
Prof Shrikant Ojha
Dean
DEAN
FACULTY OF ENGINEERING
M.B.M. ENGINEERING COLLEGE
J.N.V. UNIVERSITY
JODHPUR
Jai Narain Vyas University Jodhpur
Jodhpur (Rajasthan)-342111, INDIA

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INDIAN INSTITUTE OF TECHNOLOGY, KANPUR
Centre for Ganga River Basin Management and Studies
IIT Kanpur

cGanga
Dr Vinod Tare
Professor & Founding Head

Shri (Dr.) S. K. Ojha
Dean
Faculty of Engineering & Architecture
M.B.M. Engineering College
Jai Narain Vyas University, Jodhpur, Rajasthan

September 9, 2020

Subject: Invitation to be a Member Institute (MI) of the Consortium of Science & Technology Institutes (CSTI) led by IIT Kanpur (Lead Institute, LI) to deliver the Mandate of cGanga fully supported by Ministry of Jal Shakti, GoI

Dear Sir:

I am delighted to invite your institute to be a part of the Consortium to develop the subject of River Science and Management, and participate in River Restoration and Conservation Programme of the Government of India as a Knowledge Partner in delivering the mandate of Centre for Ganga River Basin Management and Studies (cGanga in short). cGanga is led by IIT Kanpur and fully supported by Ministry of Jal Shakti, Government of India, post submission of the Ganga River Basin Management Plan in 2015 by the Consortium of IITs (referred as IITC) that was also led by IIT Kanpur. The participation could be in one or more ways as follows.

1. Participation in brainstorming sessions and events organized under various portfolio as in Annexure I and peer review of various reports prepared by Team cGanga.
2. Participate in various projects financially supported through funding available to cGanga or jointly develop project proposals to be funded by various national and international funding agencies.
3. Participate in implementing high impact projects.
4. Participate in gathering, analytics and dissemination of various kinds of data and information relevant to restoration and conservation of rivers.
5. Any other mode that could be mutually agreed and of interest to deliver on the mandate of cGanga.

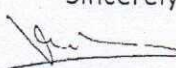
To facilitate participation and formalize working, a draft MOA is enclosed for your consideration. I will appreciate if the same could be signed and a person can be nominated as MI's Coordinator as envisaged in the draft MOA.

With regards,

COUNTER SIGNED

Enclosure: As stated


REGISTRAR
Jai Narain Vyas University
JODHPUR (Raj.)

Sincerely,

(Vinod Tare)

Date 1

To,

The Hon'ble Vice Chancellor
JNV University
Jodhpur



Dean
Fac. of Engg.
OIC (Genl)
AR (Acad)

Respected Sir,

There has been an offer from IIT,
to join as a member institute in the CG
project financed by Jal Shakti Ministry, Govt.
An MOA has to be signed on behalf of the University.
Kindly allow the Dean, Faculty of Engineering & Architecture to sign the document and oblige.

Thanking you,

Registrar/Dean, Engg

Permitted.
I authorize Dean Engineering
to sign MOA for C. Ganges.

ee
11.9

Faithfully
Surge

(DR. SHRIKANT)

COUNTER SIGNED

REGISTRAR
Jai Narain Vyas University
JODHPUR (Raj.)

Mail sent to Dean, Engg
10/12/20



cGanga

Dr Vinod Tare

Professor & Founding Head - cGanga

Centre for Ganga River Basin
Management and Studies
Indian Institute of Technology, Kanpur

Prof S K Singh
Professor and Head
Department of Civil Engineering
M.B.M. Engineering College Jodhpur
JNVU Jodhpur

October 25, 2020

Subject: MoA between cGanga at IIT Kanpur and MBMEC, JNVU Jodhpur
Reference: Letter No. JNVU/DFE/2020/1891; dated September 25, 2020

Dear Dr Singh:

We acknowledge the receipt of letter on the subject received from 'he Dean, Faculty of Engineering and Architecture (MBMEC), JNVU Jodhpur.

With this letter, cGanga at IIT Kanpur as Lead Institute (LI) acknowledges that the Head, Civil Engineering Department, MBM Engineering College, Jodhpur will be the single contact person as Coordinator, and authorised to manage all relevant technical, financial and administrative activities of the cGanga at MBMEC, Jodhpur as Member Institute (MI).

As per MoA, MI will maintain a separate account for funds received for cGanga Activities at MI and the Coordinator will be responsible for organising timely submission of reports on various activities carried out, Statement of Expenditure and Utilization Certificate.

Kind Regards,

Copy to:

1. The Vice Chancellor, JNVU Jodhpur
2. The Dean, Faculty of Engineering and Architecture (MBMEC), JNVU Jodhpur

Sincerely,

(Vinod Tare)

Dr. Vinod Tare
Professor
Environmental Engg. & Management
Department of Civil Engineering
Indian Institute of Technology
Kanpur-208016, INDIA

COUNTER SIGNED

REGISTRAR

Jai Narain Vyas University
JODHPUR (Raj.)

MANOJ KUMAR K.
Scientist-D

Information and Library Network Centre

(An Autonomous Inter-University Centre of UGC)

सूचना एवं पुस्तकालय नेटवर्क केन्द्र

(विश्वविद्यालय अनुदान आयोग का स्वायत्त अंतर विश्वविद्यालय केन्द्र)

Infocity, P.B. No. 4, Gandhinagar - 382007, Gujarat, INDIA

Ph.: +91-79-23268000 - 499, Web : www.inflibnet.ac.in



INFLIBNET Centre

Memorandum of Understanding (MoU) for Shodhganga/Shodhgangotri (A Repository of Theses and Dissertations submitted to the Universities in India)

This Memorandum of Understanding (MoU) is made and entered into on 05 (Day) 03 (Month) 2020 (Year) between the INFLIBNET Centre, an IUC of University Grants Commission located at Gandhinagar, hereinafter referred to as "INFLIBNET" and Jai Narain Vyas University, Jodhpur (University / Deemed University / Inter-University Centre), here in after referred to as the 'University'.

WHEREAS, INFLIBNET Centre, an Inter-university Centre of the University Grants Commission, as its mandate, promotes open access to scholarly content generated in universities. The Centre has computers, network, software infrastructure and technical know-how required for hosting electronic versions of theses and dissertations in open access with interface to search, retrieve and access these content.

Jai Narain Vyas University, Jodhpur (Rajasthan) (University / Deemed University / Inter University Centre) has agreed to take part in the process of digitisation of old theses and dissertations (not available in computerized machine-readable format) and building-up of digital repository and to promote, share and host its ETD in 'Shodhganga: A reservoir of Indian theses submitted to the Universities in India' and other universities in open access. 'Shodhganga' is a name coined by INFLIBNET Centre for referring to the repository of Indian Electronic Theses and Dissertations. The word "Shodh" originates from Sanskrit and stands for research and discovery. The 'Ganga' is the holiest, longest and largest river in Indian subcontinent which has held heart of its people captive and drawn millions of people to its banks since the dawn of history. The Ganga is the symbol of India's age-long culture and civilization, ever changing, ever flowing, ever loved and revered by its people. "Shodhganga", a repository of theses and dissertations submitted to Indian universities, is expected to keep growing to a formidable size as more and more researchers from India submit their research works to this ever growing reservoir. Under the initiative called "Shodhgangotri", research scholars / research supervisors in universities are requested to deposit electronic version of approved synopsis submitted by research scholars to the universities for registering themselves for the Ph.D programme.


This Memorandum of Understanding (MoU) defines responsibilities, liabilities and commitments of the institutions involved to ensure proper system implementation, to meet the objectives pertaining to submission and access to Electronic Theses and Dissertations as envisaged by the UGC vide its Notification (Minimum Standards & Procedure for Award of M.Phil/Ph.D Degree), Regulation, 2009 dated 1st June, 2009 / amendment made on 5th May 2016.

NOW, THEREFORE, in consideration of the mutual agreements herein contained, INFLIBNET and the University agree to the following terms and conditions:

I. INFLIBNET Centre

1. Provide access to ETD hosting server(s) at the INFLIBNET Centre 'Shodhganga'/Shodhgangotri' to the University with accompanied software interface enabling University / its student to create metadata and upload their theses and dissertations in ETD repositories designed for this purpose. The INFLIBNET will take the responsibility of keeping the data intact and usable, keep back-up of the data so as to avoid its loss. The INFLIBNET will deploy

Pg 1 of 4


Chairperson
Library Board,
J.N.V. University
JODHPUR


Registrar
Jai Narain Vyas University
Jodhpur


Checked and Verified

tools and techniques of digital preservation to ensure continuing access to scholarly content in digital formats and to protect them from media failure, physical loss and obsolescence.

2. Recommend to the UGC to extend financial assistance to the Universities under Sections 12(B) and 2(f) of UGC Act for digitization of theses and dissertations not available in computerized machine-readable format and / or for procurement and installation of a suitable computer system / infrastructure for creation of ETDs.
3. Provide configuration of system, specifications and technical guidance to the University for procurement of computer hardware and related systems for setting-up of ETDs.
4. Provide guidelines, technical standards and specifications for digitization of Ph.D. theses submitted to the university in past and for theses not available in computerized machine-readable format.
5. Impart training to at least one person from the university (from library field and / or from computer field) in creation, updation and computerized operation of digital repositories of ETDs especially on 'Shodhganga'.
6. Extend access to an anti-plagiarism software or provide services to evaluate theses for possible plagiarism and submit a report to the concerned university.
7. The INFLIBNET may refuse to host any material deemed by the INFLIBNET to be controversial in nature or is in violation of copyright act.
8. This right of refusal will not relieve the University / Ph.D. scholar of liability, both to INFLIBNET and to the public, for matter contained in the theses that may be libelous or actionable and to both INFLIBNET and copyright owners for copyright infringement by the Ph.D. Scholar.
9. The INFLIBNET Centre will not be responsible for i) errors, omissions, inaccuracies and quality of content or misinformation or for any damages caused to the user or any third party from the use of content provided in the theses; ii) safety and archiving of loaded content in cases of "force majeure" including natural calamities; and iii) printed version of theses.
10. INFLIBNET Centre will recommend or provide access to plagiarism software which university may use to detect plagiarism before awarding the degree.
11. The INFLIBNET Centre replicates the content of theses and dissertations on different server and other auxiliary storage media. However, the INFLIBNET Centre does not take the responsibility for the archiving or backing-up of loaded content. The universities, therefore, should also keep a back-up of their theses and dissertations.

The
Chairman
Library Board,
J.N.V. University
JODHPUR

Pg 2 of 4

(Signature)
Checked and Verified

(Signature)
Registrar
Jai Narain Vyas University
Jodhpur

12. INFLIBNET Centre also maintains a repository called "Shodhgangotri" for hosting the approved synopses of research topic submitted to the universities by the students for registering themselves under the doctoral programme. Research students/their supervisors are encouraged to submit approved synopses/research proposals and register their priority on a research proposal through the repository.

II. The University

1. The University would grant non-exclusive worldwide license to the INFLIBNET Centre for hosting and distributing their theses in digital format in 'Shodhganga'/'Shodhgangotri' or any other server designated for this purpose.
2. The University / its researcher scholars agree to host / upload a computerized machine-readable file in mutually agreed format of all theses on to the 'Shodhganga'/'Shodhgangotri' server at the INFLIBNET.
3. The University will not hold INFLIBNET Centre responsible for any errors and omissions contained in the original theses.
4. The University commits to digitize theses and dissertations and their bibliographic records submitted to the university and provide necessary infrastructure including manpower support for operation of ETDs.
5. Commits to utilize the assistance provided by the UGC on recommendation of the INFLIBNET for implementation of ETDs including their digitization.
6. Deputes at least one person from the university (from library field or from computer field) for undergoing training on implementation of ETD organized by the INFLIBNET and ensure that the person trained by INFLIBNET on ETD is / are deployed for the same job.
7. Arranges to provide training to research scholars or users of its library and staff of colleges affiliated to University in creation of electronic version of theses and their deposition in the ETDs.
8. Ensures use of standard software and metadata schema suggested / provided by the INFLIBNET for setting-up / development / operation of its ETDs .
9. Creates bibliographic records of all theses and dissertations submitted to the university in standard bibliographic formats prescribed by the INFLIBNET Centre from time-to-time and contributes these records for inclusion in the INFLIBNET's Union Catalogue (IndCat).
10. Commits to sharing of library ETD resources / databases with the INFLIBNET Centre as well as with other universities.

Pg 3 of 4

The
Chairman
Library Board,
J.N.V. University
JODHPUR

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Registrar
Jai Narain Vyas University
Jodhpur

[Signature]
Checked and Verified

11. The University would agree to host their ETDs in the digital repositories 'Shodhganga or other servers' set-up at the INFLIBNET Centre, and grant non-exclusive licence to the Centre to make electronic version of theses in full-text (theses that are born digital as well as those that are digitized using scanners / digital cameras) accessible through open access ETD.
12. The University shall not use electronic version of theses digitized using funds given by the UGC for any commercial purposes. The University shall not rent, sell or license the use of or deliver or release or otherwise part with the possession of the systems / software or the INFLIBNET ETDs databases, Shodhganga or any part thereof to any other party (individual, institution, organization, etc.)
13. The University will also commit their own funds or grants for fulfillment of the project, if the project on implementation of ETDs demands more resources and funds to complete it.
14. The University will use the plagiarism software recommended by the INFLIBNET and made accessible to test the thesis submitted by the student for plagiarism before awarding the Degree. If the university is not subscribing to such software, it will use the software from the nearest Regional Centre, if any.
15. University would encourage and ensure that Research Scholars/ Research Supervisors deposit host their approved Research Proposals/ approved synopses on the "Shodhgangotri" once Ph.D. is registered.

III. Termination

Both, the Parties, will have rights to terminate the MoU at any time in case of breach of obligations and terms and conditions of the MoU. This MoU signed hereunder may be terminated by either party at anytime upon ninety (90) days prior written notice. Upon termination of this Agreement, the INFLIBNET / University will stop hosting their theses immediately while keeping the theses already deposited by the University in its archives for its users. The University shall stop using the INFLIBNET's ETD facilities and databases and return any software / hardware or digitized content provided by or through the INFLIBNET, back to INFLIBNET within the 3 months notice period.

IN WITNESS WHEREOFF, the parties hereto executed this MoU on this date above mentioned.

UNIVERSITY:

Vice Chancellor / Registrar
or designated authority

Jai Narain Vyas University

(Name, Signature and Stamp)

INFLIBNET:

Prof J P Singh Joorel,
Director

INFLIBNET Centre,

An IUC of University Grants Commission
Infocity, Gandhinagar - 382 007.



Checked and Verified

MEMORANDUM OF UNDERSTANDING

BETWEEN

Department of Mining Engineering
M B M Engineering College
Jai Narain Vyas University
JODHUR

AND

Mining Engineers' Association of India
Rajasthan Chapter, Jodhpur

COUNTER SIGNED

1

REGISTRAR
Jai Narain Vyas University
JODHUR



राजस्थान RAJASTHAN

P 190303

MEMORANDUM OF UNDERSTANDING

This memorandum of understanding (hereinafter called as the "MoU") is entered into on this the 23rd day of September Two Thousand Twenty (23.09.2020), by and between

Department of Mining Engineering, Jai Narain Vyas University, Jodhpur, The first party represented herein by its Vice Chancellor (hereinafter referred as "First Party", the institution which expression, unless excluded by or repugnant to the subject or context shall include its successors – in office, administrators and assigns).

AND

Mining Engineers' Association of India, Rajasthan Chapter, Jodhpur, presently having its office at 8, West Patel Nagar, Circuit House Road, Jodhpur-342011 (Raj.) and functioning as one of the chapter of the

[Signature]

[Signature]

Dr
NOTARY JODHPUR
09/10/2020

COUNTER SIGNED

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REGISTRAR

Jai Narain Vyas University
JODHPUR (Raj.)

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COUNTER SIGNED

REGISTRAR

Dr Narain Vyas University
JODHPUR (Raj.)

Mining Engineers' Association of India, having its headquarter office at F-608 & 609, 6th Floor, Raghu Ratna Towers, 'A' Block, Chirag Ali Lane, Abids, Hyderabad-500001. The second party represented herein by its Chapter Chairman/ representative (hereinafter referred as "Second Party" which expression, unless excluded by or repugnant to the subject or context shall include its successors – in office, administrators and assigns), (First and Second Party are hereinafter jointly referred as "Parties" and individually as "Party") and

WHEREAS:

- A) First party is Higher Educational Institute named:

Department of Mining Engineering
M. M. Engineering College
Jai Narain Vyas University
JODHPUR

First Party and Second Party believe that collaboration and co-operation between themselves will promote more effective use of each other's resources to promote mining education in the state and provide each of them with enhanced opportunities.

- C) The parties' intent to cooperate and focus their efforts on cooperation within area of Skill Based Training, Education and Research in the field of mining industry.
- D) Both parties, being legal entities in themselves desire to sign this MoU for advancing their mutual interests.

[Signature]

NOTARY JODHPUR

[Signature]

COUNTER SIGNED

[Signature]

REGISTRAR
Jai Narain Vyas University
JODHPUR (Raj.)

- E) "Mining Engineers' Association of India", Rajasthan Chapter, Jodhpur, the Second Party is engaged in providing a common platform to Mining Engineers, academicians, researchers and entrepreneurs to share and discuss their views for the development of industry.
- F) "Mining Engineers' Association of India", Rajasthan Chapter, Jodhpur, the Second Party is promoted by "Mining Engineers' Association of India" from its headquarter office at F-608 & 609, 6th Floor, RaghvaRatna Towers, 'A' Block, Chirag Ali Lane, Abids, Hyderabad-500001..

CLAUSE 1: CO-OPERATION

1.1 Both parties are united by common interests and objectives and they shall establish channels of communication and co-operation that will promote and advance their respective operation within the department and its facilities. The parties shall keep each other informed of potential opportunities and shall share all information that may be relevant to additional opportunities for one another.

1.2 First and Second party co-operation will facilitate effective utilization of the intellectual capabilities of the members and faculties providing significant inputs to them in developing suitable / training systems keeping in mind the needs of the industry.

1.3 The general term of co-operation shall be governed by this MoU. The parties shall cooperate with each other and shall, as promptly as

[Signature]

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COUNTER SIGNED

NOTARY JODHPUR

REGISTRAR
Jai Narain Vyas University
JODHPUR (RAJ)

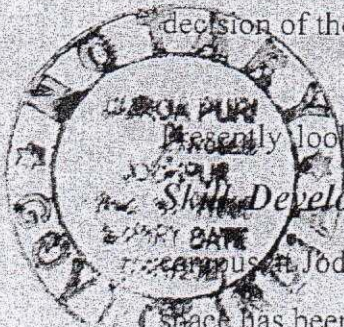
reasonably practical enter into all relevant agreements, deeds and documents mutually decided by the parties.

1.4 This MoU shall supersede any prior understanding between the parties on the subject matter hereof.

CLAUSE 2: SCOPE OF THE MoU

The budding graduates, Mining Entrepreneurs and mining professional from the institutions and industry could play a key role in technological up-gradation, innovations and competitiveness of mining industry. Both parties believe that close co-operation between the two would be of major benefit to the student community to enhance their skill and knowledge.

2.1 **Development of Infrastructure:** Second party will help financially in creating and for the development of infrastructure supportive to education and skill training in various trades in mining industry & the department subjective to the demand from the department and internal decision of the second party.



Presently looking in to the need, second party has decided to develop **Skill Development Centre (SDC)** in the premises of First party's campus at Jodhpur with an initial expenditure of Rs. 10.0 lacs. For this, a space has been provided with the mutual consent of both the parties

[Signature]

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REGISTRAR

Jai Narain Vyas University
JODHPUR (RAJ.)

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NOTARY JODHPUR

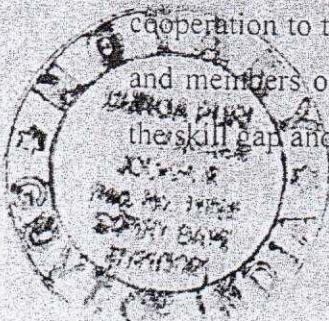
The centre will be used for the students of Mining Engineering Department, Mining Industry persons, Members of MEAI.

2.2 Curriculum Design: Second Party will give valuable inputs to the First party in teaching/training methodology and suitably customize the curriculum so that the students fit into the industrial scenario meaningfully and mining professionals are updated about latest developments in the mining field and for effective academic-industry interaction.

2.3 Industrial Training and Visit: Industry and Institution interaction will give an insight into the latest developments / requirements of the industries; the Second party to help in arranging the Faculty and Students of the First party to visit the industries and complete Industrial training Programs

2.4 Research and Development: Second party has agreed to help financially and technically for the joint research in the fields of Mining Engineering.

2.5 Skill Development Programs: Both parties have agreed to extend cooperation to train the students of First party, mining industry personnel and members of MEAI on the emerging technologies in order to bridge the skill gap and make them industry ready.



[Signature]

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COUNTER SIGNED

6

NOTARY JODHPUR

REGISTRAR
Jodhpur
JODHPUR (RAJ.)

2.6 Guest Lectures: Second party to extend the necessary support to deliver guest lectures in the department on the technology trends and in house requirements.

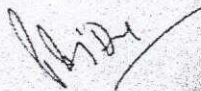

2.7 Faculty Development Programs, Seminars, and Workshops: Both parties agreed to train faculties of First party and other institutions, industry engineers/personnel and the students of first party by organizing such events in collaboration.

2.8 Placement of Trained Students: Second party will actively engage to help the delivery of the training and placement of students of the First party in to internships/jobs.

2.9 There is no financial commitment on the part of the Department of Mining Engineering, M B M Engineering College, Jai Narain Vyas University, JODHPUR, the First party to take up any program mentioned in the MoU. If there is any financial consideration, it will be dealt separately.

CLAUSE 3: VALIDITY

3.1 This agreement will be valid until it is expressly terminated by either party on mutually agreed terms, during which period Mining Engineers Association of India, Rajasthan Chapter, Jodhpur, the Second, Party as the case may be, will take effective steps or implementation of this MoU. Any act on the part of Mining Engineers Association of India, Rajasthan



COUNTER SIGNED

NOTARY JODHPUR

REGISTRAR
Jai Narain Vyas University
JODHPUR (Raj.)

Chapter, Jodhpur, the Second Party, after termination of this agreement by way of communication, correspondence etc., shall not be constructed as an extension of this MoU.

3.2 Both parties can terminate this MoU upon 90 calendar days' notice in writing for the breach of conditions of MoU, which are to be communicated in writing. However, either party shall provide opportunity to other party to rectify the breach and if it is rectified within 90 days than this MoU cannot be terminated. In the event of termination both parties have to discharge their obligations.

CLAUSE 4: RELATIONSHIP BETWEEN THE PARTIES

4.1 It is expressly agreed that First party and Second party are acting under this MoU as independent contractor, and the relationship established under this MoU shall not be construed as a partnership. Neither party is authorized to use the other party's name in any way, to make any representative or create any obligation or liability, expressed or implied on behalf of the other party, without the prior written consent of the other party. Neither party shall have, nor represent itself as having any authority under the terms of this MoU to make agreements of any kind in the name of or binding upon the other party, to pledge the other party's credit, or to extend credit on behalf of the other party.

4.2 Any divergence of difference derived from the interpretation or

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COUNTER SIGNED

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REGISTRAR

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NOTARY JODHPUR

Jai Narain Vyas University
JODHPUR (RAJ)

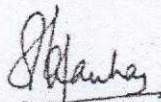
application of the MoU shall be resolved by arbitration between the parties as per Arbitration Act, 1996.

AND WHEREAS the First Party and Second Party has agreed on the above terms & conditions. Now both the parties shall be bound by these terms & conditions.

IN WITNESS WHERE OF these presents have been executed by the authorized representatives of the parties hereto the day and the year first above written.

For

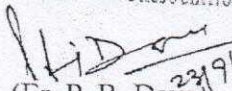
Jai Narayan Vyas University


(Prof. S. K. Parihar)
23/11/2020
HEAD
Department of Mining Engineering
Faculty of Engineering
Department of Mining Engineering,
M B M Engineering College,
Jai Narain Vyas University,
JODHPUR
Phone: 0291-2515154
Head of mining@jnvu.edu.in

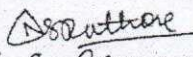
For


Mining Engineers' Association of India

MINING ENGINEER'S ASSOCIATION OF INDIA


(Er. P. R. Dave)
23/11/2020
Chairman

Mining Engineers' Association of
India, Rajasthan Chapter, Jodhpur,
8-West Patel Nagar,
JODHPUR
M-9950970971
meai_jodhpur@yahoo.co.in

Witness 1: 
R. S. RATHORE
VICE CHAIRMAN MEAI, Jodhpur
B-14 SIR PRATAP
COLONY
JODHPUR

Witness 2: 
Y. J. SANKHLA
Secretary
MEAI, Jodhpur



NOTARY JODHPUR

COUNTER SIGNED

REGISTRAR

Jai Narain Vyas University
JODHPUR (Raj.)

JAI NARAIN VYAS UNIVERSITY, JODHPUR
(ACADEMIC SECTION)

No.JNVU/Aca/A/16903

Dated: 14/09/2020

✓ The Head
Department of Mining Engineering
M.B.M.Engineering College
Jai Narain Vyas University
Jodhpur.

Dear Sir,

With reference to your letter No.JNVU/FE/MI/2020-21/67 dated 02.09.2020 for approval on the draft copy of MoU to be made between MEAI and Department of Mining Engg., JNVU, Jodhpur for development of Skill Developoment Centre in the premises of Mining Engineering Department. In this connection it is to inform you that as per orders of the Hon'ble Vice-Chancellor the draft submitted by you is approve and permitted to take further necessary action in the matter keeping in view no financial liability will be applicable at University level.

Yours faithfully,


REGISTRAR

COUNTER SIGNED


REGISTRAR
Jai Narain Vyas University
JODHPUR (Raj.)

Scopoletin: Antiamyloidogenic, Anticholinesterase, and Neuroprotective Potential of a Natural Compound Present in *Argyrea speciosa* Roots by In Vitro and In Silico Study

Neuroscience Insights
Volume 15: 1–10
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DOI: 10.1177/263105520937693



Priya Kashyap¹, Heera Ram², Sunil Dutt Shukla³
and Suresh Kumar¹

¹University School of Biotechnology, GGS Indraprastha University, New Delhi, Delhi, India.

²Department of Zoology, Jai Narain Vyas University, Jodhpur, Rajasthan, India. ³Department of Zoology, Government Meera Girls College, Udaipur, India.

ABSTRACT: Alzheimer's disease (AD) is characterized by depositions of amyloid β ($A\beta$) peptides aggregates resulting in plaques formation in the central nervous system (CNS). This study evaluates the disease-modifying potential of scopoletin against multiple factors associated with AD such as cholinesterase enzymes, $A\beta$ peptides, and neuroprotective properties against $A\beta$ - and H_2O_2 -induced cytotoxicity under in vitro conditions. Scopoletin was identified and quantified using UPLC-QTOF (ultra-high performance liquid chromatography-quadrupole time-of-flight) and high-performance liquid chromatography (HPLC), respectively. The antiamyloidogenic potential was evaluated by thioflavin T and congo red binding assay. Inhibition of key enzymes, that is, acetylcholinesterase and butyrylcholinesterase, was investigated by Ellman's assay. UPLC-QTOF analysis showed that most abundant phytoconstituent present in *Argyrea speciosa* hydroalcoholic root extract was scopoletin followed by festuclavine and ergometrine. Scopoletin was further quantified using novel reverse phase (RP)-HPLC method developed in this study. The neuroprotective potential of scopoletin was found to be 69% against $A\beta$ 42-induced neurotoxicity and 73% against H_2O_2 -induced cytotoxicity in PC12 cell culture at 40 μ M final concentration. At the same concentration, scopoletin inhibited $A\beta$ 42 fibril formation up to 57%. The IC_{50} concentration for AChE and BuChE enzyme inhibition by scopoletin was 5.34 and 9.11 μ M, respectively. The antiaggregation and enzyme inhibition results were complemented with strong molecular interactions of scopoletin with target proteins validated by in silico molecular docking analysis. Based on this study, it can be concluded that scopoletin can be used as a lead for amelioration of symptoms and disease-modifying effects in AD.

