

477-479

Administrative  
(Application No: AAB/2015/23)

File No. BT/PR16230/NER/95/101/2015  
GOVERNMENT OF INDIA  
MINISTRY OF SCIENCE & TECHNOLOGY  
DEPARTMENT OF BIOTECHNOLOGY  
(NER BPMC)  
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Block-2, 7<sup>th</sup> Floor,  
CGO Complex, Lodhi Road  
New Delhi-110003  
Dated: 17/1/2017

**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 under 'DBT's Twinning programme for the NE' titled "Meta-genomic and transcriptomic studies on *Termitomyces* growing fungal combs of termites found in Assam for bioprospection" by Dr. Diganta Narzary, Gauhati University, Assam, and Prof Alok K. Mondal, Jawaharlal Nehru University, Delhi and Dr. T.S. Rana, National Botanical Research Institute (CSIR), Lucknow at a total cost of ₹ 113.67 Lakhs (Rupees One Crore and Thirteen Lakh and Sixty Seven Thousand Only) for a period of three years, on the terms and conditions detailed as under:

**2.0 The Project:**

**2.1 Project Title: Meta-genomic and transcriptomic studies on *Termitomyces* growing fungal combs of termites found in Assam for bioprospection**

**2.2 Project Investigators**

**2.2.1 Principal Investigator:** Dr. Diganta Narzary  
(Parent Institute) Assistant Professor  
Dept. of Botany,  
Gauhati University,  
Gopinath Bordoloi Nagar,  
Guwahti-781014, Assam

**2.2.2. Co-PI Name:** Prof. D. K. Jha  
(Parent Institute) Professor  
Dept. of Botany,  
Gauhati University,  
Gopinath Bordoloi Nagar,  
Guwahti-781014, Assam

**2.2.3 Principal Investigator:** Prof Alok K. Mondal,  
(Collaboration Institute I) Professor  
School of Life Science  
Jawaharlal Nehru University,  
New Mehrauli Road, Delhi 110067



**2.2.4 Co-PI Name:** Dr. Nirala Ramchiary  
**(Collaboration Institute I)** Assistant Professor  
School of Life Science  
Jawaharlal Nehru University,  
New Mehrauli Road, Delhi 110067

**2.2.5 Principal Investigator:** **Dr. T.S. Rana,**  
**(Collaboration Institute II)** Senior Principal Scientist  
Dept. of Molecular Systematics  
National Botanical Research Institute (CSIR),  
Rana Pratap Marg,  
Lucknow-225001, Uttar Pradesh

**2.2.6 Co-PI Name:** Dr. B.N. Singh  
**(Collaboration Institute II)** Scientist  
Dept. of Pharmacognosy & Ethnopharmacology  
National Botanical Research Institute (CSIR),  
Rana Pratap Marg,  
Lucknow-225001, Uttar Pradesh

### 2.3 Objectives:

#### **Gauhati University, Guwahati, Assam :**

1. Sample collection and Physico-chemical analysis of fungal combs.
2. Isolation and diversity study of bacteria and fungi from fungal combs by culture-dependent method.
3. Sequencing and analyses of metagenome of fungal combs.
4. Karyotyping of primary and secondary mycelia using Fluorescence dye.
5. Propagation of primordium through tissue culture technique and probable manipulation for mushroom cultivation.

#### **Jawaharlal Nehru University, Delhi:**

1. Sequencing and analysis of metatranscriptome of fungal combs.
2. Antifungal activity (particularly against drug resistant *Candida albicans*) of bacteria isolated from fungal combs.
3. Potent gene/allele mining for lignin and cellulose degradation from sequence data and activity assay for identifying potent isolates for lignin and cellulose degradation.
4. Transcriptome sequencing and analyses of secondary mycelia (unanastomosed and anastomosed) and primordium of Termitomyces.

#### **National Botanical Research Institute (CSIR), Lucknow:**

1. Genetic diversity and phylogenetic study of Termitomyces spp. found in Assam.
2. Biochemical profiling of Termitomyces for nutritional value (carbohydrate, protein, lipids, amino acids, vitamins and antioxidant property)
3. Anti-quorum sensing activity assay of Termitomyces extracts against biomonitor strain of *Chromobacterium violaceum*

### 2.4 Time Schedule:

The duration of the project is **three years** from the date of issue of sanction order.



