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Biological degradation of naphthalene: A new era

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Abstract

Naphthalene is a simplest Polycyclic Aromatic Hydrocarbon (PAH). PAHs are major contaminants of environment, associated with common anthropogenic activities such as oil refineries and incomplete combustion of fossil fuels. PAHs are toxic, mutagenic and carcinogenic. Isolation of naphthalene degrading bacteria is recommended by a complex ONR 7a medium. Present work includes a modified medium with Naphthalene as a sole source of carbon. Four isolates were isolated from marine sample collected from Mumbai as well as petroleum soil sample from Trimbak road Satpur, Nashik. Further characterization using morphological and biochemical tests showed resemblance with Gram positive bacteria as well as Gram negative bacteria and they may belong to genus such as *Micrococcus spp* , *Bacillus spp, Staphylococcus spp*, *Pseudomonas spp.* These strains were further grown in modified broth for 45 days as well as on ONR 7a agar medium. In turbidometric assay *Bacillus spp* showed significant growth at 1 mg/ml of naphthalene concentration. Catechol which is generated through biodegradation of naphthalene was detected by Winkelmann modified Arnow's method. All the four isolates efficiently degraded naphthalene which was confirmed by Arnow's test. These naphthalene degraders could be further checked and explored for their efficiency in bioremediation of polluted marine environment and in oil contaminated fields.

Biography

Dr. Sharad R. Khandelwal gain his PhD from North Maharashtra university India in the year2001.He has been in academia for over 30 years with main interest in applied Microbiology, Biochemistry,secondary metabolites and Agro- biotechnology. He undertook several consultancy to Indian farmers regarding soyabean yield improvement. He is a life member of Association of Microbiologist of India and has published several scientific and technical papers. Other research activities includes guidance to M phil and Ph.D.students of Pune university and guided seven different research projects .He is awardee of Best Teacher Award. Currently he has been participating in several UGC projects regarding bioactive compounds in agricultural field for their health benefits as plant growth promotion, yield improvement, and bioremidation