KEYWORDS: scopoletin, *Argyrea speciosa*, Alzheimer's disease, amyloid β , neuroprotection, antiamyloidogenic

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TYPE: Original Research

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DECLARATION OF CONFLICTING INTERESTS: The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Introduction

Alzheimer's disease (AD), a progressive and irreversible neurodegenerative disorder, accounts for more than 80% cases of dementia in elderly people. Worldwide, 47 million patients estimated to be suffering from AD at present, and this number is expected to increase up to more than 130 million by 2050.¹ The present therapies are unlikely to mitigate AD, as they are focused on single specific drug target, that is, cholinesterase inhibitors. Alzheimer's disease is a complex multifactorial etiology, which includes depositions of amyloid β ($A\beta$) protein aggregates in the central nervous system (CNS).² These aggregates are formed by mis-cleavage of amyloid precursor protein (APP) that results in sticky insoluble peptide fragments called $A\beta$ fibrils, mostly consisting of oligomers that get deposited extracellularly on cerebrovascular space.³ Amyloid β fibrils are mainly of 2 types depending on the C-terminal cleavage pattern of APP. Amyloid β 40 is the most prevalent form but $A\beta$ 42 is more neurotoxic hydrophobic form of $A\beta$, as it has faster aggregation kinetics.⁴ Amyloid β 42 plaque formation causes neuronal cell damage and also increases oxidative stress in the CNS. As the AD progresses $A\beta$ fibrillation accelerates on binding to AChE.⁵ In the later stages of AD, there is

an established direct correlation between $A\beta$ aggregation and oxidative stress due to accumulation of reactive oxygen species (ROS).⁶ In addition, $A\beta$ fibrils have affinity to reduce redox-active metals and consequently lead to the formation of hydrogen peroxide and oxidized $A\beta$.⁷ Therefore, compounds that could inhibit cholinesterase, having antioxidant potential and prevent aggregation of $A\beta$ peptide could be used for therapeutic intervention. Current treatment only provides symptomatic relief. Presently, there is an urgent need to discover novel drug compounds that could have disease-modifying effects with negligible side effects. Considering this, the current study was undertaken to evaluate multitarget-directed ligand potential (MTDL) of natural compound scopoletin, an isolated coumarin class of compound, from *A. speciosa* roots.

A. speciosa or *vridhadaraka* meaning antiaging, has been mentioned in Ayurvedic material medica for its medicinal properties such as rheumatism, hepatoprotective, immunomodulatory, antioxidant, anti-inflammatory activity, and neurological disorders.^{8,9} The identified compound in this study, scopoletin (6-methoxy-7-hydroxycoumarin) is a phytoalexin, low molecular weight compounds that are biosynthesized in response to microbial attack over the plant. Scopoletin



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MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding (MoU) made and executed at Jodhpur on 4/3/2020⁰ March 04, 2020 between **JAI NARAIN VYAS UNIVERSITY, JODHPUR**, having its campus at **Residency Road , Jodhpur** (hereinafter referred to as **JNVU, Jodhpur** which expression shall, unless it is repugnant to the subject or context thereof, include its successors, assignees and /or nominees)

And

RAJASTHAN ILD SKILLS UNIVERSITY , JAIPUR having its campus at Khasa Kothi , MI Road , Jaipur (hereinafter referred to as **RISU , Jaipur** which expression shall, unless it is repugnant to the subject or context thereof, include its successors, assignees and /or nominees)

Whereas

Jai Narain Vyas University, Jodhpur holds the distinction of being premier state University of higher learning in Rajasthan. It was established in 1962 by Jodhpur University Act (Act XVII) and recognized from the time of its inception under sections 2f and 12B of UGC Act. The main objective of the University has been the creation and dissemination of knowledge.

And Whereas


RAJASTHAN ILD SKILLS UNIVERSITY , JAIPUR is a State University of Rajasthan established under the provisions of Rajasthan ILD Skills University Act , 2017 (Act no. 6 of 2017) for imparting skill education and training in the state of Rajasthan

1. Scope of MoU:

Both the parties in principle agree to work in the following areas of collaboration:

- a) cooperate in the exchange of information relating to their activities in teaching and research in fields of mutual interests.
- b) collaborate in curriculum development for skill education and General education
- c) provide mutual access to facilities for the academic purposes as mutually agreed between the parties prior to commencement of the activity:
- d) conduct short courses, as mutually agreed in writing between the parties prior to commencement of this activity:
- e) areas of collaboration may be proposed by either institution and may include, but are not limited to:
 - Joint teaching, research, or cultural activity;
 - Mobility of faculty, scholars, and students between institutions;
 - Staff professional development;
 - Sharing or creation of educational materials and resources.

The RISU offers Concurrent Skills Courses to the students enrolled with other State Funded University as per its regulations. These courses in skill education can be taken up concurrently with the main course for


Registrar
Jai Narain Vyas University
Jodhpur


COUNTER SIGNED

REGISTRAR
Jai Narain Vyas University
JODHPUR (Raj)

which students has already enrolled. The classes are conducted beyond regular course timings. JNVU agrees to permit student enrolled by it for pursuing Concurrent Courses being provided by the RISU.

Any specific activity developed under this MOU shall be detailed in a subsequent agreement, signed by each institution's authorized signatory, which will describe the scope of the proposed activity, intended outcomes, budget, and responsible departments or individuals.

2. Commencement and Validity:

This Memorandum of Understanding shall commence on the date of signing of this MoU and shall remain valid initially for a period of five years (05), thereafter extendable upon review of activities and mutual interest.


3 Commercials:

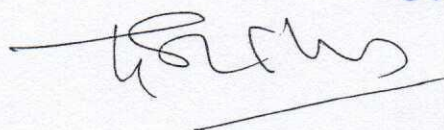
Both the Parties shall work out commercials with respect to each individual work plan separately. In no case any financial or academic liability on one party would be transferrable on the other party.

4 Terminations:

- 4.1 In case of breach of contract both parties may, without assigning any reason, terminate this Memorandum of Understanding at any time by giving to the other party three month notice in writing sent by registered post or Speed Post or Courier.
- 4.2 Without prejudice to any other remedies both Parties shall have the right at any time by giving notice in writing to each other for terminating the Memorandum of Understanding forthwith in any of the following events:
 - 4.2.1 Any of the parties commit the breach of any of the terms or conditions of this Memorandum of Understanding.
 - 4.2.2 Any party enters into liquidation, whether compulsorily or voluntarily (otherwise than for the purposes of amalgamation or reconstruction) or compounds with creditors or takes or suffers any similar action in consequence of debt or in the case of an individual or a partnership.
 - 4.2.3 Any of the parties are guilty of any conduct which legally is prejudicial to the contracts interests.
 - 4.2.4 No party shall have authority to purport or assign the burden or benefits or charge the benefits of this Memorandum of Understanding without the consent in writing of the other Party.

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Registrar
Jai Narain Vyas University
Jodhpur




REGISTRAR
Jai Narain Vyas University
JODHPUR (RAJ)

5 Force Majeure

- 5.1 If the performance of the obligations under this Memorandum of Understanding is prevented by reason of any contingencies, which could have been reasonably avoided and are beyond the control of the parties, the party so affected shall not be liable to the other for damages to the extent of such prevention. Such contingencies include strikes of workers, fire, flood, explosion, riots sabotage, acts of God and war or enemy action.

6 Notice

- 6.1 Save as hereinbefore otherwise provided, any notice required to be given hereunder shall be sufficiently given to each other if forwarded by registered post, speed post, courier, to the last known postal address of the parties. Every notice shall be deemed to have been received and given at the time when in the ordinary course of transmission it should have been delivered at the address to which it was sent.

7 Indemnity:

- 7.1 Both parties shall indemnify the each other against all losses, damages or claims that may arise out of any unauthorized representations made by their employees or representatives.

In witness thereof the parties have set their hands and seal on the day month and year first written.

For
Jai Narain Vyas University,
Jodhpur

For
RISU, Jaipur

Name and designation of signatory:

(Mrs. Chanchal Verma)
(Registrar, JNVU)

(Devendra Kumar Sharma)
(Registrar, RISU)

Witness (A. R. Acad.)

Witness:

(Ashok K Nagawat)
Director Skill Education

COUNTER SIGNED

REGISTRAR
Jai Narain Vyas University
JODHPUR (Raj.)

MOHANLAL SUKHADIA UNIVERSITY : UDAIPUR

No.PD/OS/SPD-(RUSA-Phase-II)/CSA-1-(3)/2020-21 243

dt: 20-08-2020

21

ORDER

In pursuance of MHRD Deptt. of Hr. Edu. New Delhi sanction letter No. 2447/2014-U.Policy (RJMMulti-Gen) dt: 03-02-2020 & Govt. of Rajasthan, State Project Directorate-RUSA, Jaipur letter No. F.30(16)/SPD/RUSA/2016/178 dt: 31-03-2020 & No. 316 dt: 06-08-2020, I am directed to convey financial sanction for payment of **Rs. 1750 lakh (Rupees seventeen Crore fifty Lakh)** only to the Dean/Director/Head of the Departments of concerned Colleges, MLSU, Udaipur for arranging payment to the Principal Investigator of Research Project as per list enclosed, as 1st Installment under Component 10: Research Innovation and Quality Improvement (Research Proposals) under RUSA-2.

Admissible expenditure be incurred as per relevant rules/procedure of sponsoring agency/State Project Directorate-RUSA Jaipur as well as of this University rules and as per guidelines of Nodal Officer-RUSA (enclosed vide No. RUSA/NODAL OFF./2016-17/163 dt: 14-08-2020) it shall be met out of Central/State Agencies budget under head **"CSA-1-(3)-IV-RI&QI (Research Proposals)-7-B-(a)-(i) / 7-B-(a)-(ii) / 7-B-(a)-(iii) / 7-C-(a)-(i) / 7-D-(i) / 7-D-(ii) / 7-E(a)-(i) / 7-E(a)-(ii) / 7-E(b)-(i) / 7-E(b)-(ii) / 7-F-(i) / 7-F-(ii) / 7-F-(iii) / 7-G-(i) / 7-I(a)-(i) / 7-K-(i) / 7-K-(ii) / 7-K-(iii) / 7-K-(iv) / 8-B-(i) / 8-C-(i) / 8-D-(i) / 9-A / 9-B-(i) / 9-C-(i) / 9-C-(ii) / 9-C-(iii) / 9-C-(iv) / 9-D-(i) / 9-E-(i) / 9-E-(ii) / 9-F-(i) / 9-F-(ii) / 9-G-(i) / 9-G-(ii) / 9-H-(i) / 9-H-(ii) / 9-I-(i) / 9-J-(i) / 9-K-(i) / 9-L-(i) / 9-L-(ii) / 9-P-(i) / 11-A-(i) / 11-A-(ii) / 11-A-(iii) / 11-A-(iv) / 11-A-(v) / 11-A-(vi) / 11-A-(vii) / 11-A-(viii) / 11-A-(ix) / 11-A-(x) / 12-(i) / 12-(ii) / 12-(iii) / 12-(iv)"** where in necessary provision shall be made in Revised Estimates 2020-21.

COMPTROLLER

Copy to:-

1. The Registrar, MLSU, Udaipur.
2. The Dean, UCCMS/UCoS/UCSSH, MLSU, Udaipur.
3. Prof. Kanika Sharma, Nodal-officer, RUSA-Programme, Deptt. of Botany, UCoS, MLSU, Udaipur with ref. to letter No. RUSA/NODAL OFF./2016-17/163 dt: 14-08-2020.
4. The Head Department of Physics/Chemistry/Botany/Zoology/Maths. & Stats./Env. Sci./ Geology/Pharmacy, UCoS, MLSU, Udaipur.
5. The Director, Computer Centre, MLSU, Udaipur.
6. The Head, Deptt. of Economics / English / Geography / Hindi / History / Library Sci. / Political Sci./ Psychology / Readymade Garments / Sociology / Incharge-Centre for Women Studies, UCSSH, MLSU, Udaipur.
7. The Head, Deptt. of Acctts. & Stats./B.B.E./Bus. Adm., UCCMS, MLSU, Udaipur.
8. The P.S. to Hon'ble Vice-Chancellor, MLSU, Udaipur.
9. The S.O. Bill/Compilation/Cheque, MLSU, Udaipur.
10. The R.E. File 2020-21.
11. The Officer Incharge, University Website, MLSU, Udaipur.
12. Guard file.

DY COMPTROLLER

List of R & I Project proposals approved by MHRD for Financial Grant under RUSA2.0

S.No	Department	Principal Investigator	Co-Investigator	Project Title	Total Amt.	Sanctioned Amount (1st Instalment)
					Budget Head- CSA-1(3)-IV	
1	Biotechnology	Dr. Nitish Rai	Dr. Namita Ashish Singh, Dr. Vivek Jain, Dr. Avinash Marwal	Evaluation of ne neuroprotective effect and its underlying molecular mechanism by Costus Speciosus, a traditional medicinal plant of Udaipur district, Rajasthan	3000000 7-E(b)-(i)	1500000
2	Biotechnology	Dr. Harshada Joshi	Dr. Avinash Marwal	Screening and Use of Calcite Solubilizing Bacteria for Restoration of Marble Slurry Contaminated Soil	3000000 7-E(b)-(ii)	1500000
3	Botany	Prof. Kanika Sharma	Dr. G.S. Deora, Dr. Vinit Soni, Dr. Rohini Trivedi, Dr. Jaya Arora, Dr. Harish, Dr. Kuldeep Sharma, Dr. Amit K. Gupta, Dr. Tripta Jain, Dr. Mukesh Meena	Capacity building and livelihood security of tribals of south Rajasthan through bioprospecting, biotechnological interventions and disease management of ginger	30598480 7-E(a)-(i)	15299240

[Signature]
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 MLSD

4	Chemistry	Dr. Jyoti Choudhary	Prof. Pinki Bala Punjab, Dr. Shikha Agrawal, Dr. Poonam Khandelwal, Dr. Chetna Ameta, Dr. Dinesh Pandey, Dr. Neetu Kumari, Dr. Dinesh Kumar Yadav, Dr. Nitin Kumar, Dr. Prabhakar Kumar Baroliya, Dr. Sidharth Sharma, Dr. Rama Kanwar Khangarot, Dr. Gangotri Pemawat, Dr. Lokesh Kr. Agrawal, Ms. Himanshu Sharma, Dr. Pradhuman Singh Ranawat, Dr. Tarun Kumar, Dr. Devendra Singh, Mr. Vipin Khokher, Ms. Kiran Meena	Novel natural products from traditional medicinal plants of South Rajasthan region: Structural, synthetic and biological studies	47500000	23750000
			7-C-(a)-(i)			
5	Computer Sc.	Dr. Avinash Panwar	Prof. Deepak Khazanchi, Prof. K. Srinivas, Dr. Sumangla Rathore	A Customizable LMS for proper utilization and adoption of Global Knowledge Pool: An adaptation of contingency theory of E-learning	29295000	14647500
					7-I(a)-(i)	

Nodal Officer, USA
MLSD

6	Env. Science	Prof. B.R. Bamanina	Prof. Nidhi Rai, Dr. D.S. Rathore, Dr. Anuya Verma	Environmental issues of urban & rural tribal areas of Southern Rajasthan	26538000 7-A-(i)	13269000
7	Geology	Prof. S.R. Jakhar	Ms. Neha Rathi	Remote Sensing Based Study of Dessicated Lik River of the Thar Desert for Demarcating its course, its Rejuvenation Possibilities and Social Benefits	2020000 11-A-(i)	1010000
8	Geology	Dr. Maya Choudhary	Prof. (Retd.) M.L. Nagori	Study of Ostracods and Foraminifers from the Bagh Group (Upper Cretaceous) of Lower Narmada Valley: Determination of Age (OAE2 and OAE3) events and their Paleogeographic Implications	3035000 11-A-(ii)	1517500
9	Geology	Dr. Harish Kapasya	Dr. Ritesh Purohit	A Study of Tectonic Evolution of the Neoproterozoic metasediments from Southern parts of Pali districts of Rajasthan	2950000 11-A-(iii)	1475000
10	Geology	Dr. Ankush Srivastava	Dr. Ashutosh K. Singh	Investigating the role of interoceanic exchange on Indian Ocean surface heat redistribution and its impact on Indian monsoon during Quaternary: A multi-proxy approach	4159000 11-A-(iv)	2079500
11	Geology	Dr. Anjali Singh	Dr. Sudhir Kumar, Dr. Avner Vengosh	Assessment of Ground Water Quality and mapping Human Health Risk of Drinking Ground Water Resources in Rajasthan State, India	4844000 11-A-(v)	2422000
12	Geology	Mr. Akhil Kumar Dwivedi	Prof. Jayanta Kumar Pati, Dr. Anil Dutt Shukla, Dr. Ritesh Purohit	Heavy Metal approportionment of Geogenic and Anthropogenic sources in Ganga River using Geomagnetic and Geochemical studies	4175000 11-A-(vi)	2087500

Nodal Officer
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13	Geology	Mr. Niranjan Mohanty	Dr. Ritesh Purohit, Dr. Rajnikant Patidar	Geochemistry and Isotope systematic of Ultramafic rocks of Phulad shear zone, Aravalli-Delhi fold belt, North West India: Implication on Geodynamic significance and Platinum Group Elements (PGEs) Metallurgy	3702800	1851400
14	Geology	Mr. Rajanikant Patidar	Mr. Niranjan Mohanty	Geology, Geochemistry and Petrogenesis of Carbonates and Associated Rocks of Sirwasan area district Chota Udepur, Gujarat	2287800	1143900
15	Geology	Mr. Subhash Chandra Janagal	---	Study of Mineralogical and Thermo-mechanical Properties of Clay Deposit from Bikaner district, Rajasthan.	1775000	887500
16	Geology	Prof.(Retd.) Vinod Agrawal	Dr. Harish Kapasya	Geological and Geotechnical Studies of Commercial Marbles of Rajasthan	11-A-(ix) 4104000	2052000
17	Maths & Stats.	Dr. Mahesh Puri Goswami		Applications of Bicomplex algebra to fundamental Electromagnetics using fractional calculus	11-A-(x) 542640	271320
18	Maths & Stats.	Dr. Pradeep Kumar Vishwakarma	Dr. Abhimanyu Singh Yadav	Bayesian Analysis of Lifetime Models- Application to the Survival Data	7-D-(i) 1321000	660500
19	Pharmacy	Dr. Joohee Pradhan	Prof. Lalit Singh Chouhan, Dr. Shikha Agrawal	Conjunction Based Drug Design Approach in Search of Third Generation Anti epileptics: Design, Synthesis, Anticonvulsant Evaluation and Computer Aided Drug Design Studies of 4-(5-phenyl-1H-pyrazol-3-yl) Benzenamine derivatives.	7-D-(ii) 5000000	2500000
20	Pharmacy	Dr. Garima Joshi	Dr. Deepak Choudhary, Dr. Harish	Design, Development and Characterization of Oral Nanoformulation for Treatment of Cancer	7-K-(i) 5000000	2500000

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Faculty Office
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21	Pharmacy	Dr. Saurabh K. Sinha	Prof. Lalit Singh Chauhan	Design, Synthesis, Evaluation and kinetic studies of derivatives of 4-aminopiperidine as potential antianemic and cognition enhancing agents.	5000000	2500000
22	Pharmacy	Dr. Vivek Jain	Prof. Lalit Singh Chouhan,, Dr. Nitish Rai	In-vitro and In-vivo screening of poly herbal formulation (PHF-1) in age induced Alzheimer disease in mice	7-1k - (ii) 5000000	2500000
23	Physics	Prof. B.L. Ahuja	Dr. Gunjan Arora, Dr. Lekhraj Meena	Measurement of magnetic Compton profiles of spintronics and magnetocaloric materials	7-1k - (iv) 11560720	5780360
24	Physics	Prof. N. Lakshmi	Prof. Sudhish Kumar, Dr. Ghanshyam Purohit, Dr. Dinesh Patidar	Development and optimization of energy conversion and storage materials based on perovskites, ferrites and graphene	7-B-(a)-(i) 9550000	4775000
25	Physics	Prof. M.S. Dhaka	Dr. Shikha Agrawal	Fabrication of stable and high efficiency perovskite solar cell device	7-B-(a)-(ii) 8829600	4414800
26	Zoology	Prof. Arti Prasad	Dr. Girima Nagda	Survey and Analysis of Pesticide Residues in Consumable products (Fruits and Vegetables) Obtained from Different Vegetable market (Sabzi mandis) of Udaipur Region	7-B-(a)-(iii) 12000000	6000000
27	Zoology	Prof. Arti Prasad	Dr. Devendra Kumar	Surveillance and insecticide resistance mapping against mosquitoes of malaria, dengue and chikungunya in Southern Rajasthan and Bacterial bio-pesticide as an urgent alternate tool for resistance management and vector control.	7-F-(i) 11980000	5990000
					7-F-(ii)	

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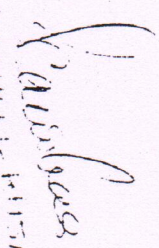
28	Zoology	Dr. Vijay Kumar Koli	Dr. K.S. Gopi Sundar	Resource partitioning of three sympatric Ibis species (red-naped, Black-headed and Glossy) in Dungarpur district, Rajasthan: diet, habitat and landscape selection across seasons.	2896000	1448000
29	Centre for Women Studies	Dr. Garima Mishra	---	Impact Assessment of Awareness about Women's Legal Rights through Advocacy of Course on 'Women and Legal Rights'	7-F-(iii)	
					935000	467500
					9-I-(i)	
30	Economics	Prof. Sanjay Lodha	Dr. Neha Paliwal	Exploring the Multidimensional Impact of MGNREGA : A Case Study of Rajasthan.	4000000	2000000
			Dr. Deepa Soni	(A) Impact of MGNREGA on Women Empowerment in Rajasthan		
			Mr. Mukesh Meena	(B) Impact of MNAREGA on Purchasing power of Beneficiaries	9-B-(i)	
			Dr. Anita Joya	(C) An Assessment of impact of assets creation in MNREGA		
			Dr. Vinita Rajpurohit	(D) Impact of MGNREGA on Financial Inclusion		
31	English	Prof. Seema Malik	Dr. P. Trikha, Dr. Bhanupriya Rohila, Mr. M.S. Purohit, Dr. Neetu Parihar, Dr. Suresh Salvi	(E) Impact of MGNREGA on migration and employment generation in Rajasthan		
				Folklore of Vagad Region: Mapping oral Traditions	3145000	1572500
					9-K-(i)	
32	Geography	Dr. Bhanwar Vaishvendra Raj Singh	Dr. Bijay Singh Meena	Inclusive & Sustainable Development of Bombara, Boria, Sulawas, Sihad Gram Panchayat: Smart Village Initiatives	2500000	1250000
				Prediction Model for Road Accidents: A Case Study of Udaipur City, India	9-C-(i)	
					1500000	750000
33	Geography	Dr. Sabiha Khan	---		9-C-(ii)	

34	Geography	Dr. D.S. Chouhan	Prof. Seema Jalan, Dr. Shailesh Chaure	Impact of Water Quality on Health in Vagad Region of Rajasthan: An Application in Web-GIS	3004000 9-c-(iii)	1502000
35	Geography	Prof. Seema Jalan	Dr. Shailesh Chaure, Dr. Urmi Sharma	Electoral Information System for Governanace and Developmental Planning: A G-Governance Initiative	5725000 9-c-(iv)	2862500
36	Hindi	Dr. Ashish Sisodia		Mewari-vagad bolion ka hindi da sath tulnatmak addhayan	750000 9-L-(i)	375000
37	Hindi	Dr. Navin Kumar Nandwana	---	Aadivasi samaj me parivartan aur samkalin hindi upanyas	1884000 9-L-(ii)	942000
38	History	Prof. Pratibha	Prof. Digvijay Bhatnagar, Dr. Peeyush Bhadviya, Dr. Kailash Chand Gurjar, Mr. Manish Shrimali	Evolving Strategies of Conserving Cultural Heritage of Udaipur	3003000 9-P-(i)	1501500
39	Library Sc.	Dr. P.S. Rajput	---	Automation of Libraty services: An easy access to electronic resources and enhancement of research activities	5475000 9-D-(i)	2737500
40	Mass Comm.	Dr. Kunjan Acharya		Contribution of mass media in socio-economic development of tribal sub plan areas of Rajasthan.	1540000 9-J-(i)	770000
41	Political Science	Prof. Sanjay Lodha	Dr. Sanjay Kumar	Analyzing Voting Behaviour in Rajasthan: Post- poll study of the 2019 Lok Sabha Elections	3838825 9-E-(i)	1919412
42	Political Science	Prof. Sanjay Lodha	Dr. Vijay Dixit, Dr. Satish Chand, Dr. Baludan Barahath	Impact of Social Welfare Policies on Voting Behaviour: Case study of Assembly Elections in Madhya Pradesh, Rajasthan and Gujarat, 2008- 2018	3603425 9-E-(ii)	1801713

43	Psychology	Prof. Kalpana Jain	Dr. Rashmi Singh, Dr. Hema Kumari Mehtar	Strength based development of tribal adolescents of Southern Rajasthan: An empirical study	2100000	1050000
44	Psychology	Dr. Tarun Kumar Sharma	---	Suicides in Kota: Understanding causes and preparing prevention strategies in the form of a documentary film	9-F-(i) 700000	350000
45	Readymade Garments	Dr. Dolly Mogra	Dr. Garima Mishra, Dr. Rupal Babel	Dimensions of Gender Discrimination in Textile Industry of Rajasthan	1196000	598000
46	Readymade Garments	Dr. Dolly Mogra	---	Empowering Entrepreneurial Skills Through Advocacy of "Fashion Design and Technology" Diploma Course	3788020	1894010
47	Sociology	Dr. Raju Singh	Dr. Sangeeta athwal	Research Skill Development in social Sciences, Communication and Management	1500000	750000
48	Sociology	Prof. P.M. Yadav	Dr. Rajkumari Ahir	Government plans and policies related to mother-child health: A Comparative sociological study (Special reference to tribal society)	9-G-(i) 3800000	1900000
49	Accountancy and Statistics	Prof. G. Soral	Prof. Shurveer S. Bhanawat, Dr. Avinash Panwar, Dr. Shilpa Vardia, Dr. Shilpa Lodha, Dr. Asha Sharma, Dr. Parul Dashora, Sh. Pushpraj Meena	Blockchain Accounting : An Exploratory Research	5000000	2500000
					8-B-(i)	

Signature
 Nodal Officer, PGC
 MLGU

50	Banking & Buss. Eco.	Prof. Renu Jatana	---	Changing India: Training and market access for organic farming	3543000	1771500
51	Business Adm.	Prof. Rajeshwari Narendran	Prof. Manju Baglmar, Dr. Hemraj Choudhary	Measuring the impact of Workplace Happiness upon individual & Organizational performance: An interdisciplinary Intervention with Yoga and Meditation	8-C-(i)	1467500
					2935000	
					8-D-(Ci)	
52	FMS	Prof. Anil Kothari	---	Economics of Temple- An empirical Study of Selected Temples of North India	1000000	500000
53	FMS	Prof. Hanuman Prasad	---	Digital Financial Awareness: A Study of 'X' and 'Y' Generation Citizens of Rajasthan	12-(ci)	500000
					1000000	
54	FMS	Prof. Meera Mathur	Dr. Shubham Goswami	Study on Sustainable Consumption Behaviour of Urban Consumers Towards Electronic Products in Rajasthan	12C(ii)	750000
55	FMS	Prof. Karunesh Saxena	---	Stress Management using Training Intervention Techniques among the Adolescent Students : A Study of major cities of Rajasthan.	12-(iv)	500000
					28370690	
56	Botany	Head, Botany		D S Kothari Central Research Facility	7-E (a)-(ii)	14185345
Total Rs.					350000000	175000000


 Noted
 MLSD

2
COMPTROLLER
 Mohanlal Sukhadia University
 UDAIPUR



15

Mohanlal Sukhadia University, Udaipur – 313039
Office of the Nodal Officer-RUSA, MLSU
(Rashtriya Uchhatar Shiksha Abhiyaan)



Prof. Kanika Sharma
Nodal Officer, RUSA
MLSU

RUSA/NODAL OFF./2016-17/ 163

Date: 14.08.2020

To
Comptroller,
Mohanlal Sukhadia University,
Udaipur.

Sub.: Financial Sanction for R & I Projects under RUSA 2.0
Ref.: No. F30(16)SPD/RUSA/2016/178 dated 31.03.2020

Dear Sir,

With reference to above you are requested to grant Financial sanction for the R & I proposals submitted and approved by MHRD under RUSA 2.0 as per the list enclosed so that work may be commenced on these projects.

Further you are requested to issue the sanction to individual PI with the instruction that all payments will be done through treasury after submission and approval of FVC bills by the PI. Also kindly issue the following guidelines to all PI with regard to the expenditure and implementation of project:

1. GF & AR i.e. Financial Rules and norms of Government of Rajasthan are to be followed.
2. The expenditure will be incurred as per the RUSA guidelines, PAB approvals and DPR submitted by the PI to the institution and forwarded to MHRD.
3. Proper accounts of the expenditure incurred out of the grant are to be maintained and ensure utilization of funds only under approved budget heads. A separate stock register and cash book must be maintained for RUSA grant.
4. Utilization certificate in the GFR 12-C showing clearly the actual expenditure incurred under various heads above and the unspent balance available with the PI, shall be furnished to the University, within 3 months from the receipt of the fund. Non submission of UC on time shall debar PI from release of next installment.
5. The final UC of complete grant supported by audited statement of expenditure to the effect that the grant has been utilized for the purpose for which it has been sanctioned shall be furnished to the SPD office by the institution on the basis of UC submitted by individual PI.
6. Audited record of assets acquired wholly or substantially out of the grant and a Register of Assets shall be maintained.
7. RUSA account details for receipts and payments shall be mapped on PFMS portal to facilitate fund transfer and monitoring.
8. The Council of SPD or its nominee shall have the right to check/verify the accounts to satisfy that the funds have been utilized for the purpose for which they were sanctioned.


