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Analysis of microbial communities from oil contaminated sites by NGS sequencing

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In the last few decades there has been a giant leap in the DNA sequencing technique from capillary method to high-throughput sequencing. The main advantage of high-throughput sequencing over capillary method is that the former uses shot-gun approach, therefore eliminating the tedious task of constructing clone libraries and also it uses parallel sequencing approach. In this study we used high-throughput sequencing for bacterial communities residing in oil contaminated region of Assam, India. Illumina MiSeq platform was used for generating 16S rDNA hyper variable V3 region reads. These sequences were further processed using QIIME software and other bio-informatics tool. Lastly we concluded our study by comparing species richness within and in-between samples using statistical method.

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Isolation and identification of endophytic fungi from *Melia azedarach* L from eastern Ghats, Tamil Nadu

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Endophytic fungi are ubiquitous organisms found in the plants, residing intercellular or intracellular, at least for a portion of their lives without causing apparent harm to the host. These endophytes protect the host plant against attack by insect, pests and various types of diseases by producing secondary metabolites which could be a potential compound of biotechnological interest. In recent years, the studies on these endophytes are increasingly reported and search for novel compounds which are important for pharmaceutical, agricultural industrial and medical fields. The present study was undertaken to isolate and identify the endophytic fungi from the medicinal plant *Melia azedarach* L. A total of 18 segments each from leaf, flower, fruit and stem were collected, surface sterilized and was inoculated on to Sabouraud Dextrose Agar (SDA) plates. Based on the macroscopic & microscopic features the fungal isolates were identified as *Exophiala* spp., *Fusarium solani*, *Cheatomium* spp., *Curvularia lunata*, *Alternaria* spp., *Aspergillus niger*, *Aspergillus flavus*, *Aspergillus fumigatus* and *Aspergillus nidulans*. Many unidentified sterile mycelia forms were also found which were grouped under the class mycelia sterilia. The Colonization Frequency (CF) of the leaf, flower, fruit and stem was 89%, 83.3%, 50% and 50% respectively. The leaf segments showed maximum repository of endophytes when compared to the flower, fruit and stem. The results of this study suggest that traditional medicinal plants are rich and reliable source of novel endophytic fungi. Further studies are required with regard to the screening of these endophytic fungi for the production of novel bioactive compounds which are medically important in the treatment of diseases.

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