

3rd International Conference on Ecology, Ecosystem and Conservation Biology

3rd International Conference on & Microbial Ecology & Eco Systems

March 18-19, 2019 | Chicago, USA

SCIENTIFIC TRACKS | DAY 1

JOURNAL OF ECOSYSTEM & ECOGRAPHY 2019, VOLUME 9 | DOI: 10.4172/2157-7625-C1-044

Exploiting oilfield site microbes for diverse applications: A North East Indian perspective

Tapas Medhi, Saurav Haloi and Dhruva Jyoti Sarma
Tezpur University, India

This paper reports the microorganisms isolated from crude oil contaminating sites of North East Indian petroleum fields about our contribution towards their laboratory and field scale applications for biosensing, bioremediation and enhanced oil recovery in technological perspectives. The work was carried out under a program supported by Oil and Natural Gas Commission Ltd (ONGCL) India. Out of 150 bacterial strains isolated so far bacterial strains capable of producing biosurfactant suitable for enhanced recovery of crude oil (EOR) have been developed. Two promising biosurfactant producing bacterial strains identified and screened as *Achromobacter* sp. TMB1 [NCBI accession no. KX661383]

Pseudomonas sp. TMB2 [NCBI accession no KX661384] after 16s rDNA sequencing was found to have physiochemical properties useful for operational and remedial activity in petroleum production Redox enzymes such as cytochrome P450 monooxygenase has been induced for their use as recognition element in biosensor design. Cytochrome P450 enzyme isolated from an extremophile *Bacillus Stratosphericus* sp. was used as the recognition element for an ion-sensitive field effect transistor (ISFET)-based biosensor microbial consortium has been developed for bioremediation of crude oil contaminated site which includes species of *Achromobacter* and *Bordetella*. The isolation and morphological characterization of the bacterial strains includes from crude oil contaminated soil and Formation water collected from the GGSs of Khoraghat and Merapani ONGCL, India, indicated the presence of multiple bacterial species which can utilize hydrocarbon as a nutritional source and could be

potential agents for effective remediation of crude oil contamination.

Biography

Tapas Medhi is currently working as Assistant Professor, Tezpur University. He has received his Doctoral degree on 25 August, 2004 from the Indian Institute of Technology, Kharagpur, India. He has completed his Masters of Science in Agriculture from the Assam Agricultural University, India. He then worked at the Institute of Biochemistry, Leipzig University, Germany as Postdoctoral Fellow in a DFG funded project for two years and as Assistant Professor at Tezpur University in India since 2006. He has authored several publications in various journals. His publications reflect his research interests in Cytochrome P450 Biochemistry, biopesticides and bioremediation of crude oil contaminated soil. He is currently in charge of two ongoing scholarly projects on Phytoremediation and Microbial enhanced oil recovery.

tmedhi@tezu.ernet.in