Imp 2 Urgent
SOC Plan

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17/8/2020

- 15
9. FUND TRAKER FORM and Geotag Photographs on Bhuvan portal depicting the progress of implementation for activities carried out under the project are to be updated at periodic intervals showing three stage of implementation, i.e. (a) Before commencement, (b) The intermediate stage and (c) After the completion of the project.
 10. No constructions is allowed under RUSA2.0
 11. Any Renovation of existing facility will be allowed but only if it has been mentioned in the project proposal submitted to Rusa Nodal Officer.
 12. Renovated facility and Equipment created/ acquired under the grant should display the RUSA logo for which this grant is being used.
 13. Monthly progress report shall be submitted to the RUSA Nodal officer who will forward it to SPD RUSA for monitoring.
 14. Monitoring will be based on action plans submitted along with the proposals and achievements made with respect to a set of norms as defined by the institutional development plan.
 15. No change in the approved DCF/DPF/Proposals will be done at PI level. In case it is essential to undertake modification in the approved activities, the proposal for revision in DCF will first be discussed and approved in BOG of the institute and then submitted to SPD/RSHEC for approval of proposed changes with justification note and copy of BOG minutes.

Thanking you,

Yours Sincerely,



(Prof. Kanika Sharma)
Nodal Officer RUSA-MLSU

Noda. Officer RUSA-
MLSU

3.2.3
19-20
20-21
21-22

F. No. Z.18017/187/CSS/R&D/RAJ-01/2019-20-NMPB-IV A
Government of India
Ministry of AYUSH
(National Medicinal Plants Board)

1st & 2nd Floor, Annexe Building,
Indian Red Cross Society,
New Delhi-110001
Phone: - 011-23271839
Email:- info-nmpb@nic.in
Date: 5th February, 2020

To,

- 1) Dr. I.D. Arya, Scientist-G & Group Co-ordinator Research,
Arid Forest Research Institute (AFRI), New Pali Road, Jodhpur-342005.
E-mail id: aryaid@gmail.com.
- 2) **Dr. Vinod Kataria** - Assistant Professor, Department of Botany,
Jai Narain Vyas (JNV) University, Jodhpur-342005,
E-mail id: vinodkataria2002@gmail.com


Subject:-Approval of the Project Proposal entitled "Survey, Inventorisation, Documentation, Propagation and Conservation of rare, endangered and threatened medicinal plants of Arid and Semi Arid Regions" for the year 2019-20- reg.

Sir,

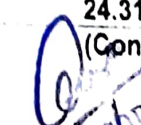
The undersigned is directed to refer to the project proposal entitled "Survey, Inventorisation, Documentation, Propagation and Conservation of rare, endangered and threatened medicinal plants of Arid and Semi-Arid Regions" and to say that the project was recommended in the 60th PSC meeting held on 27-28th September, 2019 and approved by the 75th SFC held on 5th December, 2019 at the total cost of Rs. 48.79 lakhs for 3 years. The total budget approved for SFC AFRI, Jodhpur of Rs. 24.48 lakhs and budget approved by SFC JNV, University, Jodhpur for Rs.24.31 lakhs.

The financial break-up of the Grant-in-aid as approved by the 74thSFC is as below:-

Components	Budget approved bySFC AFRI, Jodhpur	Budget approved bySFC JNV, University Jodhpur
Non-recurring	1.20	3.50
Manpower(JRF -01, Field assistant-01)	16.62	16.62
Consumables	1.50	0.75
Travel	3.00	1.50
Contingency (5%)	1.05	0.95
Overhead (5%)	1.11	0.99
Total	24.48	24.31

By  **PROFESSOR & HEAD**
DEPARTMENT OF BOTANY
J. N. VYAS UNIVERSITY
JODHPUR-342005 (RAJ.)
Self attested
Vinod



 (Contd.....2)
PROFESSOR & HEAD
DEPARTMENT OF BOTANY
J. N. VYAS UNIVERSITY
JODHPUR-342005 (RAJ.)

Details of Installments will be as follows:-

		(Rs. In lakhs)	
Total amount	1 st Installment	2 nd Installment	3 rd Installment
AFRI, Jodhpur Rs. 24.48 lakhs	Rs. 8.96 lakhs	Rs. 7.76 lakhs	Rs. 7.76 lakhs
JNV, University Jodhpur Rs. 24.31 lakhs	Rs. 10.44 lakhs	Rs. 6.94 lakhs	Rs. 6.93 lakhs

You are requested to submit the duly filled up Performa of Agency Details (Copy enclosed) for transferring the grant-in-aid through RTGS mode & for online monitoring of the project along with the documents indicated below:

1. Pre-receipt of 1st installment of Rs. 8.96 lakhs in favour of AFRI, Jodhpur and, Rs. 10.44 lakhs in favour JNV, University, Jodhpur duly signed, on Rs. 1/- revenue stamp affixed.
2. A certificate stating that institute / organization is not involved in any proceeding relating to the account or conduct for any of its office bearers.
3. An undertaking that the terms and conditions of the grant are acceptable to the college / organizations.
4. A certified copies duly authenticated by a Gazetted Officer of the documents showing the Constitution of the governing Body or Managing Committee responsible for the running of the organization and that the persons signing the agreement are authorized to operate upon and bind the funds of organizations / Institute.
5. A certificate that the organization has not received any grant from State or Central Govt. or from any other agency for the same proposal.
6. An agreement on Rs. 100/- stamp paper duly executed & signed in the prescribed Performa.

Note: Format copies for Agency Details and S. No. 1, 5 & 6 are attached for convenience. Rest of the certificates/undertaking at S. No. 2 to 4 shall be submitted by the grantee.

Self attested
Vinif

Yours faithfully

(Signature)
(Dr. Dushyant Kishore)
Research Officer (Ay.)

(Signature)
PROFESSOR & HEAD
DEPARTMENT OF BOTANY
J. N. V. UNIVERSITY
JODHPUR-342005 (RAJ.)

(Signature)
PROFESSOR & HEAD
DEPARTMENT OF BOTANY
J. N. V. UNIVERSITY
JODHPUR-342005 (RAJ.)



भारतसरकार
रेलमंत्रालय

भारतीयरेलसिविलइंजीनियरीगसंस्थान,पुणे- 411001

(आई.एस.ओ: 9001-2008 प्रमाणित भारतीय रेल का प्रथम केंद्रित प्रशिक्षण संस्थान)



Government of India

Ministry of Railways

INDIAN RAILWAYS INSTITUTE OF CIVIL ENGINEERING, PUNE-411001

(Indian Railway's First ISO : 9001-2008 Certified Centralized Training Institute)

प्रमाण- पत्र

Certificate

This is to certify that Dr. Archana Bohra Gupta, Associate Professor, Department of Structural Engineering, M.B.M. Engineering College, Jai Narain Vyas University, Jodhpur delivered an online lecture on "Service Life Assessment of Reinforced Concrete Structures" in a one week course No. 20463 Name: - Building - Planning, Construction, Maintenance and Rehabilitation" for Railway Officers, organized by **Indian Railways Institute Of Civil Engineering, Pune** on 18.8.2020 from 2:30 P.M. to 4:30 P.M.



(संजय खरे)

वरिष्ठ प्राध्यापक (कार्य) एवं पाठ्यक्रम निदेशक
Sr.Prof.(works)&Course Director

दिनांक Date: 18.8.2020



राजस्थान RAJASTHAN

AZ 214025

This Memorandum of Understanding (herein after referred to as MoU) is made on 13th day of Sept 21 month 2021 by and between the Arid Forest Research Institute (AFRI), PO Krishi Upaz Mandi New Pali Road, Jodhpur-342005 is the part of Indian Council of Forestry Research and Education (First party), on the one part and the Jai Narain Vyas University, Jodhpur, 342001 (herein after called second party on the other part (who for the purpose of this MoU are herein after collectively referred to as the parties).

The parties, having discussed fields of common research interests and allied activities between the two institutions, have decided to enter into collaboration for promotion of basic and advance research in subject of Forestry, Botany, Zoology, Chemistry, Environment Science and other allied subjects.

WHEREAS the "First Party" is involved in the research activities in applied research programs, capacity building and knowledge sharing on forest, biodiversity conservation, ecosystem, climate change vulnerability, climate change mitigation and adaptation and livelihood of forest dependent communities.

COUNTER SIGNED

REGISTRAR

Jai Narain Vyas University
JODHPUR (Raj.)

WHEREAS the "Second Party", is involved in basic and advanced research in subject of plant science, animal science, chemical science and environment Science.

WHEREAS it has been considered expedient to agree in writing to participate jointly in the projects requiring expertise and logistics from both the parties.

Background

This Memorandum of Understanding (MoU) sets for the terms and understanding between the Arid Forest Research Institute, Jodhpur and Jai Narain Vyas University, Jodhpur to collaborate in basic and applied research programs, organizing joint seminars, conferences workshops, and sharing research project and publications.

PREAMBLE

Whereas, Arid Forest Research Institute, Jodhpur, established in 1987, is a research institute focusing its research activities in the fields of forestry research and biodiversity conservation in Rajasthan, Gujarat and Dadra and Nagar Haveli and Daman & Diu, India. It has strength in not only identifying and articulating intellectual challenges straddling a number of disciplines of knowledge but also in mounting research, training and demonstration projects leading to development of specific problem-based advanced technologies that help carry benefits to society at large.

Whereas, Jai Narain Vyas University, Jodhpur, a constituent education institute of State Government, Rajasthan, was established through *vide* Act No.17 of 1962 and recognized by University Grants Commission (UGC), New Delhi as academic and research organization. Arid Forest Research Institute, Jodhpur & Jai Narain Vyas University, Jodhpur have agreed to collaborate with the following general provisions and terms.

Article 1: Objective

Providing a general framework for long term collaboration and mutual understanding in areas of mutual interest, pertaining to develop arid ecosystem and collaboration in education and publication between Arid Forest Research Institute, Jodhpur and Jai Narain Vyas University.

Article 2: Scope of Collaboration

Subject to the terms, this MoU signed by authorized representatives of each party, the parties hereby agree to cooperate as follows:

To offer collaboration as felt desirable and feasible on either side, and both sides would contribute to the fostering and development of the cooperative relationship between respective organization on identified areas of research and education.

COUNTER SIGNED

REGISTRAR
Jai Narain Vyas University
JODHPUR (Raj.)

Article 3: Scope of MoU

The scopes of collaboration of this Memorandum includes the following:

- Research collaboration in the areas of mutual interest, particularly those pertaining to combating desertification and managing arid ecosystem.
- Organizing joint seminars, webinar, conferences, training and workshops,
- Joint research projects and publications.
- Exchange of research scholars/faculties for research collaboration and capacity building programmes.
- Internship opportunities at Arid Forest Research Institute for the students of Jai Narain Vyas University, Jodhpur.

Article 4. Management

Director of the First party and the Vice-Chancellor/Head of the Institution of the Second party will be responsible to workout operational details of co-operation between the two organizations and ensure proper and effective implementation of this MoU.

The Advisory Committee will meet at least once in a year alternatively in the institutions of the First party and the Second party to review the activities. This meeting shall include presentation on the academic and research activities, which should be open to the scientists, faculty and students.

Article 5: Implementation

To implement this Memorandum, the following is mutually understood and agreed:

- Two nominees from each institution will constitute a Joint Coordination Committee to oversee collaboration between the two parties.
- Each institution will nominate one of its expert members as its representative in charge of any cooperative program on each identified thematic area.
- Proposals for collaborative research work under this memorandum will be submitted through the normal procedures of each institution.
- Individual projects/programmes of research work developed under this Memorandum and/ or capacity building programmes will be the subject of individual agreements in writing clearly spelling out commitments and liabilities of both the parties and where appropriate will be jointly developed and executed by the nominees of both the parties.

COUNTER SIGNED




REGISTRAR
Jai Narain Vyas University
JODHPUR (Raj.)

- Each party will ensure appropriate protection of Intellectual Property Rights generated from cooperation pursuant to MoU, consistent with laws, rules and regulations of India.
- Progress of work of any individual collaborative research project/programme will be reviewed and approved by designated project officers of both parties, in accordance with its individual agreement.
- The final approval of any collaborative research project/programme will depend on the availability of the guaranteed support funds.
- Neither AFRI nor JNVU will be held responsible for any liability, and neither party shall be required to purchase any insurance against loss or damage to any personal/ institutional property to which this Memorandum relates.
- Research instrumentation facility and library facilities available with the first party and the second party will be made available to the scientist, faculty and research scholars. However, the costs of specific consumable will be borne by the respective organizations.
- The use of scientific equipments by either of parties will be allowed by either sides on the realisation of charges in vogue. However, owing to signing of this MoU there will not be any financial implication on the part of either parties.
- There shall be an exchange of scientist, faculty and students for academic, research and training purposes. Wherever possible, as per extant fee.
- Both parties understand that all financial agreement will have to be negotiated separately and will depend on the availability of funds.

Article 6: Intellectual Property Rights (IPR)

The parties may sign an Intellectual Property Rights (IPR) document in order to secure rights when it comes to research results and publications.

Article 7: Limitation of Personnel Activities

The Parties shall ensure that any personnel engaged in the activities and/or programs under this MoU shall not interfere with the internal political independence, sovereignty, and territorial integrity of the latter, any commercial ventures, and avoid any activities outside the aims of this MoU unless separate written arrangement.

COUNTER SIGNED


REGISTRAR
Jai Narain Vyas University
JODHPUR (Ra.)

Article 8: Confidential Information

Each Party's rights, title, interest in its confidential information remains unaffected by the existence of this MoU.

- Neither party is obliged to disclose any confidential information to the other party pursuant to this MoU and each party undertake to observe confidentiality and secrecy of any information and other data received from the other party, and any outputs jointly obtained, except as mutually consented to in writing by the other party, during the period of the implementation of activities under this MoU or any arrangement made pursuant to this MoU.
- Any disclosure or exchange of confidential information will be covered in separate subsidiary arrangements.

Article 9: Commencement, renewal, termination and amendment

This Memorandum is effective as of the date of execution by the later of the appropriate officers of each signatory institution to sign. This Memorandum shall remain in force for a period of three (3) years from the date of signing, with the understanding that it may be terminated by either party giving at least three months' notice to the other party in writing. This Memorandum may be amended or extended by mutual consent in writing of the two parties.

Article 10: Dispute Settlement

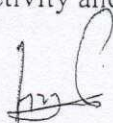
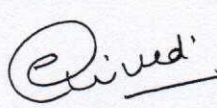
Any dispute, controversy or difference as to the interpretation of this MoU will be settled amicably by mutual consent between the Parties.

Article 11: Validity of MoU

This MoU shall enter into force on the date of the completion of the signing by the parties. It shall remain in force for the duration of 03 (three) years from the date of signing of this MoU and may be extended by mutual written agreement of the parties.

Either party may terminate this MoU at any time by notifying the other party of its intention to terminate this MoU in writing.

Unless agreed otherwise by the parties, the termination of this MoU shall not affect the validity and duration of any ongoing arrangement, activity and contract made under the MoU until the completion of such arrangement, activity and contract.

COUNTER SIGNED


REGISTRAR
Jai Narain Vyas University
JODHPUR (Raj.)

In WITNESS WHEREOF the undersigned, duly authorized thereto, have signed this Memorandum of Understanding. Done at Jai Narain Vyas University, Jodhpur on the 13th day of Sept 21 month 2021 in two originals.

Signature with seal

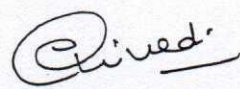
Date:


(M.R. BALOCH), IFS

PCCF & Director, AFRI निदेशक
Director
For Arid Forest Research Institute रस्थान
Arid Forest Research Institute
Tel No. 0291-2722549 (O)
Email: dir_afri@jodhpur.org (RAJASTHAN)

Signature with seal

Date: 13.9.2021


(Prof. Pravin Chandra Trivedi)

Vice-Chancellor

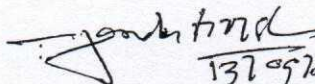
Jai Narain Vyas University, Jodhpur
Prof. (Dr.) Pravin Chandra Trivedi
Vice-Chancellor
Jai Narain Vyas University
Jodhpur (Raj.)
Tel No. +91-291-2722549 (O)
Email: vcjnvu@gmail.com &
vc@jnvu.edu.in

Witnesses:

Signature

Name

Designation : GC(R), AFRI


13/9/21

: Dr. G. Singh, Sci-G

Signature

Name

Designation : Professor, Chemistry


13/9/21

: Prof. K. R. Genwa

Signature

Name

Designation : Head, GTI Division

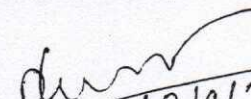

13/9/21

: Dr. Tarun Kant, Sci-F

Signature

Name

Designation : Professor, Botany


13/9/21

: Prof. Praveen Gehlot

COUNTER SIGNED


REGISTRAR
Jai Narain Vyas University
JODHPUR (Raj.)



TO WHOMSOEVER IT MY CONCERN

Date:22.05.2021

This is to certify that Dr. Archana Bohra Gupta, Associate Professor, Department of Structural Engineering, M.B.M. Engineering Collage, Jai Narain Vyas University, Jodhpur, Delivered a lecture on the topic "Applications of GIS in Civil Engineering" on May 21, 2021 in ATAL, AICTE Sponsored Faculty Development Programme on GEOINFORMATICS AND WEB TECHNOLOGIES from 18 – 22 May, 2021 organized by School of Earth Sciences, Banasthali Vidyapith, Rajasthan.

Rashmi
22/05/2021

Dr. Rashmi Sharma
Convener,
Faculty Development Programme
&
Dean, School of Earth Sciences
Banasthali Vidyapith

MEMORANDUM OF UNDERSTANDING

BETWEEN

DR. SARVEPALLI RADHAKRISHNAN RAJASTHAN AYURVED UNIVERSITY,
JODHPUR

AND

JAI NARAIN VYAS UNIVERSITY, JODHPUR

For facilitating

Academic and Research

This Memorandum of Understanding (herein after referred to as MoU) is made on 11th October, 2021 by and between the Dr. Sarvepalli Radhakrishnan Rajasthan Ayurved University, Jodhpur (First party), on the one part and the Jai Narain Vyas University, Jodhpur, 342001 (herein after called second party on the other part (who for the purpose of this MoU are herein after collectively referred to as the parties).

The parties, having discussed fields of common research interests and allied activities between the two institutions, have decided to enter into collaboration for promotion of basic and advance research in subject of Botany, Zoology, Chemistry, Environment Science and other allied subject.

WHEREAS the "First Party" is involved in the research activities in applied research programs, capacity building and knowledge sharing on AYUSH discipline.

WHEREAS the "Second Party", is involved in basic and advanced research in subject of plant science, animal science, chemical science and environment Science.

WHEREAS it has been considered expedient to agree in writing to participate jointly in the projects requiring expertise and logistics from both the parties.

COUNTER SIGNED

Chinedu

[Signature]

[Signature]
RAJASTHAN
Jai Narain Vyas University
JODHPUR (Raj.)

Background

This Memorandum of Understanding (MoU) sets for the terms and understanding between the Dr. Sarvepalli Radhakrishnan Rajasthan Ayurved University, Jodhpur and Jai Narain Vyas University, Jodhpur to collaborate in basic and applied research programs, organizing joint seminars, conferences workshops, and sharing research project and publications.

PREAMBLE

Whereas, Dr. Sarvepalli Radhakrishnan Rajasthan Ayurved University, Jodhpur is a State University established through Rajasthan Ayurved University Act 2002 *vide* Act no. 15 of 2002. The University is created as a center for imparting AYUSH medical education of international standards and conducting research at the cutting edge of technology to meet the current and future challenges of technological development.

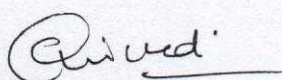
Whereas, Jai Narain Vyas University, Jodhpur, a constituent education institute of State Government, Rajasthan, was established through *vide* Act No.17 of 1962 and recognized by University Grants Commission (UGC), New Delhi for academic and research purpose.

Dr. Sarvepalli Radhakrishnan Rajasthan Ayurved University, Jodhpur & Jai Narain Vyas University, Jodhpur have agreed to collaborate with the following general provisions and terms.

Article 1: Objective

Providing a general framework for long term collaboration and mutual understanding in areas of mutual interest, pertaining to develop arid ecosystem and collaboration in education and publication between Dr. Sarvepalli Radhakrishnan Rajasthan Ayurved University, Jodhpur and Jai Narain Vyas University.

COUNTER SIGNED



REGISTRAR
Jai Narain Vyas University
JODHPUR (Raj.)

Article 2: Scope of Collaboration

Subject to the terms, this MoU signed by authorized representatives of each party, the parties hereby agree to cooperate as follows:

To offer collaboration as felt desirable and feasible on either side, and both sides would contribute to the fostering and development of the cooperative relationship between respective organization on identified areas of research and education.

Article 3: Scope of MoU

The scopes of collaboration of this Memorandum includes the following:

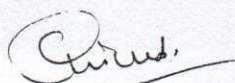
- Research collaboration in the areas of mutual interest, particularly those pertaining to combating desertification and managing arid ecosystem.
- Organizing joint seminars, webinar, conferences, training and workshops,
- Joint research projects and publications.
- Exchange of research scholars/faculties for research collaboration and capacity building programmes.
- Internship opportunities at Dr. Sarvepalli Radhakrishnan Rajasthan Ayurved University, Jodhpur for the students of Jai Narain Vyas University, Jodhpur.

Article 4. Management

Vice Chancellor/ Head of Institution of the First party and the Vice-Chancellor/Head of the Institution of the Second party will be responsible to workout operational details of co-operation between the two organizations and ensure proper and effective implementation of this MoU.

The Advisory Committee will meet at least once in a year alternatively in the institutions of the First party and the Second party to review the activities.

This meeting shall include presentation on the academic and research activities, which should be open to the scientists, faculty and students.



COUNTER SIGNED

REGISTRAR
Jai Narain Vyas University
JODHPUR (Raj.)

Article 5: Implementation

To implement this Memorandum, the following is mutually understood and agreed:

- Two nominees from each institution will constitute a Joint Coordination Committee to oversee collaboration between the two parties.
- Each institution will nominate one of its expert members as its representative in charge of any cooperative program on each identified thematic area.
- Proposals for collaborative research work under this memorandum will be submitted through the normal procedures of each institution.
- Individual projects/programmes of research work developed under this Memorandum and/ or capacity building programmes will be the subject of individual agreements in writing clearly spelling out commitments and liabilities of both the parties and where appropriate will be jointly developed and executed by the nominees of both the parties.
- Each party will ensure appropriate protection of Intellectual Property Rights generated from cooperation pursuant to MoU, consistent with laws, rules and regulations of India.
- Progress of work of any individual collaborative research project/programme will be reviewed and approved by designated project officers of both parties, in accordance with its individual agreement.
- The final approval of any collaborative research project/programme will depend on the availability of the guaranteed support funds.
- Neither Dr. Sarvepalli Radhakrishnan Rajasthan Ayurved University, Jodhpur nor Jai Narain Vyas University, Jodhpur will be held responsible for any liability, and neither party shall be required to purchase any insurance against loss or damage to any personal/ institutional property to which this Memorandum relates.
- Research instrumentation facility and library facilities available with the first party and the second party will be made available to the scientist, faculty and

Received.

[Signature]

COUNTER SIGNED

[Signature]
REGISTRAR

Jai Narain Vyas University
JODHPUR (Raj.)

research scholars. However, the costs of specific consumable will be borne by the respective organizations.

- There shall be an exchange of scientist, faculty and students for academic, research and training purposes. Wherever possible, as per extant fee.
- Both parties understand that all financial agreement will have to be negotiated separately and will depend on the availability of funds.

Article 6: Intellectual Property Rights (IPR)

The parties may sign an Intellectual Property Rights (IPR) document in order to secure rights when it comes to research results and publications.

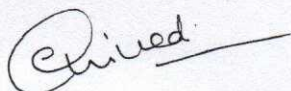
Article 7: Limitation of Personnel Activities

The Parties shall ensure that any personnel engaged in the activities and/or programs under this MoU shall not interfere with the internal political independence, sovereignty, and territorial integrity of the latter, any commercial ventures, and avoid any activities outside the aims of this MoU unless separate written arrangement.

Article 8: Confidential Information

Each Party's rights, title, interest in its confidential information remains unaffected by the existence of this MoU.

- Neither party is obliged to disclose any confidential information to the other party pursuant to this MoU and each party undertake to observe confidentiality and secrecy of any information and other data received from the other party, and any outputs jointly obtained, except as mutually consented to in writing by the other party, during the period of the implementation of activities under this MoU or any arrangement made pursuant to this MoU.



COUNTER SIGNED



REGISTRAR

Jai Narain Vyas University
JODHPUR (Raj)

- Any disclosure or exchange of confidential information will be covered in separate subsidiary arrangements.

Article 9: Commencement, renewal, termination and amendment

This Memorandum is effective as of the date of execution by the later of the appropriate officers of each signatory institution to sign. This Memorandum shall remain in force for a period of three (3) years from the date of signing, with the understanding that it may be terminated by either party giving at least three months' notice to the other party in writing. This Memorandum may be amended or extended by mutual consent in writing of the two parties.

Article 10: Dispute Settlement

Any dispute, controversy or difference as to the interpretation of this MoU will be settled amicably by mutual consent between the Parties.

Article 11: Validity of MoU

This MoU shall enter into force on the date of the completion of the signing by the parties. It shall remain in force for the duration of 03 (three) years from the date of signing of this MoU and may be extended by mutual written agreement of the parties.

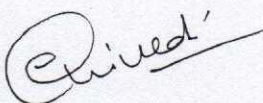
Either party may terminate this MoU at any time by notifying the other party of its intention to terminate this MoU in writing.

Unless agreed otherwise by the parties, the termination of this MoU shall not affect the validity and duration of any ongoing arrangement, activity and contract made under the MoU until the completion of such arrangement, activity and contract.

In WITNESS WHEREOF the undersigned, duly authorized thereto, have signed this Memorandum of Understanding.

Done at Jai Narain Vyas University, Jodhpur on the 11th October, 2021 in two originals.

COUNTER SIGNED



REGISTRAR

**Jai Narain Vyas University
JODHPUR (Raj.)**

Signature with seal

Signature with seal

Date:

Date:

(Prof. Abhimanyu Kumar)

Vice-Chancellor

Dr. Sarvepalli Radhakrishnan

Rajasthan Ayurved University, Jodhpur

Tel No. +91-291-2795301, 311

Email: vc.dsrrau@gmail.com

प्रो. (डॉ.) अभिमन्यु कुमार Prof. (Dr.) Abhimanyu Kumar
कुलपति / Vice Chancellor

डॉ. सर्वपल्ली राधाकृष्णन् राजस्थान आयुर्वेद विश्वविद्यालय
Dr. S.R. Rajasthan Ayurved University

Witnesses: जोधपुर / Jodhpur

Signature :

Name : SEEMA KAVJA

Designation : REGISTRAR, DSRRAU.

Signature : 11.10.24

Name : GOVIND SANAY SBUKLA

Designation : PROFESSOR

(Prof. Pravin Chandra Trivedi)

Prof. (Dr.) Pravin Chandra Trivedi
Vice-Chancellor

Jai Narain Vyas University
Jodhpur (Raj.)

Jai Narain Vyas University, Jodhpur

Tel No. +91-291-2432947

Email: vcjnvu@gmail.com &

vc@jnvu.edu.in

Signature :

Name : Gomati Shaema

Designation : Registrar J.N.V. Jodhpur

Signature : 11.10.2024

Name : Pawan Kumar Kasera

Designation : Professor of Botany
Dean, Faculty of science

COUNTER SIGNED

11

REGISTRAR

Jai Narain Vyas University
JODHPUR (Raj.)



