

BT/IN/Indo-UK/SuBB/23/NT/2013  
 Ministry of Science & Technology  
 Department of Biotechnology  
 Government of India

Block 2, 8<sup>th</sup> Floor  
 CGO Complex, Lodhi Road  
 New Delhi 110 003  
 Dated: 30<sup>th</sup> August, 2013

**ORDER**

Sanction of the President is hereby accorded under Rule 18 of the Delegation of Financial Power Rules, 1978 for the implementation of the Joint Research Project titled "Using flow cytometry and genomics to Characterize and optimize micro algal bacterial consortia cultivated on waste water to produce biomass for biofuel" under DBT-BBSRC, UK Call for proposals on Sustainable Bioenergy and Biofuels (SuBB) with Indian investigator Dr. N. Thajuddin, Professor and Head, Department of Microbiology, Bharathidasan University, Tiruchirappalli-620 024, Tamil Nadu Indian component of the project is sanctioned at a total cost of **Rs. 143.828 lakhs (Rupees One Crore forty three lakhs eighty two thousand and eight hundred only)** for a period of 3 years on the terms and conditions as detailed here under:

**2.0 The Project :**

**2.1 Project Title :** "Using flow cytometry and genomics to Characterize and optimize micro algal bacterial consortia cultivated on waste water to produce biomass for biofuel".

**2.2 Investigators :**

**P. I. (Indian side) :** Dr. N. Thajuddin, Professor and Head, Department of Microbiology, Bharathidasan University, Tiruchirappalli-620 024, Tamil Nadu.

**CO-PI :**

- Dr. G. Muralitharan, Assistant Professor, Department of Microbiology, Bharathidasan University, Tiruchirappalli-620 024, Tamil Nadu.
- Dr. V. Sivasubramanian, Director-Tech, Phycospectrum Environmental Research Centre (PERC), 52A, A K Block, 7<sup>th</sup> Main Road, Anna Nagar, Chennai-600 040, Tamil Nadu.

**Project Coordinator :** Dr. Carole Llewellyn, Marine, Chemist/ Biotechnologist, Plymouth Marine Laboratory, UK.

**2.3 Project Objectives:**

- Undertake detailed culture experiments to determine growth and cellular composition and to characterize the bacteria associated with three strains of algae known to be prevalent in a range of wastewater scenarios. This will be achieved using simple strains and mixes of the three strains in synthetic wastewater.
- To study the effect of bacteria on influencing growth, community succession and biofuel precursor yield (lipids and carbohydrates) in the three strains of algae in synthetic wastewater.
- To study the effect of increasing the organic carbon load in the consortia on influencing autotrophic versus mixotrophic growth, community succession and biofuel precursor yield in synthetic wastewater.
- To undertake a detailed comparative study to determine functional traits within the algae and the bacteria influencing growth and biofuel precursor yield using synthetic wastewater.
- Undertake laboratory and field based studies using industrial wastewater to grow and characterize the algal-bacterial consortia.
- Compare community population and growth data to better understand synthetic and industrial wastewater systems to optimize biomass yield for bioenergy purposes.
- Assessment of flocculation and drying.
- Assess pulse frequency modulation.

*Swain*

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