

Isolation and Identification of Oil Degrading Bacteria

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Bioremediation has received a great deal of attention, and bacteria isolated from polluted soil can be used in bioremediation process. The Jaffna peninsula depends to a great extent on groundwater resources for domestic as well as agricultural purposes. On several instances it was pointed out that, the groundwater is deteriorating due to over misuse and it is polluted by the excessive usage of agrochemical, fertilizers, and improper disposal of waste oil and sewage. Hence an experimental study was undertaken to isolate the oil degrading bacteria from natural environment to facilitate the biodegradation to degrade the waste oil contamination site. Soil samples were collected from oil contaminated site as near to automobile service station, Kondavil, Jaffna. Inoculum was prepared and incubated in the culture media, which grow on a medium with oil as the sole carbon source. Colonies were separated based on their morphological characters with the help of microscope. Isolated bacterial strains were identified through gram staining, motility, aerobic and anaerobic growth. For further classification and identification, biochemical tests were done. From the contaminated soil, 10 morphologically different bacterial strains were isolated and strains were identified as *Pseudomonas alcaligenes*, *Micrococcus spp*, *Bacillus subtilis*, *Pseudomonas stutzeri*, *Streptococci pyogenes*, *Bacillus megaterium*, *Pseudomonas mendocina*, *Bacillus firmus*, *Bacillus cereus* and *Acinetobactor spp*. The results revealed that crude oil degrading bacteria from soil environments have a high level of diversity and variable biodegradation abilities. Oil degrading bacteria can be isolated from oil-polluted sites. These bacteria are indigenous in the polluted sites and they are responsible for the degradation of oil. These isolated bacteria could be used for bioremediation effectively in the oil-contaminated sites. Further studies are required to identify the cocktail of selected bacterial strains to efficiently carryout bioremediation of the contaminated soil and effluents from the automobile service stations.

Keywords: Oil degrading bacteria, Isolation of bacteria, Identification of bacteria, Bioremediation