The Institution of Engineers (India)

A Century of Service to the Nation



36th National Convention of Electrical Engineers on Future Electricity Systems : Challenges and Current Trends NCEFES- 2021 in Hybrid Mode (Online & Offline) November 27-28, 2021

Organized By



The Institution of Engineers (India)
Jodhpur Local Center
Under the aegis of Electrical Engineering Division Board, IEI

in association with

Indian Institute of Technology, Jodhpur
and
Electrical Engineering Department, M.B.M Engineering College, Jodhpur

ABOUT THE INSTITUTION OF ENGINEERS (INDIA)

The Institution of Engineers (India) or IEI is the largest multidisciplinary professional body that encompasses 15 engineering disciplines and gives engineers a global platform for sharing professional interest. IEI has membership strength of above 0.8 million. Established in 1920, with its headquarter at 8 Gokhale Road, Kolkata 700020, India, IEI has served the engineering fraternity close to a century. During this period of time, IEI has been inextricably linked with the history of modern-day engineering. In 1935, IEI was incorporated by Royal Charter and remains the only professional body in India which has been accorded this honour. Today, its quest for professional excellence has given it a place of pride in almost every prestigious and relevant organization across the globe. It provides a vast array of technical, professional and supporting services to the Government, Industries, Academia and the Engineering fraternity, operating through its 125 Centres located across the country and six overseas chapters.

Besides, IEI has bilateral agreements with about 31 international bodies and membership of another eight international bodies of the developed nations across the globe. Being recognized as a Scientific and Industrial Research Organization (SIRO) by the Department of Scientific and Industrial Research, Ministry of Science and Technology, Government of India, IEI promotes the cause of research and development by providing Grant-in-Aid support to undergraduate, postgraduate students and PhD Research Scholars of Engineering Institutions and Universities. IEI in collaboration with Springer regularly publishes peer reviewed International Journals in five series, namely, Series A, Series B, Series C, Series D and Series E covering 15 engineering disciplines. All these Journals are SCOPUS Indexed and UGC-CARE listed.

For further details, please visit: www.ieindia.org

About the Convention

Electrical power systems have been traditionally designed taking energy from high voltage level and distributing it to lower voltage level networks. There are large generation units connected to transmission networks. But in the past few years a trend has been established wherein many small generators are connected to the distribution networks. However, future electricity systems will require massive deployment of distributed energy resources (DER), especially distributed generation (DG) based on renewable energy sources (RES). Efficient integration of this distributed generation requires network innovations. A development of active distribution network management, from centralized to more distributed system management, is needed. Information, communication, and control infrastructures will be needed with increasing complexity of system management. Therefore, there is a need to have deliberations on many issues specially the challenges and current trends associated with future electricity system.

For further details, please visit: www.ncefes2021.in

Aim of the Convention

The NCEFES 2021 aims to bring the researchers, academicians, industry, and government personnel together to share and discuss the various aspects of future electricity system. The convention will witness multiple eminent keynote speakers from academia and industry from all over the world along with the presentation of accepted peer-reviewed articles. The after-conference proceeding of the NCEFES 2021 will be published in Springer Book Series.

Call for Papers

Prospective authors are invited to submit their manuscripts reporting original research and recent developments in the topics related to the convention. Paper submission will be through easychair. Prospective authors can upload the soft copy of their manuscript after registering at easychair. The papers will be peer reviewed and only the accepted papers will be considered for presentation during the convention and publication in the proceedings. Acceptance of a full-length submission is strictly based on the reviewers' comments. Paper Presentation will be carried out in online Mode and Physical Mode.

All submissions need to be submitted through the easychair using the link:

<https://easychair.org/conferences/?conf=ncefes2021>

At least one of the authors of an accepted paper needs to register for the convention and to present the paper through online/physical mode presentation. All manuscript should be prepared in the Springer's Book Chapter template. The template is available at www.ncefes2021.in

The topics covered (but are not limited to) in the convention are as follows:

- Distributed generation and Power Quality
- Smart micro grid
- Self-Healing Wide-Area Protection and Islanding
- Environmental issues
- Application of Machine Learning in Power Systems
- Internet of Things (IOT)
- Reactive Power Control and Pricing
- Integration of Communication Technology
- Renewable energy/Alternative Energy
- Advanced monitoring and novel control strategies
- Regulatory issues including various barriers
- Ancillary services and metering
- Load Forecasting
- Future Electricity Systems
- Provision of Scada in Transmission and Distribution
- FACTs Controller
- Reliability of distributed energy systems
- Real time simulation and contingencies analysis
- Standards (IEEE 1547, UL-1741, etc.)
- Economic benefits

- Data Acquisition
- Security Concerns
- Sustainable Development and Renewable Energy
- Energy Conservation

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For any clarification please contact :

E-mail : ncefes2021@gmail.com

Address for Correspondence :

The Honorary Secretary
The Institution of Engineers (India)
Jodhpur Local Centre
Gaurav Path, Jodhpur 342011,
Rajasthan
Ph.: 0291-2432708
E-mail: JodhpurLC@ieindia.org

**“Storing Energy for a Sustainable Future –
Future Energy in any Isolated World”**



DATES TO REMEMBER:

Full length Submission	15 th October 2021
Notification of Acceptance	30 th October 2021
Registration of accepted papers without late fee	10 th November 2021
Convention Dates	27 th & 28 th November 2021

REGISTRATION & PAYMENTS

All payments are to be made through crossed Demand Draft / Cheque / NEFT/ Online Net Banking Transfer In favour of "The Institution of Engineers (India), Jodhpur. In case of NEFT / Online Net Banking transfer please mention the following

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Author Category	Registration Charges upto 10.11.2021	Registration Charges after 10.11.2021
Regular Author IEI Member	3000 INR	4000 INR
Regular Author Non IEI Member	4000 INR	5000 INR
Regular Author from outside India	120 USD	150 USD
Listener (Non-Author/Co-Author/ General Participants) from India	1500 INR	2000 INR
Listener (Non-Author/Co-Author/ General Participants) from Outside India	50 USD	75 USD

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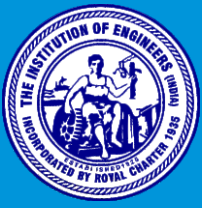
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36th National Convention of Electrical Engineers
on **Future Electricity Systems**
Challenges and Current Trends
NCEFES- 2021

November 27-28, 2021

REGISTRATION FORM

The Honorary Secretary

The Institution of Engineers (India)

Jodhpur Local Centre

Residency Road,

Jodhpur (Raj.)

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State/ Local Centre.....

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Rupees.....

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Transaction Date : _____

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Date

Signature

*DD Cheque Drawn in favour of "The Institution of Engineers (India) Jodhpur



Jai Narain Vyas University Jodhpur
जयनारायण व्यास विश्वविद्यालय



Govind Guru Tribal University Banswara
गोविन्द गुरु जनजातीय विश्वविद्यालय

MEMORANDUM OF UNDERSTANDING

BETWEEN

GOVIND GURU TRIBAL UNIVERSITY, BANSWARA
(ENACTED BY THE ACT 2012 OF STATE OF RAJASTHAN)

AND

JAI NARAIN VYAS UNIVERSITY, JODHPUR
(ENACTED BY THE ACT OF 1962, STATE OF RAJASTHAN)

COUNTER SIGNED

REGISTRAR

Jai Narain Vyas University
JODHPUR (Raj.)



Jai Narain Vyas University Jodhpur
जयनारायण व्यास विश्वविद्यालय



Govind Guru Tribal University Banswara
गोविन्द गुरु जनजातीय विश्वविद्यालय

MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding (MoU) is entered on this 31st August 2021

Between

JNV University, a university under the Act 1962 of State of Rajasthan, (hereinafter referred as JNVU), represented by Prof. P.C. Trivedi, Vice Chancellor, Jai Narain Vyas University, Jodhpur, Residency Road, Jodhpur, Pincode : 342011 as **First Party**

And

Govind Guru Tribal University, Banswara formerly known as Rajiv Gandhi Tribal University, a state university, established by an Act in 2012 and (Change of Name and Headquarters, and Amendment), Act, 2016 (hereinafter referred as GGTU), represented by Prof. I.V. Trivedi, Vice-Chancellor, Govind Guru Tribal University, Mahi Dam Road, Banswara (Rajasthan) – 327001 as **Second Party**

Purpose of MOU:

Ved Vidyapeeth has been established by GGTU Banswara to promote Vedic Studies and research and the purpose of this MOU is primarily to encourage higher education, Vedic Studies and Research between JNVU and GGTU.

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Chines

COUNTER SIGNED

REGISTRAR

Jai Narain Vyas University
JODHPUR (Raj.)



परिचय :-

पं० मधुसूदन ओझा शोध प्रकोष्ठ, जय नारायण व्यास विश्वविद्यालय, जोधपुर निरन्तर रूप से पं० मधुसूदन ओझा तथा मोतीलाल शास्त्री के साहित्य के आधार पर शोध तथा विस्तार व्याख्यान माला का आयोजन अनवरत रूप से कर रहा है। अद्यावधिपर्यन्त बीस ग्रन्थों का प्रकाशन किया जा चुका है। पं० ओझा तथा मोतीलाल शास्त्री की व्याख्यापद्धति वैचारिकता का प्रातिस्विक निदर्शन है। वैदिक सूक्तों, ब्राह्मण ग्रन्थों तथा उपनिषद् साहित्य पर अभिनव शैली से व्याख्या कर पं० ओझा तथा शास्त्री जी ने अध्यात्म तथा जीवन का अद्भुत सामंजस्य स्थापित किया है। श्री मद्भगवद्गीता पर भी पं० ओझा ने अवधारणात्मक गीता विज्ञान भाष्य की रचना की है। प्रस्थानत्रयी अथवा प्रस्थानपंचक के रूप में इनकी लगभग दो सौ अट्हाईस ग्रन्थों की विशद ग्रन्थ राशि शोधार्थियों के लिए महनीय उपयोगी है।

वेद विद्यापीठ, गोविन्द गुरु जनजातीय विश्वविद्यालय, बाँसवाड़ा भी वैदिक अध्ययन, सर्टिफिकेट कोर्स, सारस्वत वार्ताएँ एवं प्रायोगिक प्रशिक्षण इत्यादी का संचालन इसी सत्र से कर रहा है।

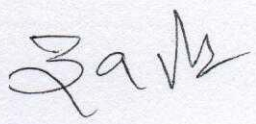
गोविन्द गुरु जनजातीय विश्वविद्यालय, बाँसवाड़ा एवं जय नारायण व्यास विश्वविद्यालय, जोधपुर के संयुक्त तत्वावधान में अधोलिखित शैक्षणिक कार्यक्रम सम्पादित कर सकते हैं:-

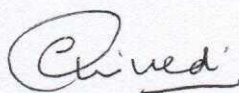
1. वैदिक सूक्तों तथा उनके भाष्यों का आलोचना- पूर्वक व्याख्यान

- वैदिक कृषि शास्त्र
- वैदिक अर्थशास्त्र
- वैदिक समाजविज्ञान
- वैदिक देवशास्त्र
- वैदिक अवधारणा : प्रकृति एवं पर्यावरण
- वैदिक नीति तथा आचार शास्त्र
- पुरुषार्थ चतुष्टय की वैदिक वैचारिकी
- वेद में लोक की अवधारणा

COUNTER SIGNED


REGISTRAR
Jai Narain Vyas University
JODHPUR (Raj.)







Jai Narain Vyas University Jodhpur
जयनारायण व्यास विश्वविद्यालय



Govind Guru Tribal University Banswara
गोविन्द गुरु जनजातीय विश्वविद्यालय

- वेद में विज्ञान
- वेद में आयुर्वेद के सूत्र
- वेद में भारतीय दर्शन के बिन्दु
- वैदिक गणित
- सांख्यानी शाखा का अध्ययन एवं संरक्षण
- वेद एवं महिला सशक्तिकरण
- प्राचीन ग्रन्थों का अनुवाद एवं आलोचना
- जनजातीय संस्कृति का अध्ययन
- वागड़ के संत मावजी के साहित्य का अध्ययन, अनुवाद एवं संरक्षण
- वैदिक अध्ययन में शोध एवं पीएचडी की व्यवस्था

2. भाष्यकारों का तुलनात्मक अध्ययन

- सायण
- महीधर
- उब्बट
- बालगंगाधर तिलक
- अरविन्द
- पं. मधुसूदन ओझा
- पं. मोतीलाल शास्त्री
- महर्षि दयानन्द सरस्वती
- देवीदत्त चतुर्वेदी

3. प्राचीन ग्रन्थों का अनुवाद एवं आलोचना
4. उपनिषद् साहित्य का भिन्न-भिन्न भाष्यकारों के संदर्भ में प्रकाशन
5. उपनिषद् साहित्य से सम्बद्ध स्वतंत्र ग्रन्थ
6. उपनिषद् साहित्यान्तर्गत जीवन-दर्शन विषयक सूत्र
7. उपनिषद् एवं प्रबन्धन – अन्तः साक्ष्य
8. ऑडियो-विजुअल लाइब्रेरी का निर्माण

COUNTER SIGNED

REGISTRAR

Jai Narain Vyas University
JODHPUR (Raj.)



Jai Narain Vyas University Jodhpur
जयनारायण व्यास विश्वविद्यालय



Govind Guru Tribal University Banswara
गोविन्द गुरु जनजातीय विश्वविद्यालय

शैक्षणिक कार्यक्रम :-


1. राष्ट्रीय / अन्तर्राष्ट्रीय संगोष्ठियों का आयोजन
(तत्तत् साहित्य का प्रकाशन)
2. (I) प्रमाण-पत्र पाठ्यक्रम
(II) डिप्लोमा पाठ्यक्रम
3. कार्यशालाओं का आयोजन
4. पुनश्चर्या / अभिमुखीकरण पाठ्यक्रम दो सप्ताह पर्यन्त
5. व्याख्यानमाला (विषय विशेष पर आधारित)

राजस्थान तथा प्रदेश के बाहर भिन्न-भिन्न विश्वविद्यालयों तथा राष्ट्रीय संस्कृत विश्वविद्यालय

6. राजस्थान संस्कृत अकादमी के माध्यम से प्रचार एवं प्रसार
7. वैदिक व्याख्याताओं एवं विद्वानों का अभिनन्दन एवं फ़ैलोशिप प्रदान करकरवाना।
8. माध्यमिक/उच्च माध्यमिक विद्यालयों हेतु लघु साहित्य का प्रकाशन एवं वितरण
9. प्रतियोगिताओं का आयोजन
भाषण प्रतियोगिता
सामान्य ज्ञान प्रतियोगिता

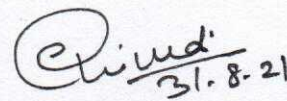
STATEMENT OF UNDERSTANDING

This document is a statement of understanding and is not intended to create binding or legal obligations on either party.


Prof. (Dr.) I.V. Trivedi
Vice Chancellor
Govind Guru Tribal University
Banswara

Date: 31st August 2021

Witness:-----


Prof. (Dr.) P. C. Trivedi
Vice Chancellor
Jai Narain Vyas University
Jodhpur

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REGISTRAR
Jai Narain Vyas University
JODHPUR (Raj.)

Witness: -----

MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding (MoU) made and executed at Jaipur on August 3, 2021 between **JAI NARAIN VYAS UNIVERSITY, JODHPUR**, having its campus at **Residency Road , Jodhpur** (hereinafter referred to as **JNVU, Jodhpur** which expression shall, unless it is repugnant to the subject or context thereof, include its successors, assignees and /or nominees)

And

HARIDEV JOSHI UNIVERSITY OF JOURNALISM AND MASS COMMUNICATION, JAIPUR having its office at Rajiv Gandhi Vidhya Bhawan, Shiksha Sankul, JLN Marg Jaipur (hereinafter referred to as **HJU , Jaipur** which expression shall, unless it is repugnant to the subject or context thereof, include its successors, assignees and /or nominees)

Whereas

Jai Narain Vyas University, Jodhpur holds the distinction of being premier state University of higher learning in Rajasthan. It was established in 1962 by Jodhpur University Act (Act XVII) and recognized from the time of its inception under sections 2f and 12B of UGC Act. The main objective of the University has been the creation and dissemination of knowledge.

And Whereas

Haridev Joshi University of Journalism and Mass Communication , Jaipur is a State University of Rajasthan established under the provisions of The Haridev Joshi University of Journalism and Mass Communication, Jaipur Act, 2019 (Act no. 11 of 2019) to develop the University into a national center of teaching, training and research in the field of Journalism and Mass Communication and allied fields, including Applied Information Technology imparting skill education and training in the state of Rajasthan.

1. Scope of MoU:

Both the parties in principle agree to work in the following areas of collaboration:

- a) cooperate in the exchange of information relating to their activities in teaching and research in fields of mutual interests.
- b) collaborate in curriculum development for skill education and General education
- c) provide mutual access to facilities for the academic purposes as mutually agreed between the parties prior to commencement of the activity:
- d) conduct short courses, as mutually agreed in writing between the parties prior to commencement of this activity:
- e) areas of collaboration may be proposed by either institution and may include, but are not limited to:

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- i. Joint teaching, research, or cultural activity;
- ii. Mobility of faculty, scholars, and students between institutions;
- iii. Staff professional development;
- iv. Sharing or creation of educational materials and resources;
- v. Participations in seminars and academic meetings;
- vi. Organizing Special Short Term Academic Programs;
- vii. Exchange of Academic Materials;
- viii. Creation and sharing of electronic instruction media;
- ix. Any other item agreed in Collaboration Coordination Committee meeting.

Any specific activity developed under this MOU shall be detailed in a subsequent agreement, signed by each institution's authorized signatory, which will describe the scope of the proposed activity, intended outcomes, budget, and responsible departments or individuals.

2. Commencement and Validity:

2.1 This MOU shall be in effect for a period of FIVE years from the date of signature. Either party may request termination of this agreement, in writing, Thirty (30) days prior to the proposed termination date. Any activities in progress at the time of termination shall be permitted to conclude as planned unless otherwise agreed in writing.

2.2 A joint evaluation of the MOU will be initiated by the designated representatives six (6) months prior to the expiration date. Following the evaluation, the MOU may be renewed and resigned for an additional five (5) year period.

2.3 Amendments to this MOU may be requested, in writing, by either party and approved by the authorized signatories.

3 Coordination Committee:

To facilitate this MOU, a JNVU-HJU Collaboration Coordination Committee (CCC) will be formed. The CCC will be composed of four members from each of the Institutions including one Chair and one Liaison from each Institution. It is the CCC's responsibility to carry out collaboration-related duties and to report to the Vice-Chancellor of both Institutions. The CCC will be notified.

4 Commercials:

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Both the Parties shall work out commercials with respect to each individual work plan separately. In no case any financial or academic liability on one party would be transferrable on the other party.

5 Use of Name:

None of the parties shall use the name, logo, likeness, trademarks, image or other intellectual property of either of the other parties for any advertising, marketing, endorsement or any other purposes without the specific prior written consent of an authorized representative of the other party as to each such use.

6 Independent Contractors:

Each party is separate and independent and this Agreement shall not be deemed to create a relationship of agency, employment, or partnership between or among them. Each party understands and agrees that this Agreement establishes an independent contractor relationship and that the agents or employees of each respective party are not employees or agents of any other party.

7 Severability:

The provisions of this Agreement are severable, and if any provision of this Agreement is found to be invalid, void or unenforceable, the remaining provisions will remain in full force and effect.

8 Waiver:

The waiver of any breach of any term of this Agreement does not waive any subsequent breach of that or another term of this Agreement.

9 Assignments:

No party may assign this Agreement or any rights or obligations under this Agreement to any person or entity without the prior written consent of the other parties. Any assignment in violation of this provision is null and void.

10 Terminations:

- 10.1 In case of breach of contract both parties may, without assigning any reason, terminate this Memorandum of Understanding at any time by giving to the other party three month notice in writing sent by registered post or Speed Post or Courier.
- 10.2 Without prejudice to any other remedies both Parties shall have the right at any time by giving notice in writing to each other for terminating the Memorandum of Understanding forthwith in any of the following events:

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- 10.2.1 Any of the parties commit the breach of any of the terms or conditions of this Memorandum of Understanding.
- 10.2.2 Any party enters into liquidation, whether compulsorily or voluntarily (otherwise than for the purposes of amalgamation or reconstruction) or compounds with creditors or takes or suffers any similar action in consequence of debt or in the case of an individual or a partnership.
- 10.2.3 Any of the parties are guilty of any conduct which legally is prejudicial to the contract's interests.
- 10.2.4 No party shall have authority to purport or assign the burden or benefits or charge the benefits of this Memorandum of Understanding without the consent in writing of the other Party.

11 Force Majeure

- 11.1 If the performance of the obligations under this Memorandum of Understanding is prevented by reason of any contingencies, which could have been reasonably avoided and are beyond the control of the parties, the party so affected shall not be liable to the other for damages to the extent of such prevention. Such contingencies include strikes of workers, fire, flood, explosion, riots sabotage, acts of God and war or enemy action.

12 Notice

- 12.1 Save as hereinbefore otherwise provided, any notice required to be given hereunder shall be sufficiently given to each other if forwarded by registered post, speed post, courier, to the last known postal address of the parties. Every notice shall be deemed to have been received and given at the time when in the ordinary course of transmission it should have been delivered at the address to which it was sent.

13 Indemnity:

- 13.1 Both parties shall indemnify the each other against all losses, damages or claims that may arise out of any unauthorized representations made by their employees or representatives.

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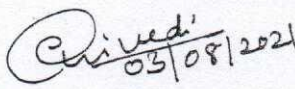
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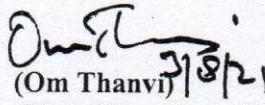
In witness thereof the parties have set their hands and seal on the day month and year first written.

For
Jai Narain Vyas University, Jodhpur


(P. C. Trivedi)
(Vice-Chancellor, JNVU)

Witness:

For
Haridev Joshi University of Journalism and
Mass Communication, Jaipur


(Om Thanvi)
(Vice-Chancellor, HJU)

Witness:

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REGISTRAR
Jai Narain Vyas University
JODHPUR (Raj.)

MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding (hereinafter referred to as "MOU") has been agreed, made and executed on this [08]th day of [April], [2021] ("Execution Date"),

Between

HEARTFULNESS EDUCATION TRUST, a registered trust having its registered office at no. 40-15-9/12, Nandamuri Road, Venkateswarapuram Post Office, Vijayawada - 520 010, Andhra Pradesh, India (hereinafter referred to as "**HET**", which expression shall unless repugnant to the context and meaning thereof mean and include its successors, administrators, authorized representatives and permitted assigns);

And

JAI NARAIN VYAS UNIVERSITY, established in the year 1962 as a State University by statutory enactment to cater to the growing requirements of Higher Education of the western region of the country especially Pali, Jalore and Barmer districts in general, and of Jodhpur district, in particular, located at Residency Road, Jodhpur - 342001, Rajasthan (hereinafter referred to as "**JNVU**", which expression shall unless it be repugnant to the context or meaning thereof mean and include its successors, administrators, authorized representatives and permitted assigns).

(**HET** and **JNVU** shall hereinafter be collectively referred to as the "**Parties**" and individually referred to as "**Party**" in this MOU)

WHEREAS:

- i) **HET** is a public charitable trust registered under the Indian Trust Act, 1882 *inter alia* with an objective to impart Heartfulness approach to various wellness programmes including relaxation, meditation, values based educational programmes for schools, colleges, government organizations;

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corporates etc., made available to all who are willingly interested in individual development and wellbeing. HET is also engaged in conducting various Teachers' training programmes in collaboration with Certain State Governments/ Education Institutions.

- ii) **JNVU** is a State University by statutory enactment to cater to the growing requirements of Higher Education of the region in general, and of Jodhpur district, in particular. **JNVU** desires to provide and inculcate in its students' values and inner development in order for them to perform better as students and be leaders for growth in nation building. **JNVU** has several recognized institutions under its umbrella.
- iii) **HET** through its Heartfulness initiatives offer a way for balanced living through various meditation techniques. These simple and effective techniques gradually imbibe feelings of discipline, empathy, brotherhood, leading to mental, spiritual, and psychological well-being, helping an individual to transform not only inwardly but also his/ her attitudes, and dealings with society at large.
- iv) **JNVU** intends to procure training and experiential learning services provided by **HET** on the terms agreed to herein, in order to stimulate and facilitate the development of programmes/modules which serve to enhance educational, social, spiritual & emotional development of students. Further, **HET** and **JNVU** in support of their interest in the field of education are desirous of promoting mutual cooperation by organizing and conducting educational workshops for mental, spiritual and psychological well-being of its students, and desire to extend the basis for friendly and cooperative collaboration by way of this MOU.

NOW THERE FORE, THE PARTIES HEREBY AGREE AS UNDER:

1. PURPOSE AND OBJECTIVES

- 1.1. **JNVU** desires to create a precedent by offering suitable and pertinent learning and offerings to its students so as to enable them to lead their lives with purpose and be of help to the society at large. **JNVU** has represented that it is a leading university that offers high quality education and its priority is to provide its students values, inner development enabling them to perform better in their education & be leaders in nation

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building. It seeks to provide its students basic life skills to manage challenges in their relationships, avoid intoxicating abuses, digital dependence and deal with stress of modern life. It aims to enable their students and staff to de-stress, manage life's challenges in healthy ways and find joy, purpose and fulfilment. This will directly enhance their academic and work performance and create a harmonious environment within **JNVU**.

- 1.2. HET has agreed to be helpful in such mission through its offerings as listed out in Schedule 1 ("**Offerings**").
- 1.3. Both the Parties, hereby express their commitment to collaborate with each other to conduct (i) **educational**, (ii) Heartfulness relaxation, meditation and (iii) other connected wellness workshops to help students teachers to regulate their minds, moderate their tendencies, increase their concentration, sharpen the use of their will, introspect and self-analyse and accept people and situations in general. Through such workshops and Offerings of HET, they intend to help the students to improve their learning skills and behaviour, and inculcate humility, emotional maturity, confidence, stress management, self-awareness and most importantly, develop a sense of purpose towards life.

2. **FACILITATORS**

Both Parties shall nominate one or more representatives, who shall be the point of contact/ facilitator ("**Facilitators**") for the purposes of this MOU. The Facilitators of the respective Parties shall maintain regular contact with each other. Further, they shall propose and review the response received from the participants for the workshops and other activities that may be conducted pursuant to this MOU and in furtherance to fulfilling the purpose and objectives envisioned under this MOU.

3. **RESOURCES**

- 3.1. **JNVU** shall make arrangements at its agreed venue(s) with required reference and reading material as specified by HET, by a establishing a(i) heartfulness corner in their library, and(ii) meditation practice room, and by providing such audio-visual equipment and other facilities as shall be required for conduct of the workshops and/or programmes with respect to the Offerings.

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- 3.2. **HET** shall nominate such teachers, trainers and support staff as it deems necessary for conducting and providing training to participants at these workshops and programs pursuant to this MOU.
- 3.3. **HET** shall provide support to orient JNVU's teachers to conduct the sessions as advised by **HET** for the students at JNVU and shall provide such external support as required. Through these Offerings **HET** will make students at JNVU understand values and their role in improving the quality of their life and enable them to impart spiritual training as an extended activity in its institutions as and when feasible.
- 3.4. The Parties agree to distribute reading materials/ promotional/ literature to the participants, through any means including but not limited to audio and/or video recordings, books and magazines as deemed fit by **HET**. **HET** shall share the content of such reading materials, literature, video recordings and other such material with **JNVU**, before distributing the same to the participants.
- 3.5. The Parties further agree that at **HET's** discretion, they shall set up stalls at the program venue to distribute promotional items including but not limited to clothing, apparel, mementoes, brochures, other merchandise and/or articles and details of the programme etc.
- 3.6. The Offerings detailed in Schedule 1 shall be the scope of service to be rendered by **HET** which will be adhered to by **HET** during the term of this MOU.

4. OTHER OBLIGATIONS OF JNVU

- 4.1. **JNVU** shall extensively promote **HET** Offerings so that greater populace of students in JNVU shall benefit from this initiative. As previously indicated in Clause 1.1 above, being a value-based model of education, **JNVU** may make all or any part of the Offerings, as applicable, a part of their curriculum for the students on a mutually agreed basis between the Parties.

- 4.2. **JNVU** shall:

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- i) Take initiatives such that its students shall attend the sessions conducted by **HET** with an objective to help them develop ideal value systems within to make them global citizens;
- ii) Facilitate students to integrate and imbibe such values into their lives and education;
- iii) Jointly conduct surveys at regular intervals to find the effectiveness of the programs conducted pursuant to this MOU;
- iv) Encourage its students, faculty, staff and administration to share written, audio and/or video testimonials with respect to any training programs, workshops or seminars conducted by **HET**;

5. TERM

- 5.1. This MOU has been executed for the purpose of organizing workshops/ seminars/ training sessions at the premises of **JNVU** or such other premises as may be mutually agreed upon in writing.
- 5.2. This MOU shall come into effect from the Execution Date and shall remain in force for a period of one year thereafter.
- 5.3. This MOU shall terminate after completion of the term of one year from the Execution Date, without any financial obligations of Parties, except for any pending reimbursements and costs as provided herein.
- 5.4. The Parties may execute similar agreements for similar initiatives in future or even extend the term of this MOU for such further periods as mutually agreed to by the Parties.
- 5.5. Either Party may voluntarily terminate this MOU by giving a 3 months' notice in writing to the other.
- 5.6. The provisions of this Clause 6.6 and 8 and all of its sub-clauses will survive any expiration or termination of this MOU.

