

File No. BT/PR17193/NER/95/474/2015
GOVERNMENT OF INDIA
MINISTRY OF SCIENCE & TECHNOLOGY
DEPARTMENT OF BIOTECHNOLOGY
(NER BPMC)

Block-2, 7th Floor,
CGO Complex, Lodhi Road
New Delhi-110003
Dated: 13/12/2017

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 "Biodiesel production using indigenous microalgae of North-East India" by Dr. Jayashree Rout, Assam (Central) University, Silchar, Assam, Prof. Ramakrishna Sen, Indian Institute Technology, Kharagpur West Bengal and Dr. R. Sarada, CSIR-Central Food Technological Research Institute, Mysore at a total cost of ₹ 102.15 Lakhs (Rupees One Crore Two Lakhs and Fifteen Thousand Only) for a period of three years, on the terms and conditions detailed as under:

2.0 The Project:

2.1 Project Title: Biodiesel production using indigenous microalgae of North-East India.

2.2 Project Investigators

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| 2.2.1 Principal Investigator:
(Parent Institute) | Dr. Jayashree Rout
Professor,
Dept. of Ecology & Environmental Science,
Assam (Central) University,
Silchar-788011, Assam. |
| 2.2.2 Principal Investigator I
(Collaboration Institute) | Prof. Ramakrishna Sen
Professor,
Dept. of Biotechnology ,
Indian Institute of Technology,
Kharagpur-721302, West Bengal. |
| 2.2.3 Principal Investigator II
(Collaboration Institute) | Dr. R. Sarada
Senior Principal Scientist,
Dept. of Plant Cell Biotechnology,
CSIR-Central Food Technological Research
Institute, Mysore-570020. |
| 2.2.4 Co-Investigators I:
(Collaboration Institute II) | Dr. Vikas Singh Chauhan
Senior Principal Scientist
Dept. of Plant Cell Biotechnology,
CSIR-Central Food Technological Research
Institute, Mysore-570020. |



2.2.5 Co-Investigators II: Dr. Sandeep N. Mudliar
(Collaboration Institute II) Principal Scientist,
Dept. of Plant Cell Biotechnology,
CSIR-Central Food Technological Research
Institute, Mysore-570020

2.3 Objectives:

Assam (Central) University, Silchar

1. Isolation and characterization of lipid/fatty acid/carbohydrate rich microalgal species from different ecosystems of North-East India.
2. Performance evaluation of screened microalgal species for total cellular lipid, fatty acid and carbohydrate content for biofuels production (application) in shake flask cultures.
3. Design and development of an integrated approach for concurrent production of biodiesel, bioethanol.

Indian Institute Technology, Kharagpur West Bengal

1. Development of optimal cultivation strategies in closed and open photobioreactors for production of biomass, lipid and carbohydrate by a selected microalgal species using flue gas CO₂ generated in situ.
2. Comparative evaluation of microalgal growth and product kinetics in closed photobioreactors and open raceway pond systems.
3. Design and development of an integrated approach for concurrent production of biodiesel and bioethanol.
4. Techno-economic analysis of the proposed integrated biofuel production.

CSIR-Central Food Technological Research Institute, Mysore

1. Develop and standardize cultivation strategies to enhance lipid content of select NE strains of microalgae for biofuel production.
2. Characterisation of select NE strains of microalgae as potential source of lipid, PUFA following the available downstream processing methods and also the methods developed by the collaborating institute (IIT, Kharagpur).
3. Validation and adaptation of outdoor cultivation protocol developed by CFTRI at Assam (Central) University, Silchar (the NE PI's Institute) for large scale cultivation.

2.4 Time Schedule:

The duration of the project is **Three Years** from the date of issue of sanction order.