## 2.4 Equipment Details:

### 2.5.1 Gauhati University, Guwahati, Assam

(₹ in lakhs)

Sl. No.	Description of equipment	Grant Recommended
1	Fluorescence Microscope with software & accessories	7.45
2	Real Time PCR with accessories	12.54
<b>Total</b>		<b>19.99</b>

### 2.5.2 Jawaharlal Nehru University, Delhi

Sl. No.	Description of equipment	Grant Recommended
1	Refrigerated Shaker Incubator	6.00
<b>Total</b>		<b>6.00</b>

### 2.5.3 National Botanical Research Institute (CSIR), Lucknow:

NIL

## 2.6 Manpower:

### Fellowship Conditions:

A year wise detail of manpower as proposed has been furnished below. HRA will be as per the Govt. Norms, an indication as stated below for the JRF and SRF's emoluments will be provided as a part of sanction order. JRF shall be ₹ 25,000/- + HRA for the 1st two years and ₹ 28,000/- + HRA for the 3rd year for SRF and applicable, (JRF - Post graduate Degree in Basic Science with NET qualification or graduate degree in Professional course with NET qualification or post graduate degree in professional course) JRF without NET qualification shall be ₹ 12,000/- + HRA for the 1st two years and ₹ 14,000/- + HRA for the 3rd year for SRF.

- For JRF/SRF/RA salary is as per the revised DST OM SR/S9/Z-09/2012, dated October 21, 2014.
- For Project Assistant salary is as per the revised DST OM C.30011/1/2007-IFD, dated 21<sup>st</sup> July 2008

### 2.6.1 Gauhati University, Guwahati, Assam

(₹ in lakhs)

S No.	Position (No)	Consolidated Emolument	1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	Total
1.	JRF/SRF (1)	JRF @ ₹ 25,000/- + 20 % HRA for the 1 <sup>st</sup> & 2 <sup>nd</sup> yr SRF @ ₹ 28,000/- + 20 % HRA for 3 <sup>rd</sup> yr	3.60	3.60	4.03	11.23
<b>Total</b>			<b>3.60</b>	<b>3.60</b>	<b>4.03</b>	<b>11.23</b>

*hw*



## 2.6.2 Jawaharlal Nehru University, Delhi

(₹ in lakhs)

S No.	Position (No)	Consolidated Emolument	1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	Total
1.	JRF/SRF (1)	JRF @ ₹ 25,000/- + 30 % HRA for the 1 <sup>st</sup> & 2 <sup>nd</sup> yr SRF @ ₹ 28,000/- + 30 % HRA for 3 <sup>rd</sup> yr	3.90	3.90	4.36	12.16
<b>Total</b>			<b>3.90</b>	<b>3.90</b>	<b>4.36</b>	<b>12.16</b>

## 2.6.3 National Botanical Research Institute (CSIR), Lucknow:

(₹ in lakhs)

S No.	Position (No)	Consolidated Emolument	1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	Total
1.	JRF/SRF (1)	JRF @ ₹ 25,000/- + 20 % HRA for the 1 <sup>st</sup> & 2 <sup>nd</sup> yr SRF @ ₹ 28,000/- + 20 % HRA for 3 <sup>rd</sup> yr	3.60	3.60	4.03	11.23
<b>Total</b>			<b>3.60</b>	<b>3.60</b>	<b>4.03</b>	<b>11.23</b>

## 2.7 Budget Estimate:

The total cost of the project is ₹ 113.67 Lakhs (Rupees One Crore and Thirteen Lakh and Sixty Seven Thousand Only) as per budget summary given below:

### 2.7.1 Gauhati University, Guwahati, Assam

(₹ in lakhs)

Heads	1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	Total
<b>I. Non-Recurring</b> (Equipments and accessories)	19.99	0.00	0.00	19.99
<b>Sub Total- I</b>				
<b>II. Recurring</b>				
1. Manpower	3.60	3.60	4.03	11.23
2. Consumables + Sequencing	12.50	10.50	8.00	31.00
3. Travel	0.50	0.50	0.50	1.50
4. Contingency	0.50	0.50	0.50	1.50
5. Overhead charges	1.00	1.00	1.00	3.00
<b>Sub Total- II (1-5)</b>	<b>18.10</b>	<b>16.10</b>	<b>14.03</b>	<b>48.23</b>
<b>GRAND TOTAL (I+II)</b>	<b>38.09</b>	<b>16.10</b>	<b>14.03</b>	<b>68.22</b>

Sequencing part has been considered as constituent part of Gauhati University Assam, to maintain 60:40, the Sequencing for JNU has been transferred to Gauhati University (3.00 +4.00 +3.00)

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2.7.2 Jawaharlal Nehru University, Delhi

(₹ in lakhs)