6. ASSIGNMENT

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This MOU is personal to the Parties and the rights and obligations established herein shall not be assignable by the Parties, except to the extent expressly permitted under this MOU or with the prior written consent of the other Party.

7. INTELLECTUAL PROPERTY

- 7.1. Neither Party shall exercise any rights in the trademarks, copyright or other intellectual property of the other Party, except as expressly stipulated herein.
- 7.2. All intellectual property rights including all (i) copyrights and other rights associated with works of authorship throughout the world, including neighboring rights, moral rights, and mask works, (ii) trade secrets and other confidential information, (iii) patents, patent disclosures and all rights in inventions (whether patentable or not), (iv) trademarks, trade names, internet domain names, and registrations and applications for the registration thereof together with all of the goodwill associated therewith, (v) all other intellectual and industrial property rights of every kind and nature throughout the world and however designated, whether arising by operation of law, contract, license, or otherwise, and (vi) all registrations, applications, renewals, extensions, continuations, divisions, or reissues thereof now or hereafter in effect ("**IPR**") with respect to (a) "Heartfulness", (b) "Heartfulness Relaxation", (c) "Heartfulness Meditation", (d) "Heartfulness Cleaning", their techniques and/or connected procedures therein and (d) the title and content/modules or any other information shared with JNVU, its staff, students and teachers, as the case may be, as part of the Offerings of HET, and (e) other trademarks belonging to **HET** or of those of its associates, (collectively referred to as "**Heartfulness IP**") as and when used by **HET** under license shall always vest with **HET** or its associates, as applicable. **HET** reserves the right to use the same internally or externally at its sole discretion.
- 7.3. This MOU in no way creates or conveys any ownership interests in Heartfulness IP to **JNVU**. JNVU shall only use such Heartfulness IP or any part thereof, in the manner and form previously approved in writing by **HET** and in coordination with and assistance of **HET** authorized representatives.

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7.4. HET reserves the right to modify, change or improve such Heartfulness IP in the manner it deems fit and implement such changed versions of Heartfulness IP or wellness techniques at anytime during the term of this MOU.

7.5. The Parties agrees that all ownership rights in any and all testimonials submitted in accordance with Clause 4.2 (iv) above shall vest with HET.

8. INDEMNITY

8.1. Except for cost reimbursements, the services provided by HET's with respect to the Offerings are on a mutual basis and free of cost. Only willing participants for their own wellbeing / self-development are required to participate. JNVU may for development of its students make the HET programs, modules and/or workshops as part of its curriculum. The Parties, therefore, agree that such services do not give rise to any kind of damage or liability to anybody who participates and therefore no damage can arise there from. No indemnity is therefore provided herein. The Parties agree that that HET programs do not guarantee success of its objectives or purposes as mentioned anywhere in this MOU.

8.2. In the event JNVU breaches the terms of Clause 8 (intellectual property) of this MOU, HET shall be entitled to seek specific performance against the JNVU for performance of its obligations under Clause 8 (intellectual property) of this MOU in addition to any and all other legal or equitable remedies available to it.

9. GOVERNING LAW, JURISDICTION & ARBITRATION

9.1. This MOU shall be construed, interpreted and enforced in accordance with laws of India. In case of any differences between the Parties, they shall make all efforts to settle the disputes amicably through mutual discussion and negotiation within [10 days], failing which, dispute(s) shall be referred to a sole arbitrator appointed by both the Parties, as per provisions of Arbitration and Conciliation Act, 1996. Language of arbitration shall be English and place of arbitration shall be Hyderabad.

9.2. Subject to the arbitration Clause 10.1 above, the courts of competent

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jurisdiction in Hyderabad shall have exclusive jurisdiction with respect to any and all matters pertaining to this MOU.

10. MISCELLANEOUS

- i) This MOU together with any other documents including but not limited to memorandum of understandings, communications exchanged between the Parties defining responsibilities, obligations of both the Parties for different programs, initiatives etc. under this MOU, each of which shall be deemed to be an original, and all of which, taken together, shall constitute an integral part of this MOU constitute the entire agreement and supersedes any previous agreement between the Parties relating to the subject matter of this MOU.
- ii) This MOU can only be amended in writing by mutual consent of both the Parties. No modification or amendment to this MOU and no waiver of any of the terms or conditions hereof shall be valid or binding unless made in writing and duly executed by or on behalf of both the Parties.
- iii) This MOU may be executed in counterparts and shall be effective when each Party has executed a counterpart. Each counterpart shall constitute an original of this Agreement.
- iv) If any provision of this MOU shall be invalid, illegal or otherwise unenforceable, the validity, legality and enforceability of the remaining provisions shall in no way be affected or impaired thereby.
- v) The captions of the clauses of this MOU are for convenience of reference only and in no way define, limit or affect the scope or substance of any clause of this MOU.
- vi) The arrangement contemplated herein being in nature of cooperative strategic alliance for general wellbeing, no monetary consideration is involved except as provided for herein.

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- vii) None of the provisions of this MOU as stated above shall be deemed to constitute a partnership between **HET** and **JNVU** and neither Party shall have any authority to bind or shall be deemed to be the agent of the other in any way. It is on principle to principle basis.
- viii) JNVU agrees that the participants to any of the HET program shall participate voluntarily. The practices prescribed by HET are not substitutes for any medical prescription or medical advice, if any, recommended by any medical practitioner.

IN WITNESS WHEREOF the Parties hereto have executed this MOU, in duplicate, by their duly authorized representatives on the date, month and year first written above.

For **HEARTFULNESS
EDUCATION TRUST**

For **JAI NARAIN VYAS
UNIVERSITY**

Vimla Sheoran
[Prof.(Dr.)Vimla Sheoran
Representative]
TRUSTEE Rev. **KAMLESH
PATEL**
Date:

Pravin Chandra Trivedi
[Prof.(Dr.)Pravin Chandra Trivedi]
VICE CHANCELLOR
Date:

Witnesses:

- 1) *Deepak Kalwar* (**DEEPAK KALWAR**)
2) *Praveen Guler* (**Prof. Praveen Guler**)

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[Signature]
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SCHEDULE- 1 Scope of Work

Heartfulness Education Trust (HET) shall offer the following programs specifically developed for specific needs of the University:

1. **Staff Training:** HET shall impart a training program on "Wellness at work" to all Principals, Teachers and Staff of the **JNVU** institutions at its campus. **JNVU** may at its sole discretion make it compulsory for their faculty/staff. Initially, this would be a three-day program to introduce the Heartfulness Meditation Practice and how it can be integrated into best education practices. This wellness program can also be offered at Kanha Shanti Vanam, the world headquarters of Heartfulness located near chegur village, RangaReddy district with a residential programme facility on mutually agreed basis.
2. **In-depth Faculty Training on Heartfulness Curricula:** Following initial introduction, interested faculty would be provided a longer duration in-depth teacher training program to further enhance and develop the Heartfulness tools and Curricula. This program would be developed suitably by Heartfulness Education Trust and made available at Kanha Shanti Vanam / Heartfulness centers or on **JNVU** campus on an ongoing basis on agreed intervals during the term of this MOU.
3. **HELM (Heartfulness Enabled Leadership Mastery) curriculum for students:** HET shall choose a college on **JNVU** campus to begin an in-depth training for students. This would cover a [3 day] induction program and a [16-week] life-skills course which will be followed by subsequent foundational leadership programs such as 'Discover', 'Develop', 'Deepen', 'Dedicate' etc which can be included as credit courses. These are core Heartfulness programs conducted by certified Heartfulness trainers which will be experiential sessions of 60-90 minutes for each student group.
4. **Internships for students:** Faculty offering 'Heartful Electives' can design projects that aim to integrate ethical and contemplative aspects into particular student projects.
5. **Leadership Conclave/Roundtable on Heartfulness Leaderships:**

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HET shall conduct a 3-day workshop for the senior management of JNVU, including to limited to the vice-chancellors, registrars of JNVU to shine some light on the relationship between meditation and education.

6. **H.E.A.R.T:** HET shall conduct a workshop for the faculty at JNVU, to inspire them to teach in a reflective manner and also to help them integrate meditative aspects to their course design.
7. **Heartfulness Meditation Workshop:** HET shall introduce the experience of Heartfulness Meditation to the administration department, the ground staff, general public and parents of the students at JNVU through a 3-day experiential workshop.
8. **Inner Well Being Workshop:** HET shall introduce the experience of Heartfulness Meditation to counsellors and/or peer counsellors and provide them with techniques to help students handle situation in a calmer manner, through a 3-day workshop.

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ICAR-National Bureau of Plant Genetic Resources

पूसा कैम्पस, नई दिल्ली दृ 110 012

Pusa Campus, New Delhi - 110 012



Priority-setting Monitoring and Evaluation Cell

Dr. Kavita Gupta

Principal Scientist and OIC PME Cell

☎ :- 91-11-25802882, 25802750

Fax No. :- 91-11-25842495

E.mail :- pme.nbpgr@icar.gov.in, kavita.gupta@icar.gov.in

31 July 2021

Subject: Signed copy of Memorandum of Understanding between ICAR-National Bureau of Plant Genetic Resources, New Delhi and Jai Narain Vyas University, Jodhpur-reg.

Dear Vijay,

Kindly find enclosed a signed copy of the Memorandum of Understanding between ICAR-National Bureau of Plant Genetic Resources, New Delhi and Jai Narain Vyas University, Jodhpur for your kind information.

Thanks and regards

Yours sincerely

Kavita Gupta
(Kavita Gupta)
Dr Kavita Gupta
Officer-in-Charge

Dr. Vijay Singh Meena

Scientist SS & OIC

ICAR-NBPGR, Regional Station

Jodhpur – 342 003 (Rajasthan)

Priority-Setting Monitoring and Evaluation Cell
ICAR - National Bureau Of Plant Genetic
Resources New Delhi-110012

COUNTER SIGNED

G
REGISTRAR
Jai Narain Vyas University
JODHPUR (Raj.)

Umbrella Memorandum of Understanding
between

ICAR-National Bureau of Plant Genetic resources, New Delhi-110012
(Name of the ICAR Institute)

and

Jai Narain Vyas University Jodhpur, Rajasthan- 342011

University/DU [Within NARS (AUs/ICAR DUs) or Outside NARS (Central/State Govt./Public
Sector Funded Institutions/State Universities/Autonomous Bodies/Private Universities or
Institutions)]

for facilitating

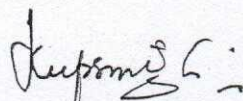
Students' Training/Postgraduate Research

This Memorandum of Understanding (hereinafter referred to as MoU) is made on this.....31st July..... day of the month ofJuly.....2021..... in the year by and between the ICAR-National Bureau of Plant Genetic resources, New Delhi-110012 (Name of the ICAR Institute) having its Head Office at New Delhi-110012. [hereinafter called "ICAR-National Bureau of Plant Genetic resources, New Delhi-110012"/First party], a constituent Research Institution of the Indian Council of Agricultural Research, Krishi Bhavan, New Delhi-110 001 on the ONE PART and the Jai Narain Vyas University Jodhpur, Rajasthan-342011 [Name of the AU/ICAR-DU (Within NARS) or Central/State Govt./Public Sector Funded Institution/State University/Autonomous Body/Private University or Institution having its headquarters at Jodhpur, Rajasthan-342011 [hereinafter called "Jai Narain Vyas University Jodhpur, Rajasthan- 342011"/Second party] on the OTHER PART (who for the purpose of this MoU are hereinafter collectively referred to as the parties).

The parties, having discussed fields of common research interests and allied activities between the two institutions, have decided to enter into long-term collaboration for promotion of students' training and quality postgraduate research in cutting edge areas in accordance with the provisions contained in the Guidelines issued vide Letter No. 2-8/2012- HRD dated 11th December, 2012 or as revised from time to time.

WHEREAS the "First Party" is involved in the **Management of plant genetic resources of arid and semiarid region** (specific mandated domain within the approved disciplines/divisions), AND WHEREAS the "Second Party", established vide F. No. ----- dated ----- by Govt. of India/Govt. of Rajasthan (Name of the Agency) vide Act No. 17 of 1962 and recognized by University Grants Commission] at its Department of Botany is involved in Plant Science (specific areas of research),

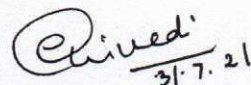
AND WHEREAS it has been considered expedient to agree in writing to participate jointly in the projects requiring expertise and logistics from both the parties.



(Signature of First Party)

**निदेशक
Director**

राष्ट्रीय पादप आनुवंशिक संसाधन ब्यूरो
National Bureau of Plant Genetic Resources
पूसा कैम्पस, नई दिल्ली-12
Pusa Campus, New Delhi-12



(Signature of Second Party)

Vice-Chancellor

J. N. Vyas University
JODHPUR.

COUNTER SIGNED


REGISTRAR
Jai Narain Vyas University
JODHPUR (Raj.)

Article 1. Scope

- 1.1 The Second party will recognize the First party as an Institute for conducting research related to the thesis requirement of the research students for Under Graduate/Master/Doctoral/Post-Doctoral (Name of the degree programme). The Second party will recognize Scientists of the ICAR Institute as recommended by its Director in accordance with the University rules and regulations for guiding students working for the said degree.
- 1.2 Operational details of research effort and collaboration will be made in common research programmes and/or projects restricted to specific mandated domain within the approved disciplines/divisions. The objective(s) for research work for a student coming from a Second party outside NARS should be exclusively different as far as possible.
- 1.3 Research instrumentation facility and library facilities available with the First party and the Second party will be made available to the faculty and research scholars. However, the costs of specific consumables will be borne by the respective organizations.
- 1.4 There shall be an exchange of students for academic, research and training purposes. Accommodation in the Hostel shall be arranged, wherever possible, as per extant rates. The duration of exchange visits will be determined by mutual consent between both the parties.

Article 2. Management

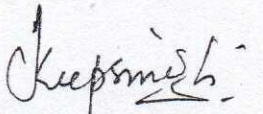
- 2.1 Director of the First party and the Vice-Chancellor/Head of the Institution of the Second party will be responsible to work out operational details of co-operation between the two organizations and ensure proper and effective implementation of this MoU.
- 2.2 The Advisory Committee will meet at least once in a year alternatively in the institutions of the First party and the Second party to review the activities. This meeting shall include presentation on the academic and research activities, which should be open to the students, faculty and scientists.

Article 3. Exchange of Information

- 3.1. The term "information" includes scientific or technical data, results and/or methods of investigation, and other information intended to be provided, exchanged, or arising under project descriptions entered into pursuant to this MoU.
- 3.2. The parties support the widest possible dissemination of information. Each party in joint projects shall be given the right to use, disclose, publish or disseminate such information for any and all purposes.

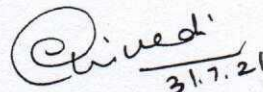
Article 4. General Provisions

- 4.1 It is understood that the First party and the Second party subscribe to the principle of equal opportunity and do not discriminate on the basis of race, sex, age, caste or religion. Both the Institutions shall abide by these principles in the administration of this agreement and neither party shall impose criteria for exchange of scholars or students, which violate principles of non-discrimination.


(Signature of First Party)

Director

राष्ट्रीय पादप आनुवंशिक संसाधन ब्यूरो
National Bureau of Plant Genetic Resources
पूसा कैम्पस, नई दिल्ली-12
Pusa Campus, New Delhi-12


(Signature of Second Party)
Vice-Chancellor
J. N. Vyas University
JODHPUR.

COUNTER SIGNED

REGISTRAR

Jai Narain Vyas University
JODHPUR (Raj.)

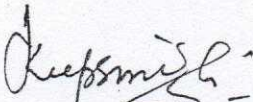
- 4.2 Both parties understand that all financial agreements will have to be negotiated separately and will depend on the availability of funds.
- 4.3 Both parties acknowledge that exchange of students from one party to the other shall be subject to the availability of funds and shall comply with the regulations and policies of the First party and the Second party.
- 4.4 Any research publications arising will be jointly published in accordance with the provisions laid out in Item 3.2.1C of the Guidelines for the students to conduct research for their degree programme as trainees at ICAR institutions as notified *vide* Letter No. 2- 8/2012-HRD dated 11th December, 2012 or revised guidelines, if any, as may be issued from time to time.
- 4.5 A copy of the thesis/dissertation will be submitted to the First Party after the award of the degree by the Second party.
- 4.6 All questions related to this MoU arising during its term will be settled by the parties by mutual agreement. Disagreements at the operating level shall be forwarded to respective higher officials for appropriate resolution failing which an arbitrator of mutual acceptance may be identified for the settlement of dispute, if any.
- 4.7 All questions not foreseen related to this MoU will be handled by the parties by mutual agreement.
- 4.8 Nothing in this MoU is intended to affect other cooperation or collaborations between the parties.

Article 5. Intellectual Property Rights

- 5.1 The Second party will be expected to ensure protection of the Intellectual Property Rights generated or likely to be generated during the student's research work. The IPR shall rest with the institution where the major part of research work carried out by the student and the students and involved scientific staff shall be included as the inventor/breeder/author. The 'ICAR Guidelines for Intellectual Property Management and Technology Transfer/Commercialization' as amended from time to time shall be the reference for exploitation of the generated intellectual property, whose management and benefits sharing shall be mutually decided in each case.

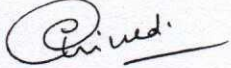
Article 6. Admission and Fees

- 6.1 All those who wish to register as trainees or for Master/Doctoral programme under this MoU must apply for admission at the Second party. The allocation of Major Guide/Advisor would be finalized before the registration and will be governed by the provisions laid out in Items 3.2.1A and 3.2.2A of the Guidelines for the students to conduct research for their degree programmes as trainees at ICAR institutions as notified *vide* Letter No. 2-8/2012-HRD dated 11th December, 2012 or revised Guidelines, if any, as may be issued from time to time, for the students from within NARS and outside NARS, respectively.
- 6.2 Admission of the students and the award of degrees for different programmes will be the responsibility of the Second party as per the rules and regulations.
- 6.3 Allotment of the students at the First party will be done by the approval of Director of the First party and Vice-Chancellor/Head of the Institution of the Second party.
- 6.4 The First party would have the right to screen the student's eligibility for admission based on their academic period.


(Signature of First Party)

निदेशक
Director

राष्ट्रीय पादप आनुवंशिक संसाधन ब्यूरो
National Bureau of Plant Genetic Resources
पूसा कैम्पस, नई दिल्ली-12
Pusa Campus, New Delhi-12


(Signature of Second Party)
Vice-Chancellor
J. N. Vyas University
JODHPUR.

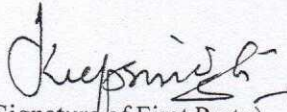
COUNTER SIGNED


REGISTRAR
Jai Narain Vyas University
JODHPUR (Raj.)

- 6.5 The PME Cell of the First party in consultation with the representative of the Second party shall decide the location and sharing quantum of research work.
- 6.6 The number of student(s) at any particular time will be subjected to the availability of research facilities and scientists' time to guide thesis research at the First party institution.
- 6.7 Any student(s) admitted to the First party for training/postgraduate research, if found violating the rules and regulations laid down by the First party or indulge in such activities that amount to tarnishing the image of the Institute, or cause damage to the property, the registration of such student(s) would be summarily terminated. The Second party will not complete the formalities of issuing the certificates to such students until they compensate the losses to the First party.
- 6.8 Fees will be charged from the students by the First party as per Guidelines for the students to conduct research for their degree programmes as trainees at ICAR institutions vide Letter No. 2-8/2012-HRD dated 11th December, 2012 or revised Guidelines, if any, as may be issued from time to time. No fee may be charged by the First party from the students registered with AU/DU within NARS. However a student registered with a Second party, outside NARS, will deposit fee of Rs. 10,000/- for training duration of 3 months (not leading to a degree/dissertation) and Rs. 30,000/- per semester (six months) for training, research, dissertation exceeding three months. Any change in fee structure by ICAR will be applicable from the date of revision and shall be charged by the First party.

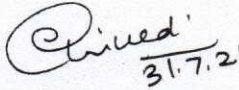
Article 7. Entry into effect, modification and termination

- 7.1. This MoU shall become effective on the date it is signed by the parties and shall be valid for three years extendable up to five years. Both parties shall review the status of the MoU at the end of each three/five year period to determine any modification, whenever necessary. The period of validity of this MoU may be extended by mutual consent up to five years. This MoU may be amended by mutual written agreement and may be terminated at any time by either party upon written notification signed by the competent authority of the party initiating termination. Such notification must be given to the other party at least six months in advance from the effective date of termination.
- 7.2. All joint activities not completed at the expiration or termination of the MoU may be continued until their completion under the terms of this MoU.
- 7.3. No amendment or modification of the MoU shall be valid unless the same is made in writing by both the parties or their authorized representatives and specifically stating the same to be amendment of the MoU. The modifications/changes shall become part of the MoU and shall be effective from the date on which they are made/executed, unless otherwise agreed to.


(Signature of First Party)

निदेशक
Director

राष्ट्रीय पादप आनुवंशिक संसाधन ब्यूरो
National Bureau of Plant Genetic Resources
पूसा कैम्पस, नई दिल्ली-12
Pusa Campus, New Delhi-12


(Signature of Second Party)
31.7.21
Vice Chancellor
J. N. Vyas University
JODHPUR.

COUNTER SIGNED


REGISTRAR
Jai Narain Vyas University
JODHPUR (Raj.)

This MoU has been executed in two originals, one of which has been retained by the First party and the other by the Second party).

IN WITNESS WHEREOF, the parties have executed this MoU and represent that they approve, accept and agree to terms contained herein.

ICAR-National Bureau of Plant Genetic
Resources, New Delhi-110012

Jai Narain Vyas University Jodhpur,
Rajasthan- 342011

Dr. Kuldeep Singh
Director,
ICAR-National Bureau of Plant
Genetic Resources, New Delhi-110012

Prof. (Dr.) Pravin Chandra Trivedi
Vice-Chancellor
Jai Narain Vyas University
Jodhpur 342 011 (Rajasthan) India

Tel No.- +91-11-25843697

Tel. No.- +91-291-2432947

Fax- +91-11-25842495

Fax- +91-291-2649465

Email: director.nbpgr@icar.gov.in;
kuldeep.singh4@icar.gov.in

Email: vcjnvu@gmail.com &
vc@jnvu.edu.in

Date

Kuldeep Singh
31.07.2021

Date

Pravin Chandra Trivedi
31.7.21
Vice-Chancellor

Signature with Seal निदेशक
Director
राष्ट्रीय पादप आनुवंशिक संसाधन ब्यूरो
National Bureau of Plant Genetic Resources
पूसा कैम्पस, नई दिल्ली-12
Pusa Campus, New Delhi-12

Signature with Seal J. N. Vyas University
JODHPUR.

Witness 1.....
(Dr. Kavita Gupta)

Kavita Gupta

Witness 1.....
(Prof. Praveen Gehlot)

Praveen Gehlot

Witness 2.....

Vijay Singh Meena

(Dr. Vijay Singh Meena)

Witness 2.....

Alkesh Tak

(Dr. Alkesh Tak)

COUNTER SIGNED

G
REGISTRAR
Jai Narain Vyas University
JODHPUR (Raj.)

Memorandum of Understanding (MoU)

Between



And



Buddhist Study Centre, Jay Narayan Vyas University, Jodhpur

COUNTER SIGNED

MEMORANDUM OF UNDERSTANDING (MoU)

Between

Buddhist Study Centre, Jai Narain Vyas University, Jodhpur- Rajasthan

And

Krantiguru Shyamji Krishna Verma Kachchh University, Bhuj-Kachchh, Gujarat

Brief about the first part:

Krantiguru Shyamji Krishna Verma Kachchh University is a UGC approved University with 40 affiliated colleges with more than 15000 students and nearly 400 teachers working in the faculties of Arts, Commerce, Science, Education and Law. The University is providing higher education at par with any other university of the state and India.

Brief about the second part:

Buddhist Study Centre, Jai Narain Vyas University, Jodhpur - Rajasthan is an independent study centre of Jai Narain Vyas University, formerly known as University of Jodhpur. University of Jodhpur I was Established in 1962, and following four Government Colleges of Jodhpur became part of the University. Dr. S. Radhakrishnan, the President of India inaugurated the then University of Jodhpur on 24th August, 1962. In his inaugural address the Hon'ble President revered Prof. Radha Krishnan desired and defined the goals and objective "That the young people, who will be educated in this university, will go forward not as prisoners of the past, but as pilgrims of the future; will develop in them a spirit of dedication, a spirit of renunciation, a spirit of whole-hearted, single-minded concentration on the advancement of the knowledge, whether in science or humanities." This was the only residential University in the State of Rajasthan, catering mainly the needs of students of western Rajasthan (the Marwar). Since, this University is located in the great Indian Thar Desert, its R&D activities centered on heritage, society and challenges of the region. This is the Western most University of the country and imparts education and conducts research in border areas neighboring Pakistan. It is our endeavor to provide education not only to citizens of the Desert/border Districts but also to the wards of Defence/Paramilitary forces and other Organizations which are working in strategically important sectors of the country. Jai Narain Vyas University is now a divisional university for western part of the Rajasthan State.

This Memorandum of Understanding is entered on 11.08.2021 that indicates the joint undertaking between **Buddhist Study Centre, Jai Narain Vyas University, Jodhpur, Rajasthan, hereinafter to be referred to as the Second Part** in this MOU and **Krantiguru Shyamji Krishna Verma Kachchh University referred to as the First Part**.

As a part of this MOU, the joint Activities/Collaborative endeavours between two parties will be focusing in the field of Buddhist Study that can be as the following:

- Webinars, online lectures, seminars, conference, workshops, symposiums etc related to academic pursuits
- Beside this both the parties may look forward for the development of the following certificate course.
- Certificate course on Buddhist Studies.
- Certificate course on Manuscriptology.
- Certificate course on Palaeography.
- Certificate course on Pali.
- Certificate course on life and teachings of Buddha.

Both parties can suggest the required educational programs and prepare them adequately to be presented for online program.


Both Parties shall agree on the following:

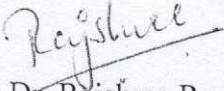
- I. First party entrusts Dr. Milind Solanki to be their representative to discuss and organize the events that provide the benefits to the students of Kachchh University.
- II. The second part nominates Dr. Rajshree Ranawatto discuss the details of programmes and modules to be launched as a part of this MOU.
- III. Both the parties take responsibility for all resources, expert faculties to design, deliver and evaluate the programmes.
- IV. The MoU is signed for 5 years from the date of signing and can be extended further for two years based on mutual agreement & consent. The MoU can be terminated by each of the party after giving sixty working days of the notice period, in writing and sent by emails. In the case of termination, no further students will be enrolled, however, both the parties will amicably work together to ensure smooth completion of courses by students who have already enrolled before the date of issue of notice of termination.
- V. The Memorandum of Understanding is signed to offer the courses which will be open to all students, working professionals & those citizens who have basic required qualifications and desire to study Buddhism and Indian culture in General.

Executed as the Memorandum of Understanding.

For and on behalf of
Krantiguru Shyamji Krushna Verma
University,
Bhuj, Kachchh

For and on behalf of
Buddhist Study Centre, Jai Narain Vyas
University, Jodhpur- Rajasthan


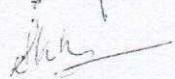

Dr. G. M. Butani,
Registrar
(The First Part)


Dr. Rajshree Ranawat
Director
(The Second Part)

REGISTRAR
K. S. K. V. Kachchh University
BHUJ - KACHCHH

Witness

1. Dr. Milind Solanki
2. Dr. Pankaj Thaker

3. 
Prof. Bangeeta Doojier
4. 
Prof. Satish K. Hant.

COUNTER SIGNED




REGISTRAR
Jai Narain Vyas University
JODHPUR (Raj.)



JAI NARAIN VYAS UNIVERSITY JODHPUR
(DEPARTMENT OF RAJASTHANI)

No.JNVU/Raj/2021/ 923

Dated : 28-12-2021

Mr. Neeraj Goswami
Senior Manager-U.S. Program
United States- India Educational Foundation
(USIEF)
Fulbright House, 12 Hailey Road
New Delhi- 110 001

Subject : Certificate of Affiliation for U.S. Fulbright-Nehru Student Researcher
(Ms. Mrinalini Watson)

Sir,

This is with reference to letter dated 09th December, 2021 from Ms. Priyanjana Ghosh, Senior Program Officer, US-India Education Foundation, 12 Heiley Road, New Delhi addressed to the Vice-Chancellor, Jai Narain Vyas University, Jodhpur regard subject cited above.

Please find attached a Certificate of Affiliation duly signed by the Hon'ble Vice-Chancellor for further necessary action.

Yours Sincerely

(Dr. Meenakshi Borana)

Head
Department of Rajasthani
जयनारायण व्यास विश्वविद्यालय
जोधपुर

Enclosed : Affiliation Certificate

**CERTIFICATE OF AFFILIATION
for U.S. Fulbright-Nehru Student Researcher**

Name of the Scholar: **Mrinalini Watson**

Subject Area: **Linguistics**

U.S. University/Institution: **California State University, California, USA**

Title of Research Project: ***"Cinderella in Rajasthan: Folktales, Tools for Fostering Mutual Understanding."***

(To be filled in by the affiliating institution)

This is to certify that Mrinalini Watson, U.S. Fulbright-Nehru researcher shall be affiliated as a student in the **Jai Narain Vyas University, Jodhpur (Rajasthan)** upon arrival in India. The scholar will be assisted by **Dr. Meenakshi Borana** of the **Department of Rajasthani**, who will act as the student's academic supervisor. The scholar is required to pursue the above course of research as part of his/her research at the U.S. institution mentioned above. The scholar's expenses in India will be met by the Fulbright-Nehru grant, awarded by the United States – India Educational Foundation, and there will be no financial obligation on the affiliating institution.

Details of the academic supervisor, nominated for the U.S. Fulbright-Nehru Student:


Name: **Dr. Meenakshi Borana**

Designation: **Head & Asstt. Professor**

Contact Address: **Deptt. of Rajasthani, Language Wing, New Campus , Bhagat ki Kothi, Jodhpur (Rajasthan)- 342001**

Telephone Number(s): **Office_02912721746 Home : 9509477255**

Email: **boranadrmeenakshi@gmail.com**


Vice-Chancellor
Jai Narain Vyas University
JODHPUR.

(Signature and Official seal of Certifying Authority)**
**Head of the Institution/Vice Chancellor/Registrar of the University

The Affiliation Certificate may kindly be sent in original with signatures and official stamp to:

Mr. Neeraj Goswami
Senior Manager - U.S. Program
United States – India Educational Foundation (USIEF)
Fulbright House, 12 Hailey Road
New Delhi – 110 001
E-Mail: neeraj@usief.org.in; Tel: 011-42090932

**LEGUMES
Admin Order**

No. BT/PR28594/NER/95/1496/2018

GOVERNMENT OF INDIA
MINISTRY OF SCIENCE & TECHNOLOGY
DEPARTMENT OF BIOTECHNOLOGY
(NER-BPMC)

Block 2, 6-8th Floors
CGO Complex, Lodhi Road,
New Delhi- 110 003
Dated:09 /03 /2022

ORDER

Sanction of the President is hereby accorded, under Rule 18 of the Delegation of Financial Powers Rules ,1978 , for the implementation of the project entitled: **"Exploration of native legumes and characterization of associated nitrogen fixing microsymbionts in North-Eastern India for development of biofertilizers"** for a period of 3 Year 0 Month at a total cost of Rs. **31522320/-** (Rupees Three Crores Fifteen Lakhs Twenty Two Thousand Three Hundred and Twenty Only) on the terms and conditions detailed here under:-

2 The Project :

2.1 Title : "Exploration of native legumes and characterization of associated nitrogen fixing microsymbionts in North-Eastern India for development of biofertilizers"

2.2 Details of the Investigators:

Project Coordinator

Prof. Saroj K Barik

Director

CSIR-National Botanical Research Institute

CSIR-NBRI, Rana Pratap Marg, Lucknow - 226001, Lucknow,
Uttar Pradesh, 226001

Principal Investigators:

Prof. Saroj K Barik

Director

CSIR-NBRI

CSIR-National Botanical Research Institute

National Botanical Research Institute, Lucknow - 226001

Dr. Nisha Tak

Assistant Professor

Department of Botany, Faculty of Science,

Jai Narain Vyas University

New Campus, Pali Road, Jodhpur 342001, Rajasthan

Dr. Padmaraj Gajurel

Associate Professor

Department of Forestry,

North Eastern Regional Institute of Science And Technology

(Demeed University), Nirjuli-791109, Arunachal Pradesh

Vaishali

डॉ. वैशाली पंजाबी / Dr. VAISHALI PANJABI

वैज्ञानिक 'ई' / Scientist 'E'

बायोटेक्नोलॉजी विभाग / Deptt. of Biotechnology

विज्ञान और प्रौद्योगिकी मंत्रालय / M/o Science & Tech.

भारत सरकार, नई दिल्ली / Govt. of India, N. Delhi

Dr. Panna Das

Assistant Professor
Department of Botany, Tripura University,
Suryamaninagar, Tripura - 799022

Dr. Sarangthem Indira Devi

Scientist D
Microbial Biotechnology
Microbial Resources Division, Institute of Bioresources and
Sustainable Development, Takyelpat,
Imphal-795001, Manipur

Dr. Suchi Srivastava

Senior Scientist
Plant Microbe Interaction Division, CSIR-NBRI
CSIR-National Botanical Research Institute
Lucknow - 226001

Prof. Piyush Pandey

Professor
Department of Microbiology,
Assam (Central) University,
Silchar- 788011, Assam

Prof. Santa R Joshi

Professor
Department of Biotechnology & Bioinformatics
North-Eastern Hill University,
Shillong - 793022, Meghalaya

CO-PI:**Dr. Sorokhaibam Sureshkumar Singh**

Associate Professor
Department of Forestry, North Eastern Regional Institute of Science &
Technology (NERIST), (Demeed University), Nirjuli-791109, Arunachal
Pradesh

Dr. Debjyoti Bhattacharyya

Assistant Professor
Department of Life Science & Bioinformatics,
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Dr. Sanjeev Kumar

Associate Professor
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Dr. Sunil S Thorat

Scientist-D
Bioresources Database Unit,
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IBSD, Imphal-795001, Manipur

Prof. Hukam S Gehlot

Professor
Department of Botany
Jai Narain Vyas University



New Campus, Pali Road, Jodhpur - 342001, Rajasthan

Dr. Shweta Jha

Assistant Professor

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New Campus, Pali Road, Jodhpur - 342001, Rajasthan

Dr. Satya Narayan Jena

Principal Scientist,

Plant Molecular Genetics

CSIR-National Botanical Research Institute, Rana Pratap Marg,

Lucknow - 226001, Uttar Pradesh

Dr. Poonam C Singh

Senior Scientist

CSIR-National Botanical Research Institute

National Botanical Research Institute,

Lucknow - 226001, Uttar Pradesh

Dr. Prabodh Kumar Trivedi

Senior Principal Scientist

CSIR-National Botanical Research Institute

National Botanical Research Institute,

Lucknow - 226001, Uttar Pradesh

Dr. Puneet Singh Chauhan

Senior Scientist

Microbial Technologies

CSIR National Botanical Research Institute, Rana Pratap Marg,

Lucknow - 226001, Uttar Pradesh

2.3 Objectives:

Overall Objectives:

1. Exploration of native/underutilized legumes of NER for diversity of root nodule bacterial (RNB) strains, and their molecular characterization. Existing microbial formulations developed for NER would be used as the baseline materials and will be further characterized.
2. Screening of efficient N fixing promiscuous NER-RNB strains and development of plant growth promoting (PGP) formulations for both legume crops and non-legume crops including rice and maize.
3. To understand the mechanisms of specificity of broad-range symbiont system by unraveling signal transduction through NGS, metabolomics, transcriptomics, and small RNAs/peptides approaches.

Institute wise Objectives:

Assam (Central) University, Silchar

1. Exploration of native/underutilized legumes of NER for diversity of root nodule bacterial (RNB) strains in the selected sites of Cachar district of Assam; and their molecular characterization. Existing microbial formulations developed for NER would be used as the baseline materials and will be further characterized.

Vaishali

2. Screening of efficient N fixing promiscuous Assam -RNB strains: Biological-assay and cross-inoculation experiments in glass house for determining their host range based on analysis of symbiotic genes. And study of host specificity of few beneficial microbes associated with underutilized legumes.
3. Screening of native Assam-RNB strains for their plant growth promoting (PGP) activities with additional non-legume crops including rice and maize. Antagonistic studies to ensure that new bioformulations developed are not affected by existing formulations used in NER and vice versa.
4. NGS and comparative genomic analysis of selected RNB strains for better understanding of molecular basis of symbiotic interactions between rhizobia and host legume.

CSIR-National Botanical Research Institute

1. Exploration of native/underutilized legumes of NER for diversity of root nodule bacterial (RNB) strains, and their molecular characterization. Existing microbial formulations developed for NER would be used as the baseline materials and will be further characterized.
2. To study cross infectivity of strains isolated from wild/underutilized legumes on legume crops for improved productivity
3. Screening of native NER-RNB for development of plant growth promoting (PGP) formulations and associated antagonistic studies.
4. To understand the mechanisms of specificity of broad-range symbiont system by unraveling signal transduction through NGS, metabolomics, transcriptomics, and small RNAs/peptides approaches.

Jai Narain Vyas University

1. Exploration of native/underutilized legumes of NER for diversity of root nodule bacterial (RNB) strains, and their molecular characterization. Existing microbial formulations developed for NER would be used as the baseline materials and will be further characterized.
2. Screening of efficient N fixing promiscuous NER-RNB strains: Biological-assay and cross-inoculation experiments in glass house for determining their host range based on analysis of symbiotic genes. And study of host specificity of few beneficial microbes associated with underutilized legumes in glass house.
3. NGS and comparative genomic analysis of selected RNB strains for better understanding of molecular basis of symbiotic interactions between rhizobia and host legume.

Institute of Bioresources and Sustainable Dvelopment

1. Exploration of native/underutilized legumes of NER for diversity of root nodule bacterial (RNB) strains in the selected sites of Manipur; and their molecular characterization. Existing microbial formulations developed for NER would be used as the baseline materials and will be further characterized.
2. Screening of efficient N fixing promiscuous NER-RNB strains: Biological-assay and cross-inoculation experiments in glass house for determining their host range based on analysis of symbiotic genes. And study of host specificity of few beneficial microbes associated with underutilized legumes.
3. Screening of native NER-RNB strains for their plant growth promoting (PGP) activities with additional non-legume crops including rice and maize. Antagonistic studies to ensure that new bioformulations developed are not affected by existing formulations used in NER and vice versa.

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4. NGS and comparative genomic analysis of selected RNB strains for better understanding of molecular basis of symbiotic interactions between rhizobia and host legume.

North Eastern Regional Institute of Science And Technology

1. Exploration of native/underutilized legumes in various sites of Arunachal Pradesh and isolation, purification and phenotypic characterization of NER-root nodule bacteria (RNB) strains from selected legumes.

North-Eastern Hill University, Shillong

1. Exploration of native/underutilized legumes of NER for diversity of root nodule bacterial (RNB) strains in the selected sites of Meghalaya; and their molecular characterization. Existing microbial formulations developed for NER would be used as the baseline materials and will be further characterized.
2. Screening of efficient N fixing promiscuous NER-RNB strains: Biological-assay and cross-inoculation experiments in glass house for determining their host range based on analysis of symbiotic genes. And study of host specificity of few beneficial microbes associated with underutilized legumes.
3. Screening of native NER-RNB strains for their plant growth promoting (PGP) activities with additional non-legume crops including rice and maize. Antagonistic studies to ensure that new bioformulations developed are not affected by existing formulations used in NER and vice versa.
4. NGS and comparative genomic analysis of selected RNB strains for better understanding of molecular basis of symbiotic interactions between rhizobia and host legume.

Tripura University

1. Exploration of native/underutilized legumes in various sites of Tripura and isolation, purification and phenotypic characterization of NER-root nodule bacteria (RNB) strains from selected legumes.

2.4 Time Schedule:

The duration of the project is 3 Year 0 Month from the date of this sanction order.

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भारत सरकार, नई दिल्ली / Govt. of India, N. Delhi

2.5 Project Cost:

The total cost of the project is Rs. **31522320/-** (Rupees Three Crores Fifteen Lakhs Twenty Two Thousand Three Hundred and Twenty Only) as per details given below :

Institute	Year I	Year II	Year III	Total Cost(Rs.)
1. Assam (Central) University, Silchar	2128520	1628520	1732200	5489240
2. CSIR-National Botanical Research Institute	1396000	1396000	1479520	4271520
3. Institute of Bioresources and Sustainable Development	1503520	1503520	1607200	4614240
4. Jai Narain Vyas University	1563040	1563040	1674400	4800480
5. North Eastern Regional Institute of Science And Technology	1203520	1203520	1307200	3714240
6. North-Eastern Hill University, Shillong	2288040	1788040	1899400	5975480
7. Tripura University	1001760	801760	853600	2657120
Total (Rs.)	11084400	9884400	10553520	31522320

Institute wise details are:

Budget Head	Year I	Year II	Year III	Total(Rs.)
1. North-Eastern Hill University, Shillong				
Equipment	500000.00			500000.00
Manpower	863040.00	863040.00	974400.00	2700480.00
Overhead	50000.00	50000.00	50000.00	150000.00
Travel	100000.00	100000.00	100000.00	300000.00
Consumables	475000.00	475000.00	475000.00	1425000.00
Contingency	50000.00	50000.00	50000.00	150000.00
Hiring/analytical charges	150000.00	150000.00	150000.00	450000.00
Training/Workshop	100000.00	100000.00	100000.00	300000.00
Total (Rs.)	2288040.00	1788040.00	1899400.00	5975480.00
2. Assam (Central) University, Silchar				
Equipment	500000.00			500000.00
Manpower	803520.00	803520.00	907200.00	2514240.00

Overhead	50000.00	50000.00	50000.00	150000.00
Travel	100000.00	100000.00	100000.00	300000.00
Consumables	475000.00	475000.00	475000.00	1425000.00
Contingency	50000.00	50000.00	50000.00	150000.00
Hiring/analytical charges	150000.00	150000.00	150000.00	450000.00
Total (Rs.)	2128520.00	1628520.00	1732200.00	5489240.00
3. Jai Narain Vyas University				
Manpower	863040.00	863040.00	974400.00	2700480.00
Overhead	50000.00	50000.00	50000.00	150000.00
Travel	100000.00	100000.00	100000.00	300000.00
Consumables	400000.00	400000.00	400000.00	1200000.00
Contingency	50000.00	50000.00	50000.00	150000.00
Hiring analytical Service	100000.00	100000.00	100000.00	300000.00
Total (Rs.)	1563040.00	1563040.00	1674400.00	4800480.00
4. Institute of Bioresources and Sustainable Dvelopment				
Manpower	803520.00	803520.00	907200.00	2514240.00
Travel	100000.00	100000.00	100000.00	300000.00
Consumables	400000.00	400000.00	400000.00	1200000.00
Contingency	50000.00	50000.00	50000.00	150000.00
Sequencing of Cultures	150000.00	150000.00	150000.00	450000.00
Total (Rs.)	1503520.00	1503520.00	1607200.00	4614240.00
5. CSIR-National Botanical Research Institute				
Manpower	696000.00	696000.00	779520.00	2171520.00
Overhead	100000.00	100000.00	100000.00	300000.00
Travel	100000.00	100000.00	100000.00	300000.00
Consumables	400000.00	400000.00	400000.00	1200000.00
Contingency	100000.00	100000.00	100000.00	300000.00
Total (Rs.)	1396000.00	1396000.00	1479520.00	4271520.00
6. North Eastern Regional Institute of Science And Technology				
Manpower	803520.00	803520.00	907200.00	2514240.00
Overhead	50000.00	50000.00	50000.00	150000.00
Travel	100000.00	100000.00	100000.00	300000.00
Consumables	200000.00	200000.00	200000.00	600000.00
Contingency	50000.00	50000.00	50000.00	150000.00
Total (Rs.)	1203520.00	1203520.00	1307200.00	3714240.00
7. Tripura University				
Equipment	200000.00			200000.00
Manpower	401760.00	401760.00	453600.00	1257120.00

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Overhead	50000.00	50000.00	50000.00	150000.00
Travel	100000.00	100000.00	100000.00	300000.00
Consumables	200000.00	200000.00	200000.00	600000.00
Contingency	50000.00	50000.00	50000.00	150000.00
Total (Rs.)	1001760.00	801760.00	853600.00	2657120.00

2.6 Equipment:

The details of the equipment sanctioned for the implementation of the project at **Annexure-I**

2.7 Manpower:

The details of the manpower sanctioned for the implementation of the project at **Annexure-II**

3. Head of Account:

The **Non-Recurring** expenditure involved is debitable to:

Demand No. 89	Department of Biotechnology
3425	Other Scientific Research 2021-2022
3425.60	Others (Sub Major Head)
3425.60.200	Assistance to other Scientific Bodies (Minor Head)
3425.60.200.29	Biotechnology Research and Development
3425.60.200.29.17	Assistance to Research and Development
3425.60.200.29.17.35	Grants for creation of capital assets

The **Recurring** expenditure involved is debitable to:

Demand No. 89	Department of Biotechnology
3425	Other Scientific Research 2021-2022
3425.60	Others (Sub Major Head)
3425.60.200	Assistance to other Scientific Bodies (Minor Head)
3425.60.200.29	Biotechnology Research and Development
3425.60.200.29.17	Assistance to Research and Development
3425.60.200.29.17.31	Grants -in-Aid General

4. Terms & Conditions:

- The Non-Recurring items must be procured and installed within 18-months of the sanction of the project, failing which the PIs have to return the remaining/unutilized Non Recurring grant with 10% of Interest.
- In case the amount of grant-in-aid is refunded, the whole or a part amount of the grant, with an interest at 10% per annum there on shall be recovered.

4.1 The other terms and conditions governing this sanction are attached at Annexure-III.

Vaishali

- 4.2A** Memorandum of Agreement (MoA) will be signed between the Department of Biotechnology and the grantee institution on Non-Judicial stamp paper Rs. 100/- in the enclosed format and the second release/installment will be made only after signing of MoA between the grantee institutions and DBT. In case of NGO's and Private Institution's, execution of MOA is mandatory before first release. A format of the MoA is enclosed in Annexure-IV
- 4.3** The Institute/Agency will keep the whole of the grant in a Bank Account earning interest, and the interest so earned should be reported to DBT in the Utilisation Certificate and Statement of Expenditure. The interest earned should be remitted to the Consolidated fund of India through Bharat Kosh portal(www.bharatkosh.gov.in) as per GFR-2017-230(8) after finalization of the account for a given Financial Year.
- 5.** No International Travel will be undertaken from the sanctioned project grant unless specified otherwise.
- 6.** The Director , North Eastern Regional Institute of Science And Technology, Itanagar, Arunachal Pradesh and The DIRECTOR, CSIR-National Botanical Research Institute, Lucknow, Uttar Pradesh and The Director, Institute of Bioresources and Sustainable Dvelopment, Imphal, Manipur and The Registrar, Assam (Central) University, Silchar, Silchar, Assam and The Registrar, Jai Narain Vyas University, Jodhpur, Rajasthan and The Registrar, North-Eastern Hill University, Shillong, Shillong, Meghalaya and The Registrar, Tripura University, Agartala, Tripura would be responsible for submission of Statements of Expenditure (SoE), utilization certificates (UC), Assets Certificates, Manpower staffing & expenditure details in prescribed DBT formats to DBT in respect of grants released in this project from time to time.
- 7.** PI's of DBT sponsored projects can consider appointment of JRF from Category-II merit list of DBT-BET exam so that candidates can be paid fellowships at par with NET/GATE/BET qualified candidates as per DST OM No. A.SR/S9/Z-05/2019 dated on 30 Jan 2019. However, there is no compulsion on PI's to select candidates for JRF in their projects from Category-II of DBT-BET.
- 8.** As per Rule 236 (1) of GFR 2017, the accounts of all Grantee Institutions or Organisations shall be open to inspection by the sanctioning authority and audit, both by the Comptroller and Auditor General of India under the provision of CAG(DPC) Act 1971 and internal audit by the Principal Accounts Office of the Ministry or Department, whenever the Institution or Organisation is called upon to do so.
- 9.** If the Research Project involves biological resources, the obligations under the Biological Diversity Act 2002 as applicable shall be complied with by the Project Investigator, the details of such obligations can be accessed at www.nbaindia.org
- 10.(I)** "The PIs/Implementing Agencies shall strictly adhere to the GoI instructions issued vide OM No.F.4.1.2021-PPD dated 30.6.2021 in the matter of issue of Global tender Enquiry with special reference to instructions contained under para 4 of the said OM for procurement of equipments, spares and consumables for research purposes and shall not issue Global Tenders Enquiries before seeking the approval of the competent authority".
- (II)** "After incurring the expenditure on import of such items and at the time of submission of UCs to the department next year, the PIs will also furnish the copy of the approval sought from the competent authority for issue of the GTE for such items of import. The release of next installment of grant will be subject to the fulfillment of the above condition."

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बायोटेक्नोलॉजी विभाग / Deptt. of Biotechnology
विज्ञान और प्रौद्योगिकी, संसद भवन / M/o Science & Tech,
भारत सरकार, नई दिल्ली / Govt. of India, N. Delhi

- 11.If any biological data as specified in the guidelines are being generated in the project then PI should submit the data generated in the project to Indian Biological Data Centre – The National Repository being implemented at Regional Centre for Biotechnology, Faridabad in compliance with the Biotech-PRIDE Guidelines 2021.
- 12.This issues under the power delegated to this Department and with the concurrence of IFD vide their SAN No.102/IFD/SAN/3134/2021-2022 dated **March, 09 2022.**
- 13.This sanction order has been noted at serial no. 172-173 in the Register of Grants.

Vaishali

(Dr. Vaishali Panjabi)
Scientist 'E'

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विज्ञान और प्रौद्योगिकी मंत्रालय / M/o Science & Tech.
भारत सरकार, नई दिल्ली / Govt. of India, N. Delhi

To,
The Pay & Accounts Officer,
Department of Biotechnology,
New Delhi – 110 003.

Copy to:

- 1 The Principal Director of Audit (Scientific Departments), DACR Building, New Delhi- 110 002.
- 2 Prof. S.K. Barik(Project Co-ordinator), National Botanical Research Institute, Lucknow - 226001, India
- 3 The Director , North Eastern Regional Institute of Science And Technology, NIRJULI, Itanagar - 791109, Arunachal Pradesh
- 4 The Director, CSIR-National Botanical Research Institute, Rana Pratap Marg, Lucknow-226001, Uttar Pradesh
- 5 The Director, Institute of Bioresources and Sustainable Development, Takyelpat, Imphal - 795001, Manipur
- 6 The Registrar, Assam (Central) University, Silchar, DARGAKONAH, Silchar - 788011, Assam
- 7 The Registrar, Jai Narain Vyas University, Mohanpura Overbridge, Ratanada, Jodhpur - 342003, Rajasthan
- 8 The Registrar, North-Eastern Hill University, Shillong, NEHU Permanent Campus, Shillong - 793022, Meghalaya
- 9 The Registrar, Tripura University, Suryamaninagar, Agartala - 799022, Tripura
- 10 Dr. Debjyoti Bhattacharyya, Assistant Professor, Department of Life Science & Bioinformatics, Assam (Central) University, Silchar - 788011, Assam
- 11 Dr. Nisha Tak, Assistant Professor, Department of Botany, Faculty of Science, Jai Narain Vyas University New Campus, Pali Road, Jodhpur - 342001, Rajasthan
- 12 Dr. Padmaraj Gajurel, Associate Professor, North Eastern Regional Institute of Science & Technology (NERIST), (Demeed University), Nirjuli- 791109, Arunachal Pradesh
- 13 Dr. Panna Das, Assistant Professor, Department of Botany, Tripura University, Suryamaninagar, Tripura - 799022, Tripura
- 14 Dr. Poonam C Singh, Senior Scientist, CSIR-NBRI, CSIR-National Botanical Research Institute, Lucknow - 226001, Uttar Pradesh
- 15 Dr. Prabodh Kumar Trivedi, Senior Principal Scientist, CSIR-NBRI, CSIR-National Botanical Research Institute, Lucknow - 226001, Uttar Pradesh
- 16 Dr. Puneet Singh Chauhan, Senior Scientist, Microbial Technologies, CSIR-

- National Botanical Research Institute, ana Pratap Marg, Lucknow - 226001, Uttar Pradesh
- 17 Dr. Sanjeev Kumar, Associate Professor, Dept of Life SCience & Bioinformatics, Assam (Central) University, Silchar - 788011, Assam
 - 18 Dr. Sarangthem Indira Devi, Scientist D, Microbial Biotechnology, Microbial Resources Division, Institute of Bioresources and Sustainable Development (IBSD), , Takyelpat, Imphal-795001, Manipur
 - 19 Dr. Satya Narayan Jena, Principal Scientist, Plant Molecular Genetics, CSIR-National Botanical Research Institute, Rana Pratap Marg, Lucknow - 226001, Uttar Pradesh
 - 20 Dr. Shweta Jha, Assistant Professor, Department of Botany, Faculty of Science, Jai Narain Vyas University, New Campus, Pali Road, Jodhpur - 342001, Rajasthan
 - 21 Dr. Sorokhaibam Sureshkumar Singh, Associate Professor, Department of Forestry, North Eastern Regional Institute of Science & Technology (NERIST), (Demeed University), Nirjuli-791109, Arunachal Pradesh
 - 22 Dr. Suchi Srivastava, Senior Scientist, Plant Microbe Interaction Division, CSIR-NBRI, CSIR-National Botanical Research Institute, Lucknow - 226001, Uttar Pradesh
 - 23 Dr. Sunil S Thorat, Scientist-D, Bioresources Database Unit, Institute of Bioresources and Sustainable Development, IBSD, Imphal - 795001, Manipur
 - 24 Prof. Hukam S Gehlot, Professor, Department of Botany, Jai Narain Vyas University, New Campus, Pali Road, Jodhpur, odhpur - 342001, Rajasthan
 - 25 Prof. Piyush Pandey, Professor, Department of Microbiology, Assam (Central) University, - 788011, Assam
 - 26 Prof. Santa R Joshi, Professor, Department of Biotechnology & Bioinformatics, North-Eastern Hill University, Shillong, - 793022, Meghalaya
 - 27 Prof. Saroj K Barik, Director, CSIR-NBRI, CSIR-National Botanical Research Institute, Lucknow - 226001, Uttar Pradesh
 - 28 Cash Section, DBT (2 copies).
 - 29 Sanction Folder.
 - 30 File Copy.

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(Dr. Vaishali Panjabi)
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भारत सरकार, नई दिल्ली / Govt. of India, N. Delhi

Annexure -I

Details of the Equipment sanctioned for the implementation of the project entitled "**Exploration of native legumes and characterization of associated nitrogen fixing microsymbionts in North-Eastern India for development of biofertilizers**":

North-Eastern Hill University, Shillong			
SNo.	Name of Equipment	No.	Cost(Rs.)
1.	Deep Freezer (-80°C) 500L	1	500000.00
Total			500000.00
Assam (Central) University, Silchar			
SNo.	Name of Equipment	No.	Cost(Rs.)
1.	Gel-Doc EZ System	1	500000.00
Total			500000.00
Tripura University			
SNo.	Name of Equipment	No.	Cost(Rs.)
1.	Incubator	1	200000.00
Total			200000.00



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Annexure -II

Details of the manpower sanctioned for the implementation of the project entitled **"Exploration of native legumes and characterization of associated nitrogen fixing microsymbionts in North-Eastern India for development of biofertilizers"**:

Head	No. of Position	Year I	Year II	Year III	Total (Rs.)
1. Assam (Central) University, Silchar					
Project Associate Project Associate I/II Rs. 35000/-+ 8% HRA	2	0	0	907200	907200
Project Associate Project Associate I/II Rs. 31000/-+ 8% HRA	2	803520	803520	0	1607040
Total(Rs.)		803520	803520	907200	2514240
2. CSIR-National Botanical Research Institute					
Project Associate Project Associate I/II Rs. 25000/-+16% HRA	2	696000	696000	0	1392000
Project Associate Project Associate I/II Rs. 28000/-+16% HRA	2	0	0	779520	779520
Total(Rs.)		696000	696000	779520	2171520
3. Institute of Bioresources and Sustainable Dvelopment					
Project Associate Project Associate I/II Rs. 31000/-+ 8% HRA	2	803520	803520	0	1607040
Project Associate Project Associate I/II Rs. 35000/-+ 8% HRA	2	0	0	907200	907200
Total(Rs.)		803520	803520	907200	2514240
4. Jai Narain Vyas University					
Project Associate Project Associate I/II Rs. 31000/-+16% HRA	2	863040	863040	0	1726080
Project Associate Project Associate I/II Rs. 35000/-+16% HRA	2	0	0	974400	974400
Total(Rs.)		863040	863040	974400	2700480
5. North Eastern Regional Institute of Science And Technology					
Project Associate Project Associate I/II Rs.31000/-+ 8% HRA	2	803520	803520	0	1607040
Project Associate Project Associate	2	0	0	907200	907200

Vaishali

I/II Rs.35000/-+ 8% HRA					
Total(Rs.)		803520	803520	907200	2514240
6. North-Eastern Hill University, Shillong					
Project Associate Project Associate I/II Rs. 31000/- +16% HRA	2	863040	863040	0	1726080
Project Associate Project Associate I/II Rs. 35000/- +16% HRA	2	0	0	974400	974400
Total(Rs.)		863040	863040	974400	2700480
7. Tripura University					
Project Associate Project Associate I/II Rs.31000/-+ 8% HRA	1	401760	401760	0	803520
Project Associate Project Associate I/II Rs.35000/-+ 8% HRA	1	0	0	453600	453600
Total(Rs.)		401760	401760	453600	1257120

Emoluments detail of research personal(s) mentioned in table(s) of Annexure-II shall be applicable only if candidate(s) met educational qualification and eligibility criteria as per DST OM No. SR/S9/Z-05/2019 dated 10.07.2020.