Heads	1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	Total
<b>I. Non-Recurring</b> (Equipments and accessories)	6.00	0.00	0.00	6.00
<b>Sub Total- I</b>	6.00	0.00	0.00	6.00
<b>II. Recurring</b>				
1. Manpower	3.90	3.90	4.36	12.16
2. Consumables	3.00	4.00	3.50	10.50
3. Travel	0.10	0.10	0.10	0.30
4. Contingency	0.00	0.00	0.00	0.00
5. Overhead charges	0.00	0.10	0.08	0.18
<b>Sub Total- II (1-5)</b>	7.00	8.10	8.04	23.14
<b>GRAND TOTAL (I+II)</b>	13.00	8.10	8.04	29.14

2.7.3 National Botanical Research Institute (CSIR), Lucknow:

(₹ in lakhs)

Heads	1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	Total
<b>I. Non-Recurring</b> (Equipments and accessories)	0.00	0.00	0.00	0.00
<b>Sub Total- I</b>	0.00	0.00	0.00	0.00
<b>II. Recurring</b>				
1. Manpower	3.60	3.60	4.03	11.23
2. Consumables	1.50	1.50	1.50	4.50
3. Travel	0.10	0.10	0.10	0.30
4. Contingency	0.00	0.10	0.00	0.10
5. Overhead charges	0.00	0.10	0.08	0.18
<b>Sub Total- II (1-5)</b>	5.20	5.40	5.71	16.31
<b>GRAND TOTAL (I+II)</b>	5.20	5.40	5.71	16.31

(i) Grand total for 3 years (₹ 68.22 + ₹ 29.14 + ₹ 16.31) = ₹ 113.67 lakhs

(ii) Total for 1<sup>st</sup> year release (₹ 38.09 + ₹ 13.00 + ₹ 5.20) = ₹ 56.29 lakhs

2.8 Other Terms & Conditions:

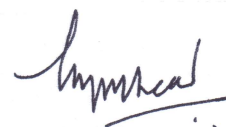
2.8.1 The other terms and conditions governing this sanction are attached at **Annexure-I**.

2.8.2 A Memorandum of Agreement (MoA) will be signed between the Department of Biotechnology and the grantee institute on a ₹ 100/- stamp paper in the format given at **Annexure II** and the subsequent releases will be made only after signing of MoA by the grantee institute and its acceptance by DBT. All pages need to be signed by the PI and the forwarding authority and the MoA returned to DBT within 30 days of issue of this letter.

2.8.3 The Non-recurring items must be procured and installed within 6 month period from the date of sanction.

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- 2.8.4 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.
- 2.8.5 No international travel will be undertaken from the sanctioned project grant unless specified otherwise.
- 2.8.6 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 Utilization 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 Account.
- 2.9 Additional Terms & Conditions, specific for Twinning R&D program for NER:**
- 2.9.1 Both NER & 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.
- 2.9.2 In the project review meetings, both the PI's from NER & RoI Institutions should participate & make presentation.
- 2.9.3 The outcomes of the project such as research papers, patents, copy rights etc. should be made jointly.
- 2.9.4 The NER Scientists are to be trained at the collaborating institute appropriately to empower the NER Scientists.
- 2.9.5 The project personal such as Research Associate, JRF/SRF, Research Assistant are also to be trained at least once in the collaborating national institute.
- 2.9.6 The collaborating institute scientist should visit NER institutions more frequently to guide NER scientists in design and conduct of experiments.
- 2.10 This issues under the powers delegated to this Department and with the concurrence of IFD, DBT vide their Dy. No/102/IFD/SAN/2122/2016-2017 Dated: 22/08/2016.
- 2.10.1 This sanction order has been noted at Serial No.....<sup>477-479</sup> in the Register of Grants.
- 2.10.2 The accounts of grantee institution shall be open to inspection by sanctioning auditory / audit.
- 3.0 M/S Biotech Consortium India Ltd (BCIL), Anuvrat Bhawan, 210, Deen Dayal Upadhyay Marg, New-Delhi- 110002, is administrating the North Eastern Region Biotechnology Programme Management Cell (NER-BPMC) of the DBT.



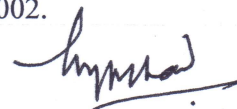
(Dr. T Madhan Mohan)  
Adviser, DBT

To,

The Pay & Accounts Officer,  
Department of Biotechnology,  
New Delhi - 110003

Copy to:

1. The Principal Director of Audit (Scientific Department), AGCR Building, New Delhi - 110 002.
2. Cash Section, DBT (For information only).
3. Sanction Folder.
4. IFD, DBT.
5. The Registrar, Gauhati University, Guwahati- 781014, Assam.
6. The Vice-Chancellor, Gauhati University, Guwahati- 781014, Assam.
2. The Registrar, Jawaharlal Nehru University, New Delhi-110067.
3. The Vice-Chancellor, Jawaharlal Nehru University, New Delhi-110067.
4. The Director, National Botanical Research Institute (CSIR), Rana Pratap Marg, Lucknow-225001
5. Dr. Diganta Narzary, Assistant Professor, Dept. of Botany, Gauhati University, Guwahati- 781014, Assam
6. Prof Alok K. Mondal, Professor, School of Life Science, Jawaharlal Nehru University, New Delhi-110067
7. Dr. T.S. Rana, Senior Principal Scientist, Dept. of Molecular Systematics, National Botanical Research Institute (CSIR), Rana Pratap Marg, Lucknow-225001,
8. Prof. D. K. Jha, Professor, Dept. of Botany, Gauhati University, Guwahati- 781014, Assam
9. Dr. Nirala Ramchiary, Assistant Professor, School of Life Science, Jawaharlal Nehru University, New Delhi-110067
10. Dr. B.N. Singh, Scientist, Dept. of Pharmacognosy & Ethnopharmacology, National Botanical Research Institute (CSIR), Rana Pratap Marg, Lucknow-225001
11. Concern file.
12. The Managing Director, Biotech Consortium India Limited, (NER-BPMC), 5<sup>th</sup> Floor, Anuvart Bhawan, 210, Deen Dayal Upadhyay Marg, New Delhi- 110002.



(Dr. T Madhan Mohan)  
Adviser, DBT



BT/PR16230/NER/95/101/2015  
Government of India  
Ministry of Science & Technology  
Department of Biotechnology  
(NER-BPMC)

Block-2, 7<sup>th</sup> Floor,  
CGO Complex, Lodhi Road  
New Delhi-110003  
Dated 4/10/2020

**EXTENSION ORDER**

In continuation of this Department's sanction order dated 17/01/2017, sanction of the President is hereby accorded to the extension of the project entitled "**Meta-genomic and transcriptomic studies on Termitomyces growing fungal combs of termites found in Assam for bioprospecting**" for the period of six months i.e. upto 16.07.2020 within the sanctioned budget. At the end of this period, the following documents may be submitted:

- i. Utilization Certificate (UC) for the entire duration of the project (financial year wise from beginning of the project)
- ii. Consolidated Statement of Expenditure (SoE) in prescribed DBT format
- iii. Details of salary disbursed to the manpower during the financial years and details of manpower engaged vis-à-vis sanctioned, counter signed by competent authority
- iv. Details of assets (list of equipment purchased) as per approved sanction indicating the item cost approved and the actual procurement cost. This needs to be submitted in the DBT format duly signed and attested by Head of the Institute, PI and Finance Officer.
- v. One copy of the final completion report
- vi. Documents regarding patents/ technology transfers, if any
- vii. Interest earned certificate, if any.
- viii. A certificate/photocopy of the stock registers of the Institute showing that all the equipments (procured for this project) have been taken in the stock register.
- ix. If there is unspent balance at the end of the project, kindly send a DD in favour of DDO, DBT, New Delhi for final settlement of accounts.

2. The other terms and conditions of the sanction order dated 17.01.2017 remains unaltered.

  
(Dr. Vaishali Panjabi)  
Scientist "E"

**Copy to:**

1. The Principal Director of Audit (Scientific Department), AGCR Building, New Delhi - 110 002.
2. The Registrar, Gauhati University, Guwahati-781014, Assam.
3. The Vice-Chancellor, Gauhati University, Guwahati-781014, Assam.

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4. The Registrar, Jawaharlal Nehru University, New Delhi-110067
5. The Vice-chancellor, Jawaharlal Nehru University, New Delhi-110067
6. The Director, National Botanical Research Institute (CSIR), Rana Pratap Marg, Lucknow-225001.
7. Dr. Diganta Narzary, Associate Professor, Department of Botany, Gauhati University, Guwahati-781014, Assam.
8. Prof. Alok K. Mondal, Professor, School of Life Science, Jawaharlal Nehru University, New Delhi-110067.
9. Dr. T.S. Rana, Senior Principal Scientist, Dept. of Molecular Systematics, National Botanical Research Institute (CSIR), Rana Pratap Marg, Lucknow-225001.
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11. Dr. Nirala Ramchiary, Assistant Professor, School of Life Science, Jawaharlal Nehru University, New Delhi-110067.
12. Dr. B.N. Singh, Scientist, Dept. of Pharmacognosy & Ethnopharmacology, National Botanical Research Institute (CSIR), Rana Pratap Marg, Lucknow-225001
13. Cash Section, DBT.
14. Sanction Folder.
15. IFD, DBT
16. Concern file.

*Vaishali*

**(Dr. Vaishali Panjabi)**  
**Scientist "E"**