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(Dr. Vaishali Panjabi)
Scientist 'E'

डॉ. वैशाली पंजाबी / Dr. VAISHALI PANJABI
वैज्ञानिक 'ई' / Scientist 'E'
बायोटेक्नोलॉजी विभाग / Deptt. of Biotechnology
विज्ञान और प्रौद्योगिकी मंत्रालय / M/o Science & Tech.
भारत सरकार, नई दिल्ली / Govt. of India, N. Delhi

RESEARCH ARTICLE

The interaction capabilities of phytoconstituents of ethanolic seed extract of cumin (*Cuminum cyminum* L.) with HMG-CoA reductase to subside the hypercholesterolemia: A mechanistic approach

Harshlata Chouhan¹ | Ashok Purohit¹ | Heera Ram¹ | Suman Chowdhury² |
Priya Kashyap² | Anil Panwar^{3,4} | Ashok Kumar⁴

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Correspondence

Heera Ram, Department of Zoology, Jai Narain Vyas University, Jodhpur 342001, Rajasthan, India.
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Abstract

The aim of this study was to evaluate hypocholesterolemic potential of phytoconstituents of ethanolic seed extract of cumin (*Cuminum cyminum* L.) by assessments of interaction capabilities with 3-hydroxy-3-methyl-glutaryl-coenzyme A reductase (HMG-CoA) reductase through in vivo and in silico assessments along with screening of phytoconstituents of the test extract. The phytoconstituents of the test extract were identified by Gas chromatography-mass spectrometry (GC-MS)/MS examinations. The hypercholesterolemic rabbit animal model was used for in vivo study and further examined the lipid profile and atherogenic indices. The treatments of the test extract and standard drug (atorvastatin) caused significant reductions in dyslipidemia indices, that is, atherogenic index of plasma (AIP), Castelli Risk Index-I (CRI-I), CRI-II and atherogenic coefficient (AC). Accordingly, the molecular docking showed significant interactions between the cuminaldehyde and HMG-CoA reductase compared to the other phytoconstituents. Further, molecular dynamics (MD) validated the interaction capabilities through assessments of N-Substance, V-Volume, T-Temperature (NVT), N-Substance, P-Pressure, T-Temperature (NPT), Root Mean Score Deviation (RSMD), Root Mean Score Fluctuation (RSMF), radius of gyration, system density, and potential energy along with locality assessment of complex interactions evaluated by angle distribution, average angle interaction, free energy of solvation, and solvent accessible surface area (SASA). Subsequently, the absorption, distribution, metabolism, excretion and toxicity (ADMET) predictions revealed the druggability and bioavailability criteria of the leading identified compounds. On the basis of results obtained, it can be concluded that small phytochemical molecules of test extract of cumin (*Cuminum cyminum* L.) have capabilities to inhibit the HMG-CoA reductase and ameliorate the dyslipidemia indices.

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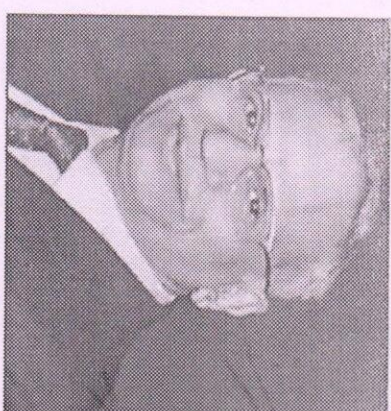


Jai Narain Vyas University,
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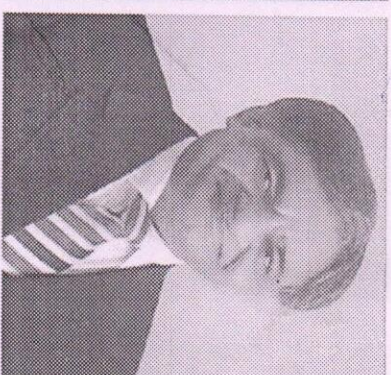


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JN Vyas University
Jodhpur

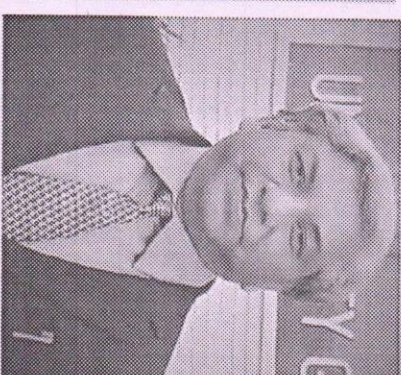
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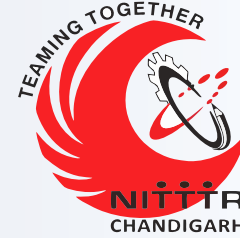
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Director, UGC-HRDC



Prof. Chandan Bala
Dean, Law Faculty



CERTIFICATE

International Conference on
INNOVATIVE TECHNOLOGIES FOR CLEAN AND SUSTAINABLE DEVELOPMENT

This is to certify that

Dr. Archana Bohra Gupta

for valuable contributions in reviewing extended research papers for the
International Conference on **INNOVATIVE TECHNOLOGIES FOR CLEAN AND SUSTAINABLE
DEVELOPMENT**

held on **October 14-15, 2021** which was organized by
Chitkara University, Himachal Pradesh and NITTTR, Chandigarh.

A handwritten signature in black ink, reading 'Varinder S. Kanwar'.

Prof. (Dr.) Varinder S. Kanwar
Vice Chancellor
Chitkara University, HP

A handwritten signature in blue ink, reading 'Sanjay K. Sharma'.

Dr. Sanjay K. Sharma
Prof., Civil Engg. Dept.
NITTTR, Chandigarh

MEMORANDUM OF UNDERSTANDING (MOU)

BETWEEN

**Sardar Patel University of Police, Security and Criminal Justice, Jodhpur
and
Jai Narain Vyas University, Jodhpur**

For facilitating
Academic and Research

This Memorandum of Understanding (herein after referred to as MoU) is made on 26.11.21 by and between the Sardar Patel University of Police, Security and Criminal Justice, Jodhpur (First party), on the one part and the Jai Narain Vyas University, Jodhpur, 342001 (herein after called second party on the other part (who for the purpose of this MoU are herein after collectively referred to as the parties).

The parties, having discussed fields of common research interests and allied activities between the two institutions, have decided to enter into collaboration for promotion of basic and advance research in subject of Law and other allied subject.

WHEREAS the "First Party" is involved in the research activities in applied research programs, capacity building and knowledge sharing on Law, Security, Criminal Justice and allied areas.

WHEREAS the "Second Party", is involved in basic and advanced research in subject of Law (Faculty of Law; LLB, LLM, PhD).

WHEREAS it has been considered expedient to agree in writing to participate jointly in the projects requiring expertise and logistics from both the parties.

Background

This Memorandum of Understanding (MoU) sets for the terms and understanding between the Sardar Patel University of Police, Security and Criminal Justice, Jodhpur and Jai Narain Vyas University, Jodhpur to collaborate in basic and applied research programs, organizing joint seminars, conferences workshops, and sharing research project and publications.

PREAMBLE

Whereas, Sardar Patel University of Police, Security and Criminal Justice, Jodhpur is established in 2012 by the government of Rajasthan through act 32 of 2012. It is recognized by UGC as well as AICTE.

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COUNTER SIGNED

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REGISTRAR

Jai Narain Vyas University
JODHPUR (Raj)

Whereas, Jai Narain Vyas University, Jodhpur, a constituent education institute of State Government, Rajasthan, was established through *vide* Act No.17 of 1962 and recognized by University Grants Commission (UGC), New Delhi as academic and research purpose.

Sardar Patel University of Police, Security and Criminal Justice, Jodhpur & Jai Narain Vyas University, Jodhpur has agreed to collaborate with the following general provisions and terms.

Article 1: Objective

Providing a general framework for long term collaboration and mutual understanding in areas of mutual interest, pertaining to develops arid ecosystem and collaboration in education and publication between Sardar Patel University of Police, Security and Criminal Justice, Jodhpur and Jai Narain Vyas University.

Article 2: Scope of Collaboration

Subject to the terms, this MoU signed by authorized representatives of each party, the parties hereby agree to cooperate as follows:

To offer collaboration as felt desirable and feasible on either side, and both sides would contribute to the fostering and development of the cooperative relationship between respective organization on identified areas of research and education.

Article 3: Scope of MoU

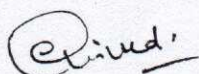
The scopes of collaboration of this Memorandum includes the following:

- Research collaboration in the areas of mutual interest, particularly those pertaining to law, security and criminal justice.
- Organizing joint seminars, webinar, conferences, training and workshops,
- Joint research projects and publications.
- Exchange of research scholars/faculties for research collaboration and capacity building programmes.
- Internship opportunities at Sardar Patel University of Police, Security and Criminal Justice, Jodhpur for the students of Jai Narain Vyas University, Jodhpur and Vice-Versa

Article 4. Management

Vice Chancellor/ Head of Institution of the First party and the Vice-Chancellor/Head of the Institution of the Second party will be responsible to workout operational details of co-operation between the two organizations and ensure proper and effective implementation of this MoU.

The Advisory Committee will meet at least once in a year alternatively in the institutions of the First party and the Second party to review the activities. This meeting shall include presentation on the academic and research activities, which should be open to the





COUNTER SIGNED

REGISTRAR
Jai Narain Vyas University
JODHPUR (Raj.)

scientists, faculty and students.

Article 5: Implementation

To implement this Memorandum, the following is mutually understood and agreed:

- Two nominees from each institution will constitute a Joint Coordination Committee to oversee collaboration between the two parties.
- Each institution will nominate one of its expert members as its representative in charge of any cooperative program on each identified thematic area.
- Proposals for collaborative research work under this memorandum will be submitted through the normal procedures of each institution.
- Individual projects/programmes of research work developed under this Memorandum and/ or capacity building programmes will be the subject of individual agreements in writing clearly spelling out commitments and liabilities of both the parties and where appropriate will be jointly developed and executed by the nominees of both the parties.
- Each party will ensure appropriate protection of Intellectual Property Rights generated from cooperation pursuant to MoU, consistent with laws, rules and regulations of India.
- Progress of work of any individual collaborative research project/programme will be reviewed and approved by designated project officers of both parties, in accordance with its individual agreement.
- The final approval of any collaborative research project/programme will depend on the availability of the guaranteed support funds.
- Neither Sardar Patel University of Police, Security and Criminal Justice, Jodhpurnor Jai Narain Vyas University, Jodhpur will be held responsible for any liability, and neither party shall be required to purchase any insurance against loss or damage to any personal/ institutional property to which this Memorandum relates.
- Research instrumentation facility and library facilities available with the first party and the second party will be made available to the scientist, faculty and research scholars. However, the costs of specific consumable will be borne by the respective organizations.
- There shall be an exchange of scientist, faculty and students for academic, research and training purposes. Wherever possible, as per extant fee.
- Both parties understand that all financial agreement will have to be negotiated separately and will depend on the availability of funds.

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REGISTRAR

Jai Narain Vyas University
JODHPUR (Raj.)

Article 6: Intellectual Property Rights (IPR)

The parties may sign an Intellectual Property Rights (IPR) document in order to secure rights when it comes to research results and publications.

Article 7: Limitation of Personnel Activities

The Parties shall ensure that any personnel engaged in the activities and/or programs under this MoU shall not interfere with the internal political independence, sovereignty, and territorial integrity of the latter, any commercial ventures, and avoid any activities outside the aims of this MoU unless separate written arrangement.

Article 8: Confidential Information

Each Party's rights, title, interest in its confidential information remains unaffected by the existence of this MoU.

- Neither party is obliged to disclose any confidential information to the other party pursuant to this MoU and each party undertake to observe confidentiality and secrecy of any information and other data received from the other party, and any outputs jointly obtained, except as mutually consented to in writing by the other party, during the period of the implementation of activities under this MoU or any arrangement made pursuant to this MoU.
- Any disclosure or exchange of confidential information will be covered in separate subsidiary arrangements.

Article 9: Commencement, renewal, termination and amendment

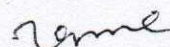

This Memorandum is effective as of the date of execution by the later of the appropriate officers of each signatory institution to sign. This Memorandum shall remain in force for a period of three (3) years from the date of signing, with the understanding that it may be terminated by either party giving at least three months' notice to the other party in writing. This Memorandum may be amended or extended by mutual consent in writing of the two parties.

Article 10: Dispute Settlement

Any dispute, controversy or difference as to the interpretation of this MoU will be settled amicably by mutual consent between the Parties.

Article 11: Validity of MoU

This MoU shall enter into force on the date of the completion of the signing by the parties. It shall remain in force for the duration of 03 (three) years from the date of signing of this MoU and may be extended by mutual written agreement of the parties.



COUNTER SIGNED



REGISTRAR

Jai Narain Vyas University
JODHPUR (Raj.)

Either party may terminate this MoU at any time by notifying the other party of its intention to terminate this MoU in writing.

Unless agreed otherwise by the parties, the termination of this MoU shall not affect the validity and duration of any ongoing arrangement, activity and contract made under the MoU until the completion of such arrangement, activity and contract.

In WITNESS WHEREOF the undersigned, duly authorized thereto, have signed this Memorandum of Understanding.

Done at Jai Narain Vyas University, Jodhpur on the 26 November, 2021 in two originals.

Signature with seal

Date:

26-11-21

(Dr. Alok Tripathi)

Vice-Chancellor

Sardar Patel University of Police
Security and Criminal Justice, Jodhpur
Tel No 0291-3500600

Email : vc@policeuniversity.ac.in

Signature with seal

Date: 26.11.2021

Pravin

(Prof. Pravin Chandra Trivedi)

Vice-Chancellor

Jai Narain Vyas University,
Jodhpur

Tel No. +91-291-2432947

Email: vcjnvu@gmail.com &
vc@jnvu.edu.in

Witnesses:

1. Signature

Name

Designation:

2. Signature

Name

Designation

Signature

Name

Designation

Signature

Name

Designation

Dr. M. N. Bhatt

Assistant Professor

Timarshu Shams

PS

Prm Dr CHANDAN BSA

Prof. Dean & Head

Faculty & Deptt of Law.

Gomati Shama

Registrar J.N.V.U
Jodhpur.

COUNTER SIGNED

REGISTRAR

Jai Narain Vyas University
JODHPUR (Raj.)



Downregulation of Candidate Gene Expression and Neuroprotection by Piperine in Streptozotocin-Induced Hyperglycemia and Memory Impairment in Rats

Suresh Kumar^{1*}, Suman Chowdhury¹, Ajay Razdan¹, Deepa Kumari¹, Ram Singh Purty¹, Heera Ram², Pramod Kumar², Prasunpriya Nayak³ and Sunil Dutt Shukla⁴

¹University School of Biotechnology, GGS Indraprastha University, New Delhi, India, ²Department of Zoology, Jai Narain Vyas University, Jodhpur, India, ³Department of Physiology, All India Institute of Medical Sciences, Jodhpur, India, ⁴Government Meera Girls College, Mohanlal Sukhadia University, Udaipur, India

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Downregulation of Candidate Gene
Expression and Neuroprotection by
Piperine in Streptozotocin-Induced
Hyperglycemia and Memory
Impairment in Rats.
Front. Pharmacol. 11:595471.
doi: 10.3389/fphar.2020.595471

There is accumulating evidence showing that hyperglycemia conditions like diabetes possess a greater risk of impairment to the neuronal system because high glucose levels exacerbate oxidative stress, accumulation of amyloid-beta peptides, and mitochondrial dysfunction, and impair cognitive functions and cause neurodegeneration conditions like Alzheimer's diseases. Due to the extensive focus on pharmacological intervention to prevent neuronal cells' impairment induced by hyperglycemia, the underlying molecular mechanism that links between Diabetes and Alzheimer's is still lacking. Given this, the present study aimed to evaluate the protective effect of piperine on streptozotocin (STZ) induced hyperglycemia and candidate gene expression. In the present study, rats were divided into four groups: control (Vehicle only), diabetic control (STZ only), piperine treated (20 mg/kg day, i.p), and sitagliptin (Positive control) treated. The memory function was assessed by Morris water maze and probe test. After treatment, biochemical parameters such as HOMA index and lipid profile were estimated in the serum, whereas histopathology was evaluated in pancreatic and brain tissue samples. Gene expression studies were done by real-time PCR technique. Present data indicated that piperine caused significant memory improvement as compared to diabetic (STZ) control. The assessment of HOMA indices in serum samples showed that piperine and sitagliptin (positive control, PC) caused significant alterations of insulin resistance, β cell function, and insulin sensitivity. Assessment of brain and pancreas histopathology shows significant improvement in tissue architecture in piperine and sitagliptin treated groups compared to diabetic control. The gene expression profile in brain tissue shows significantly reduced BACE1, PSEN1, APOA1, CASPASE3, and CATALASE genes in the piperine and sitagliptin (PC) treated groups compared to Diabetic (STZ) control. The present study demonstrated that piperine not only improves memory in diabetic rats but also reduces the expression of specific AD-related genes that can help design a novel strategy for therapeutic intervention at the molecular level.

Keywords: neuroprotection, gene expression, hyperglycemia, piperine, Alzheimer's

MEMORANDUM OF UNDERSTANDING

By & Between

**Atal Bihari Vajpayee Vishwavidyalaya,
Bilaspur, Chhattisgarh**

And

**Jai Narain Vyas University
Jodhpur, Rajasthan**

MoU Date: 29/07/ 2022

MEMORANDUM OF UNDERSTANDING

For
Academic Development
By & Between

**Atal Bihari Vajpayee Vishwavidyalaya,
Bilaspur, Chhattisgarh**

And
**Jai Narain Vyas University
Jodhpur, Rajasthan**

This MoU is entered into on the 20th July 2022 by and between the Atal Bihari Vajpayee Vishwavidyalaya, Bilaspur (Chhattisgarh) and The Jai Narain Vyas University Jodhpur, Rajasthan. The parties have agreed to the following protocols governing their collaboration on Academic Development of both the Universities.

Objectives of the MoU

To promote and enhance **academic interest and values** between the Atal Bihari Vajpayee Vishwavidyalaya, Bilaspur (Chhattisgarh) and The Jai Narain Vyas University Jodhpur, Rajasthan.

1. To promote **research based activities** including collaborative seminars, conferences, symposia etc. for the development and usage of research based platform in both the institutions.
2. To encourage **academic, faculty and student exchange programme** for raising of learning curve of the Universities under collaboration both offline and online.
3. To promote **collaboration and exchange of Laboratory facilities** including software's, computational facilities, tools, equipment's and technology etc. essential for the know-how and support of the academic and research interest of both the organizations.

4. To promote **social connect/sports activities** and **national outreach programmes**.
5. To undertake joint collaboration research projects and National and International Agencies.
6. To undertake joint collaboration publications of research and learning material viz. research journals monographs etc.

Modes of Collaboration

1. Helping out on curriculum development and exchange of new learning outcomes based innovative methods of teaching and learning processes.
2. Through academic, faculty and student exchange (as and when required) for mutual development of both the institutions from time to time.
3. By sharing of research based learning resources (including e-resources, collaborative seminars, conferences, symposia etc.) between institutions, so as to facilitate and develop research environment.
4. By exchange of laboratory facilities to facilitate collaborative quality experimentation for both research and training.

A Specific time bound plan will be worked out and executed by both the parties/ Universities depending on the availability of resources. For carrying out special activities a specific agreement may be entered in by both the parties for collaboration and execution.

Terms and Conditions

1. The actions taken under this agreement may be reviewed periodically or at any point of time desired by the two Universities. Modifications may be made by the mutual agreement and any amendment or extension to the agreement may be formalized by the exchange of letters between the two parties.
2. This MoU will come into force upon affixing of the signatures of the representatives of the partner institutions and will remain in effect for five

years. This MoU may be renewed upon its expiry, with the agreement of both parties.

3. There will be **no financial responsibility** of both the parties.

Confidentiality

Atal Bihari Vajpayee Vishwavidyalaya, Bilaspur (Chhattisgarh) and The Jai Narain Vyas University Jodhpur, Rajasthan agrees to hold in confidence, all the information/data shared and designated by the various departments / institutes of the two universities.

Nodal Officers

Both Universities will designate a person each at their end who will bear the responsibilities for being the nodal officer and implementation of this agreement.

Signed in Duplicate

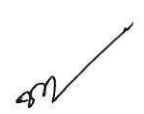
This MoU is executed in duplicate with each copy being an official version and having equal legal validity.

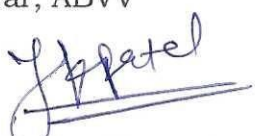
PARTY- I


Vice-Chancellor

Atal Bihari Vajpayee Vishwavidyalaya,
Bilaspur (Chhattisgarh)

Witness:


1. Dr Sudhir Sharma,
Registrar, ABVV


2. Er. Yashwant Kumar Patel
MoU Coordinator, ABVV


PARTY- II



Vice-Chancellor

Jai Narain Vyas University
Jodhpur (Rajasthan)

Prof. (Dr.) Kanhaiya Lal Shrivastava
Vice-Chancellor
Jai Narain Vyas University
Jodhpur (Raj.)

Witness:


1. Mrs. Gomati Sharma,
Registrar, JNVU


2. Prof. Krishn A. Goyal
Director, Institute of Evening Studies, JNVU

Jai Narain Vyas University, Jodhpur
(Development Section)

NO.JNVU/Dev./2022/3089

Dated : 11.5.2022

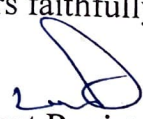
Dibyayan Deb
Project Scientist -I
NER-BPMC
Department of Biotechnology
National Productivity Council (NPC) Building
Ground Floor, 5-6 Institutional Area
Lodhi Road, New Delhi - 110003
Contact No. +91-1124665100

Sub: Submission of Memorandum of Agreement (MOA) as well as and terms
& conditions of the grant received under DBT LEGUMS PROJECTS.

Sir/Madam ,

Please find enclose herewith the Memorandum of Agreement and Terms & Conditions of the grant received from DBT Multi-institutional Legume network research project entitled " Exploration of native legumes and characterization of associated nitrogen fixing microsymbionts in North -Eastern India for development of biofertilizers (Ref. No. BT/PR28594/NER/95/1496/2018)" for your favourable consideration .

Yours faithfully,


Assistant Registrar

Enclosed: As above

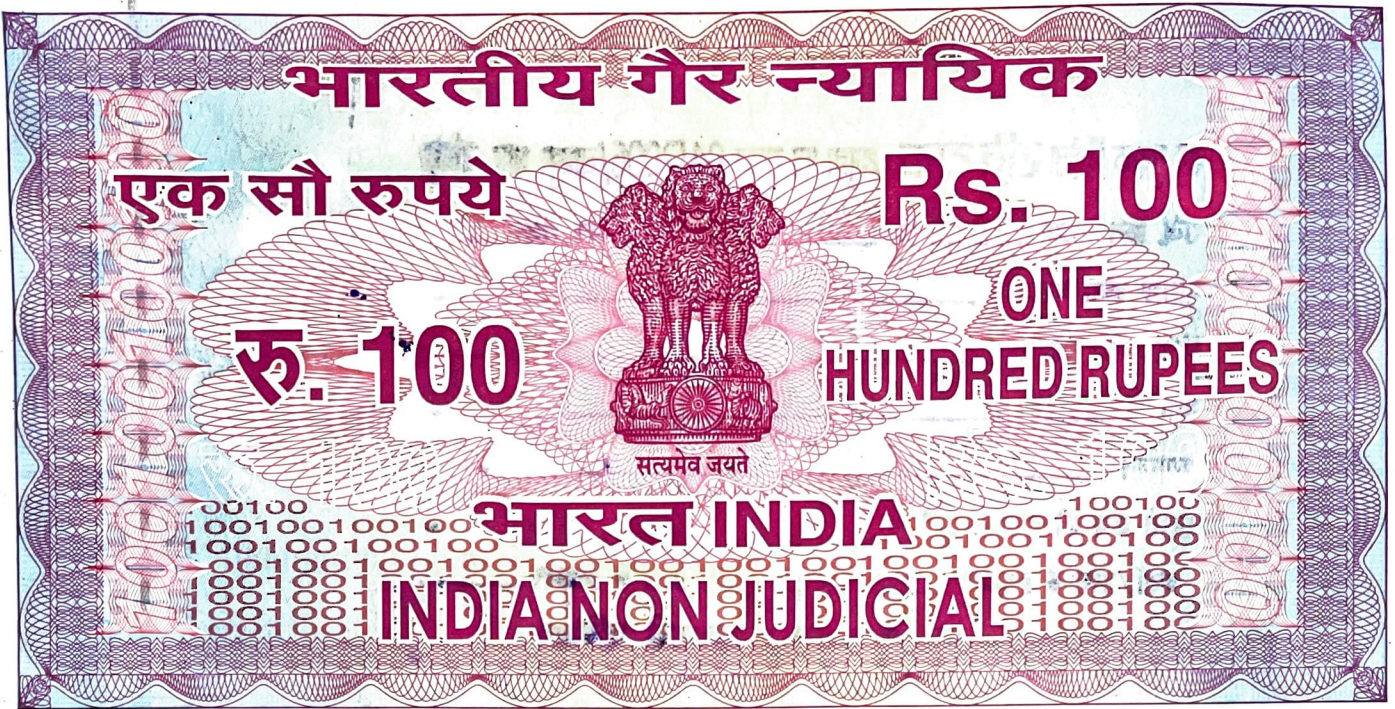
NO.JNVU/Dev./2022/

Dated :

Copy forwarded to the following for information and necessary action.

1. The Head, Department of Botany, J.N. Vyas University, Jodhpur
2. Dr. Nisha Tak, Department of Botany, J.N. Vyas University, Jodhpur


Assistant Registrar



राजस्थान RAJASTHAN

BF 519520

MEMORANDUM OF AGREEMENT

This MEMORANDUM OF AGREEMENT is made on this **The 2nd day of May of Two Thousand and Twenty two** BY AND BETWEEN President of India, acting through, Adviser, Department of Biotechnology, Ministry of Science and Technology, Government of India, New Delhi, hereinafter referred to as the 'DBT' (which expression unless excluded by or repugnant to the subject shall mean and include its successor-in-office and assigns) of the ONE PART;

AND

Jai Narain Vyas University (JNVU), Jodhpur, is a State University constituted under section 2 (f) & 12B of the UGC Act, 1956, having its registered office in/at Residency Road, Jodhpur hereinafter referred to as 'JNVU' Jodhpur (which expression shall where the context so admits include its successors and permitted assigns) of the OTHER PART;

WHEREAS DBT being desirous of **Agricultural Biotechnology** (area of research to be given) decided to support a project submitted by PI Dr. Nisha Tak, Department of Botany, J.N.Vyas University, Jodhpur for the attainment of the objectives, hereinafter described in the Annexure I annexed hereto;

Dr. NISHA TAK
Principal Investigator
DBT (NER-BPMC) LEGUMES PROJECT
S.No. BT/PR28594/NER/95/1496/2018

COUNTER SIGNED

REGISTRAR
Jai Narain Vyas University
JODHPUR (Raj.)

6844 2457 4470

मूद्रांक विक्रेता रवि टाक अनुसू. सं. संख्या 04/2006/चक्र सं. संख्या

रजि. क्रम संख्या 301 दि. 25/2022 मूद्रांक देल्यु व क्रम संख्या 100

मूद्रांक विक्रेता का नाम मिश्रा शिव

पता/पत्नी का नाम पारसराज शिव

पता श्रीराम भवन गुलाबगान्ध

पता/हस्ताक्षर

हस्ताक्षर की छाया में हस्ताक्षर का नाम

पता/हस्ताक्षर दि. स्थान - रायपुर जिला रायपुर

राजस्थान स्टाम्प अधिनियम, 1998 के अन्तर्गत स्टाम्प राशि पर प्रसारित अभिमार	
1. आधारभूत आवश्यकता सुविधाएं हेतु (धारा 3-क) - 10 प्रतिशत रुपये	100
2. गाय और उसकी भाल के लक्षण और संवर्धन हेतु (धारा 3-ख) प्राकृतिक आपदाओं एवं मानव विनिर्मित आपदाओं के निवारण हेतु - 20 प्रतिशत रुपये	200
कुल 300 हस्ताक्षर स्टाम्प वेन्डर	

This Memorandum of Agreement (MoA) defines the role and responsibilities of the participating agencies, monitoring and other matters related to the **Exploration of native legumes and characterization of associated nitrogen fixing microsymbionts in North-Eastern India for development of biofertilizers**" (Title of project)

NOW THE PARTIES HERETO AGREE AS FOLLOWS:-

1.0 . ROLE OF DEPARTMENT OF BIOTECHNOLOGY, NEW DELHI

To provide funds to the extent of **Rs. 48,00,480/- (Rupees Forty eight lakhs and four hundred eighty)** over a period of **Three years** from the date of sanction of the project, to **Department of Botany, Jai Narain Vyas University, Jodhpur** for undertaking activities as detailed in Annexure 1. Details of the funds to be provided are given in Annexure II.

2.0. ROLE OF DEPARTMENT OF BOTANY, JAI NARAIN VYAS UNIVERSITY, JODHPUR (Institute/NGO)

- 2.1. To provide their contribution of Nil for 3 years from date of sanction of the project as detailed in Annexure – II. *(if a jointly supported project)*
- 2.2. To provide existing facilities as mentioned in the project document.
- 2.3. To be responsible for accomplishing objectives identified and activities listed.
- 2.4. To allow the Scientists authorized by DBT to work with the Research. & Development team of the center in all stages of process development and production.
- 2.5. To recruit all scientific and non-scientific staff as sanctioned by DBT.
- 2.6. To prepare and submit all periodical reports and other documents that would be required by DBT.

2


Dr. NISHA TAK
Principal Investigator
DBT (NER-BPMC) LEGUMES PROJECT
S.No. BT/PR28594/NER/95/1496/2018

COUNTER SIGNED

REGISTRAR
Jai Narain Vyas University
JODHPUR (Raj.)

- 2.7. To maintain a separate audit head of account for the grants received from DBT for the project.
- 2.8. To submit an annual audited statement of expenditure incurred under the project.
- 2.9. To ensure effective utilization of the grant given by DBT for the purpose for which it was granted and to ensure timely progress of project work.
- 2.10. The manpower, both scientific and non-scientific, recruited shall be purely on contractual terms & conditions such that the contract for engagement of the manpower shall run concurrently with the said project period only.

3.0 DURATION OF PROJECT

- 3.1 Duration of project shall be **three (3)** years from the date the Project has been sanctioned by DBT.

4.0 RIGHTS OF OWNERSHIP/TECHNOLOGY TRANSFER AND UTILIZATION

- 4.1 The know-how generated from the project by **Project PI** will be the joint property of JNVU, Jodhpur and DBT, Government of India. It shall be the responsibility of **both** to take necessary action for protection of the intellectual property arising out of the PROJECT through proper instruments, such as, patents, copy rights, etc.
- 4.2 The know-how developed may be transferred to other entrepreneurs on a non-exclusive basis on such terms and conditions as may be determined by DBT.
- 4.3 All the assets including the equipment and produce acquired will be the property of DBT and shall not be utilized for purposes other than those for which the grant has been sanctioned. The rights of **Ownership/Technology and Utilization** under this MoA shall not be transferred to any other party without prior approval in writing of DBT.


Dr. NISHA TAK
Principal Investigator
DBT (NER-BPMC) LEGUMES PROJECT
S.No. BT/PR28594/NER/95/1496/2018

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Jai Narain Vyas University
JODHPUR (Raj.)

- 4.4 It shall be the responsibility of **PI, Department of Botany, JNVU** to ensure that support of DBT is suitably acknowledged in the publications (papers, reports, etc.) arising out of the PROJECT.

5. **SECURITY**

It is hereby agreed that the participating agencies shall keep information and data collected completely secret provided that the right to transfer the technology shall rest with the DBT.

6. **MONITORING**

- 6.1 The progress of implementation of the project and proper utilization of grant shall be reviewed by the DBT and by the Monitoring Committee set up by DBT.
- 6.2 The periodic progress of physical achievements and the utilization of funds, statement of expenditure shall be evaluated by the Monitoring Committee.
- 6.3 The Comptroller and Auditor General of India, at his discretion shall have the right of access to the books and accounts of **JNVU, Jodhpur** for the grants received from DBT for this project.
- 6.4 The DBT may terminate the grant at any stage if it is convinced that the grant has not been properly utilized or appropriate progress has not been made. In the event, DBT terminates the grant, **JNVU, Jodhpur** shall hand over all documents including technical details and equipment purchased related to the project.

7.0 **DURATION OF MEMORANDUM OF AGREEMENT**

This MoA will remain in force for the duration of the project and until all claims are settled between **DBT and JNVU, Jodhpur**

8.0 **ARBITRATION**

In the event of any question, dispute or difference whatsoever arising between the parties to this Agreement out of or relating to the construction, meaning, scope,

4


Dr. NISHA TAK
Principal Investigator
DBT (NER-BPMC) LEGUMES PROJECT
S.No. BT/PR28594/NER/95/1496/2018

COUNTER SIGNED

REGISTRAR
Jai Narain Vyas University
JODHPUR (RA)

operation or effect of this Agreement or the validity of the breach thereof shall be referred to an Arbitrator to be appointed by mutual consent of both the parties herein. If the parties cannot agree on the appointment of the Arbitrator within a period of one month from the notification by one party to the other of existence of such dispute, then the Arbitrator shall be nominated by the Secretary, Department of Legal Affairs, Ministry of Law & Justice, Government of India. The provisions of the Arbitration and Conciliation Act, 1996 will be applicable and the award made thereunder shall be final and binding upon the parties hereto, subject to legal remedies available under the law. Such differences shall be deemed to be a submission to arbitration under the Indian Arbitration and Conciliation Act, 1996, or of any modifications or reenactments thereof.

9.0. GOVERNING LAW

This Contract shall be governed by the Law of India for the time being in force.

IN WITNESS WHEREOF the parties hereto have signed, sealed and delivered this Agreement on the day, month and year first above written in presence of:

Witnesses:

Signed by -----

1.

(Designation)

2.

For and on behalf of The President of India

COUNTER SIGNED

Witnesses:

Signed by -----

1.



Dr. NISHA TAK
Principal Investigator
DBT (NER-BPMC) LEGUMES PROJECT
S.No. BT/PR28594/NER/95/1496/2018



REGISTRAR
Jai Narain Vyas University
(Designation)

2.


For and on behalf of Jai Narain Vyas University (JNVU), Jodhpur


02/05/22
PROFESSOR & HEAD
DEPARTMENT OF BOTANY
J. N. VYAS UNIVERSITY
JODHPUR-342005 (RAJ.)

Memorandum of Understanding (MOU)

BETWEEN



MARYAM ABACHA AMERICAN UNIVERSITY OF NIGERIA

www.maaun.edu.ng

AND



JAI NARAIN VYAS UNIVERSITY, JODHPUR, INDIA

www.jnvu.edu.in

MEMORANDUM OF UNDERSTANDING (MOU)

BETWEEN

MARYAM ABACHA AMERICAN UNIVERSITY OF NIGERIA (MAAUN), NIGERIA

AND

JAI NARAIN VYAS UNIVERSITY, JODHPUR

The Memorandum of Understanding (MoU) establishes the following:

Article: 1

Maryam Abacha American University of Nigeria (MAAUN-KANO)-Nigeria, and Jai Narain Vyas University, Jodhpur, hereby agree to establish a mutually beneficial relationship built on academic, scientific and cultural cooperation. Areas of cooperation include the exchange of faculty professors, researchers, students, publications, academic programs and research projects, either online or face to face.

Article: 2

The signing institutions agree to provide opportunity, as appropriate, for the following activities towards the completion of the objective of this MoU.

- Exchange of faculty members with the objective of offering courses in areas mutually agreed upon by both institutions;
- Exchange of researchers with the objective of realizing research projects in areas mutually agreed upon by both institutions;
- Exchange of undergraduate and post-Graduate students with the objective of enrolling students in courses appropriate to their area of study, including availing any scholarship and other funding opportunities available at either institution;
- Support to each other in activities of common interest like exchange of books, scientific publications, study programs, academic projects, program information, webinars, seminars, conferences and any other data and information of common interest;
- Development of joint research projects and joint publications including availing any funding opportunities available at either institution on their countries.

Any other area of cooperation as mutually agreed upon.



Article: 3

Further implementation details of each program on activity based on this MoU, if required may be negotiated and agreed upon by respective departments of both institutions and such collaborations may form additional appendices to this MoU, as required.

Article: 4

There will be no financial liability for both the universities

Article: 5

The signed agreement is valid for a term of five years, and may be extended if both sides agree to do so in writing.

Article: 6

Changes to this agreement shall be made by mutual consent between both institutions. In cases of disagreement, the University wishing to depart from the agreement shall give six months' notice of its intention to do so. The agreement shall be reviewed after a period of five years.

Article: 7

This Memorandum of Understanding is signed between **Jai Narain Vyas University Jodhpur** and **Maryam Abacha American University of Nigeria (MAAUN-KANO)-Nigeria**

On behalf of :


**Maryam Abacha American University
of Nigeria (MAAUN-KANO)-Nigeria**

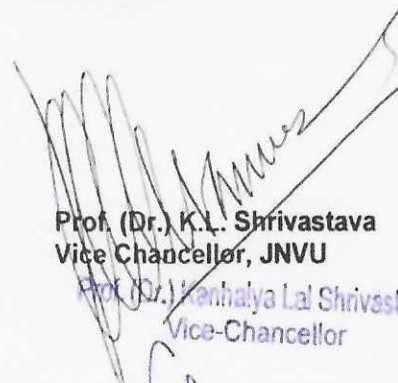
Dated:

**Jai Narain Vyas University
Jodhpur**



28/09/2022
**Prof. (Dr.) Mohammad Israr,
President, MAAUN**

**PRESIDENT
MARYAM ABACHA
AMERICAN UNIVERSITY OF NIGERIA
KANO**


28/09/22
**Dr. Habib Awais Abubakar
Vice President Administration MAAUN**


**Prof. (Dr.) K.L. Shrivastava
Vice Chancellor, JNVU**

**Prof. (Dr.) Kanhaiya Lal Shrivastava
Vice-Chancellor**


**Smt. Gomati Sharma
Registrar, JNVU**

**Registrar
Jai Narain Vyas University,
Jodhpur**





राजस्थान RAJASTHAN

AY 316206



This Memorandum of Understanding

Made on the 30-08-2022

between

Jai Narain Vyas (State) University, Jodhpur, Rajasthan established under the Rajasthan Act, located at Ratanada, Jai Narain Vyas (State) University Campus, Jodhpur, Rajasthan, India Pin- 342 001 (hereinafter referred to as 'JAI NARAIN VYAS UNIVERSITY'), which expression shall, unless repugnant to the context or meaning thereof, mean and include its successors, executors, administrators and assigns, on the First Part

and

Mahatma Gandhi National Council of Rural Education, Department of Higher Education, Ministry of Education, Government of India and having its registered office at Shakkar Bhavan, Fateh Maidan Road, Basheerbagh, Hyderabad (hereinafter referred to as MGNCRE), which expression shall, unless repugnant to the context or meaning thereof, mean and include its successors, on the Second Part, witnesses as follows.

[Handwritten signature]

Registrar
Jai Narain Vyas University
Jodhpur



WHEREAS MGNCRE is interested in entering into Memorandum of Understanding (MoU) with well-established academic and Research and Development set upto explore, extend and strengthen mutual relationship for promotion of professional education in rural management by sharing the facilities and expertise available with each of them,

and

WHEREAS JAI NARAIN VYAS (STATE) UNIVERSITY is interested in offering professional academic programmes in rural management both at the undergraduate and the post-graduate level for promotion of rural development and capacity building,

NOW, THEREFORE, IT IS AGREED TO BETWEEN THE PARTIES ABOVE NAMED AS FOLLOWS.

1. Rights and responsibilities of MGNCRE

- (a) Providing the course curriculum developed by the institute to JAI NARAIN VYAS (STATE) UNIVERSITY;
- (b) Providing the online course content to the students and faculty members of JAI NARAIN VYAS (STATE) UNIVERSITY;
- (c) Allowing the students of JAI NARAIN VYAS (STATE) UNIVERSITY to participate in workshops and the faculty members of JAI NARAIN VYAS (STATE) UNIVERSITY to participate in Faculty Development Programmes (FDPs) organised by MGNCRE;
- (d) Providing the opportunities of industry-academic meet to the students and faculty members of JAI NARAIN VYAS (STATE) UNIVERSITY;
- (e) Helping JAI NARAIN VYAS (STATE) UNIVERSITY in arranging field study, summer internship and final placement for their rural management students; and
- (f) Displaying this MoU and the Logo of JAI NARAIN VYAS (STATE) UNIVERSITY on the MGNCRE website.


Registrar



2. MGNCRE agrees that all the above services will be provided to JAI NARAIN VYAS (STATE) UNIVERSITY free of charges.
3. Rights and responsibilities of JAI NARAIN VYAS (STATE) UNIVERSITY
 - (a) Introducing rural management programmes/courses at the Bachelor's and Master's level in the university;
 - (b) Promoting the BBA, MBA programs/courses;
 - (c) Utilizing the course content and curriculum developed by MGNCRE;
 - (d) Participating in workshops and FDPs organized by the MGNCRE free of cost; and
 - (e) Associating with FPCs, Other organizations for extending professional help and facilitating the students with internship, apprenticeship.
 - (f) Displaying this MoU and the Logo of MGNCRE on the JAI NARAIN VYAS (STATE) UNIVERSITY website, advertisements and other campaign/publicity material.
4. Both the Parties seek to enhance relations and recognise the benefits to be derived from increased mutual collaboration, cooperation and interaction for further promotion.
5. On behalf of the First Party, Prof.(Dr.) Krishn Awatar Goyal, Director Institute of Evening studies, JAI NARAIN VYAS (STATE) UNIVERSITY with cell no 7597293666 will be the point of contact for further correspondence and coordination.
6. On behalf of the Second Party, Prof. Chethan Babu Chittalkar, Director, Rural Management Programme with Cell No. 9052907212 and email; chethanmgncre@gmail.com will be the point of contact for further correspondence and coordination.

[Handwritten signature]

[Handwritten signature]

Registrar
Jai Narain Vyas University



7. This Memorandum of Understanding shall enter into force only solely on the basis of goodwill only and shall never be not be legally bound nor financially binded.
8. The MoU is valid for a period of five years from the date of execution and may be renewed for any other period as shall be mutually agreed to between the parties.
9. If either Party does not wish to continue this MoU, then such Party shall provide the other Party of its intention to terminate this MoU by giving 3 (three) months' notice in writing. However, both the parties agree that for consistency of the MoU, the activities implemented before the termination of the Understanding shall be completed even after termination of the MoU.

IN WITNESS WHEREOF both the parties have subscribed their respective hands and seals on the date first above written.

Signed, sealed and delivered in the presence of witnesses

For JAI NARAIN VYAS (STATE) UNIVERSITY,
Jodhpur, Rajasthan

For Mahatma Gandhi National Council of Rural
Education

(Mrs. Gomati Sharma)

Jai Narain Vyas University
Jodhpur

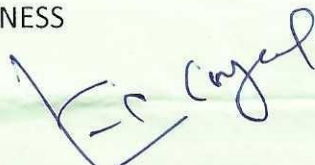
Registrar, Jai Narain Vyas (State) University,
Jodhpur, Rajasthan

Nagalakshmi

(Dr. A. Nagalakshmi)

Mahatma Gandhi National Council of Rural Education
Ministry of HRD, GOI
#5-10-174, Shakkar Bhavan, Ground Floor,
Faten Maidan Road, Hyderabad- 500 004

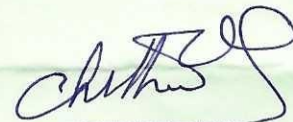
WITNESS



Prof. Krishn Awatar Goyal
DIRECTOR
INSTITUTE OF EVENING STUDIES
JAI NARAIN VYAS UNIVERSITY
JODHPUR



WITNESS



Prof. Chethan Chittalkar

Mahatma Gandhi National Council of Rural Education
Ministry of Education, Govt. of India,
Shakkar Bhavan, Basheerbagh,
Hyderabad- 500 004, Telangana

Efficacy of Small Molecule Phytochemicals of Petroleum Ether Pod Extract of *Prosopis cineraria* (L.) Druce on HMG-CoA Reductase and Biomarker Indices of Lipoproteins: *In-vitro*, *In-vivo* and *In-silico* Study

Heera Ram ^{1,*} , Noopur Jaipal ¹, Jaykaran Charan², Priya Kashyap ³, Suresh Kumar ³

¹ Department of Zoology, Jai Narain Vyas University, Jodhpur (Rajasthan)-342001, India

² Department of Pharmacology, All India Institute of Medical Sciences, India

³ University School of Biotechnology, Guru Gobind Singh Indraprastha University, Dwarka, Sector 16C New Delhi, India

* Correspondence: hr.zo@jnvu.edu.in (H.R.);

Scopus Author ID: 21234209400

Received: 5.06.2021; Revised: 7.07.2021; Accepted: 12.07.2021; Published: 8.08.2021

Abstract: The assigned goals of the study were examined to HMG-CoA reductase inhibition and antioxidants potential of the small molecule phytochemicals of petroleum ether pod extract of *Prosopis cineraria* (L.) Druce by *in-vitro*, *in-vivo*, and *in-silico* assessments. The phytochemical fingerprinting of the extract was done by LC-MS analysis, and compounds were identified using mass hunter software. *In-vitro* HMG-CoA reductase assay performed by sigma Aldrich kit. According, *in-vivo* investigations were conducted by using a hypercholesterolemic rabbit animal model. Further, *in-silico* analyses of molecular docking and ADMET were conducted by standard protocol. The leading identified compounds, i.e., prosogerin-A, luteolin, and gallic acid, were docked with the target enzyme of HMG-CoA reductase, which demonstrated significant binding energies up to -7.2 to 8.1(Kcal/mol). Subsequently, the ADMET predictions revealed druggability and ideal pharmacokinetics profile. Accordingly, the *in-vitro* HMG-CoA reductase inhibition assay was showed 53.1% inhibition capability of the test extract. The *in-vivo* investigation shown that the test extract caused significant reductions in the atherogenic index (log (Total cholesterol/triglyceride), Castelli risk index-I (CRI-I), and Castelli risk -II(CRI-II) along with lipid profile and antioxidants levels. It can be concluded that small-molecule phytochemicals such as Prosogerin A, Luteolin, Gallic acid are present in petroleum ether pod extract of *Prosopis cineraria* (L.) Druce possesses the capability to subside hypercholesterolemia and ameliorations in biomarker lipoproteins indices through HMG-CoA reductase inhibition and antioxidant potential.


Keywords: hypercholesterolemia; HMG-CoA reductase; lipoprotein indices; small molecule phytochemicals; lipoprotein indices; molecular docking.

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1. Introduction

The natural products can ameliorate several metabolic disorders by synchronizing several phytochemicals in this herbal extract. The scientific explanation regarding therapeutic efficacy is limited due to their solubility and bioavailability at target sites[1,2]. Accordingly, the different extracts of the same plant present variable efficacy due to the different solubility shown by various phytochemicals. The solubility of phytochemicals depends on the functional groups' polarity or availability, which indicates the reactivity of the compounds or groups of compounds (extracts)[3,4]. Accordingly, the traditional medicines and the Ayurvedic

In-vitro and *in-silico* determinations of HMG-CoA reductase inhibition potential of caffeic acid for therapeutics of hypercholesterolemia

Heera Ram^{1*} , Chandra Kala¹, Karishma Sen¹, Anita Sakarwal¹, Jaykaran Charan², Paras Sharma³ , Rajsekhar Roy⁴, Surajit Ghosh⁴

¹Department of Zoology, Jai Narain Vyas University, Jodhpur, India.

²Department of Pharmacology, All India Institute of Medical Sciences, Jodhpur, India.

³Department of Pharmacognosy, BVM College of Pharmacy, Gwalior, India.

⁴Department of Bioscience Bioengineering, Indian Institute of Technology Jodhpur, Jodhpur, India.

ARTICLE INFO

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Key words:

HMGCR, caffeic acid, pravastatin, molecular docking, ADMET.

ABSTRACT

The recent study was aimed to investigate *in-vitro* and *in-silico* determinations of the 3-hydroxy-3-methyl-glutaryl-coenzyme A reductase [HMG-CoA reductase (HMGCR)] inhibition potential of the caffeic acid. The *in-vitro* assay shown the IC₅₀ values of caffeic acid and pravastatin by 10.162 μ M and 40.6 nM which performed up to 83.29% and 85.83% inhibition of HMGCR, respectively. Consequently, the kinetics of inhibition of HMGCR showed significant values of K_m and V_{max} of the caffeic acid (0.360198 ± 0.04251 ; 11.8% and 91.0863 ± 1.65 ; 1.811%) and pravastatin (10.325 ± 0.9372) [9.077%; 94.2661 ± 2.458 (2.607%)]. Consequently, the molecular docking revealed significant binding energy, bond length, and H-bonding of caffeic acid with target enzyme of HMGCR. Accordingly, the interactions of protein-ligand complexes under cytosolic conditions were validated through root mean square fluctuation of molecular dynamics. Subsequently, the gastrointestinal absorption authenticated by the BOILED egg prediction is further validated by Absorption, Distribution, Metabolism, Excretion, And Toxicity (ADMET) assays and iLogP value. The drug likeness values of caffeic acid and pravastatin were found suitable as per the five rules of the Lipinski. Supportively, the toxicity profiles of the caffeic acid and pravastatin was made by the ProTox-II web server. Hence, it can be concluded that caffeic acid has the capabilities to inhibit HMGCR which provides the hypocholesterolemic potential.

INTRODUCTION

Voluminous data of the literature illustrated that the diet ingredients of fruit, vegetables, and plant parts having capabilities to manage hypercholesterolemia by the existing potent bioactive phytocompounds such as polyphenol, terpenoids, flavonoids, and alkaloids (Rastogi *et al.*, 2016). In a similar context, caffeic acid is a metabolite of hydroxycinnamate of the non-flavonoids phenolic acid mostly obtained from edible fruits, vegetables,

herbs, and stress climatic plants which are used in therapeutics of numerous ailments. This also exhibits numerous processed dietary sources because of antioxidant properties due to their free radical scavenging capabilities as well as potent ligand can interact with several metabolic targeted protein and enzymes (Agunloye and Oboh, 2018; Laranjinha and Cadenas, 1999). In plant metabolism, caffeic acid or caffeic acid-like compounds furnish a series of hydroxycinnamic acids (C6–C3) that vary from an individual by the quantity of hydroxy and methoxy groups on their phenyl unit (Park, 2009). These kinds of monophenol carboxylic acids are repeatedly found to be esterified to polyols. Accordingly, 3,4-dihydroxycinnamic acid (caffeic acid) is combatted in average-sized polyester branches of the tetraolicquinic acid, i.e., 3,5-di-O-caffeoylquinic acid, that occurs in coffee beans. Along with

*Corresponding Author

Heera Ram, Department of Zoology, Jai Narain Vyas University, Jodhpur, India. E-mail: hr:zo@jnvu.edu.in

**Exchange Agreement
Between
Department of Finance, College of Management,
National Dong Hwa University, Hualien County, Taiwan, R.O.C.
and
Institute of Evening Studies,
Jai Narain Vyas University, Jodhpur, India**

Department and Finance, College of Management, National Dong Hwa University and Institute of Evening Studies, Jai Narain Vyas University, recognizing the mutual benefits of fostering academic exchange and partnership, hereby enter into the following agreement in accordance with the terms and conditions set forth herein.

Article 1-Objective

1.1 The purpose of this agreement is to establish academic and scholarly cooperative relations between Department and Finance, College of Management, National Dong Hwa University and Institute of Evening Studies, Jai Narain Vyas University that are of mutual interest to both parties.

Article 2-Scope and Field of Cooperation

- 2.1 The following programs are to be administered by both parties:
- (a) Exchange of information and materials that are of mutual interest.
 - (b) Assistance of the visits by staff and faculty.
 - (c) Joint publications or research between faculty and staff.
 - (d) Exchange of students under conditions and circumstances stated in Article 4 of the agreement.
 - (e) Exchange of faculty members under conditions and circumstances stated in Article 5 of the agreement.

Article 3-Funding & Logistics

- 3.1 The parties agree to abide by the principles of reciprocity and parity regarding the provision of funding, manpower and logistics, as well as the sharing of finding, of joint research projects. Both parties agree that all financial arrangements are to be negotiated and are subject to the availability of funds.

Article 4-Terms for Exchange Students

- 4.1 Each parties may exchange TWO full-time undergraduate or graduate students for a full year exchange or FOUR full-time undergraduate or graduate students for a single semester exchange per year, upon mutual agreement.
- 4.2 The exchange students must satisfy the language proficiency requirements for admissions or take appropriate language instruction prior to the beginning of their academic program as determined by the regulations of the host party.

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5/2/2022

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- 4.3 The exchange students may apply to any academic program offered at the host party as a full-time, non-degree students at a level determined by the host party. The host party reserves the right to exclude students from restricted enrollment programs.
- 4.4 The host university has the right to reject or withdraw the exchange students not found to be in good financial and/or academic standing prior to or during the program. The host university will undertake to advise the home university of any such withdrawal from the program.
- 4.5 Any academic credit earned at the host university may be transferred to the home university in accordance with procedures determined by the latter.
- 4.6 Any extension of stay beyond the original determined length must be approved by both universities. A non-degree exchange student who wants to apply for degree status must reapply to the host university and follow the appropriate application procedures of the host university.
- 4.7 Exchange students pay tuition fees at their home university but do not need to pay administration and tuition fees at the host university.
- 4.8 Each university should assist exchange students with arrangements for room and board facilities and provide appropriate information and advice.
- 4.9 All exchange students will be responsible for all expenses at the host university, except for tuition, during their attendance at the host university, including accommodation, insurance, books, meals, transportation, and other personal and medical expenses. Prior to the term of exchange, the host university will provide the students with an estimate of the expenses to be expected during the period of attendance at the host university.
- 4.10 Each student will purchase at their own expense medical insurance, which conforms to requirements established by the host university for other incoming international students.

Article 5-Terms for Exchange Faculty Members

- 5.1 Each party may arrange for its faculty members to visit the other party for research or teaching. The maximum total accumulated time of all visits within one academic year will be twelve months. Both parties should try to equalize the number per academic year of visiting faculty members as well as the total accumulated time per academic year of all such visits between the two parties.
- 5.2 A visit will normally not exceed a period of six months. Costs for the visit (accommodation, travel, meals, other personal expenses, required health insurance, etc.) will be paid for by the visiting faculty members.
- 5.3 The salaries of the visiting faculty members for the visiting period will be provided by the home university.

✓ C-C Ayaz
5/2/2022

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Article 6-Duration & Termination


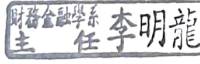
6.1 This agreement will become effective when authorized representatives of the two parties have executed the same and delivered counterparts of such signatures to the other party. We thereby mutually agree to extend the agreement and continue our exchange program partnership on an ongoing basis, to be reviewed periodically by both parties. This agreement is subject to revisions, renewal, or cancellation at any time by each of the parties and by mutual consent. Should either wish to terminate the agreement, they must notify the other party in writing one year prior to date of termination.


Article 7-Miscellaneous

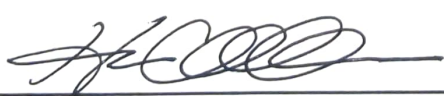
7.1 No monetary considerations will be exchanged between the parties herein to this agreement.

In witness of the above, the agreement is to be executed in two identical copies, both in English, by authorized representatives of the two parties and each party will retain one copy of the agreement.



On behalf of Department of Finance,
College of Management, National
Dong Hwa University, Hualien
County, Taiwan, R.O.C.




Ming-Long Lee, Ph.D.
Department Chair
Date: 2022.03.15

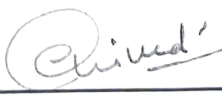

Fang-Ming Hsu, Ph.D.
Dean
Date: 22/3/2022


Han-Chieh Chao, Ph.D.
President
Date: _____

On behalf of Institute of Evening
Studies, Jai Narain Vyas University,
Jodhpur, India.


Dr. K A Goyal
Director, Institute of Evening Studies,
JNV University, Jodhpur
Date: _____



Smt. Gomati Sharma
Registrar, JNV University, Jodhpur
Date: 5-2-2022
Registrar
Jai Narain Vyas University,
Jodhpur


Prof. P.C. Trivedi
Hon'ble Vice-Chancellor
Jai Narain Vyas University, Jodhpur
Date: _____
Prof. P.C. Trivedi
Vice-Chancellor
Jai Narain Vyas University
Jodhpur (Raj.)

No JNVU/VC/4641
Dt. 08-02-2022