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## Autochthonous microflora: A roadmap to bioremediation of industrial effluents

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**Statement of the Problem:** The problem of environmental pollution has become a global threat. On one hand, industrialization is the key behind socio-economic development but lack of sustainable practices may lead to adverse effect on the natural resources. The problem of environmental pollution is on rise by virtue of different xenobiotic substances being released into water, soil and air. The problems associated with water pollution needs to be answered indiscriminately. The rivers and streams have emerged as disposal sites for industrial effluents. India has recently witnessed a sharp increase in industries with diversified platforms. Stringently, focusing on addressing key issues of water pollution caused by industrial effluents, an eco-friendly approach utilizing the role of autochthonous microflora was envisaged. Through culture independent approach, promising bacterial isolates were screened from industrial effluents for biodegradation of Persistent Organic Pollutants (POPs). The study devised at pilot scale was scaled up to field level by *in situ* biodegradation. The mechanism of biodegradation was explored and concomitantly, toxicity profile of screened bacterial isolates justified the promising role of bacterial isolates.

**Methodology & Theoretical Orientation:** Different sites which have become dumping grounds were selected for the study. The requisite samples were collected according to standard procedures as prescribed by APHA (2000). Microbiological investigations, biochemical and enzymatic profile, biodegradation studies, field trials, microcosm analysis were conducted based on precise objectives.

**Findings:** Screened bacterial isolates exhibited a tremendous potential to degrade and detoxify xenobiotic compounds influxed in industrial effluents. The pilot study replicated at field culminating into Lab to Land approach was substantial enough to come up with a technology transfer strategy.

**Conclusion:** Future implications in the devised study may be of phenomenal importance in coming up with a cost effective and viable technology to mitigate environmental issues raised by industrial effluents at large. Ubiquitous nature of micro-organisms makes them micro-factories to obliterate environmental pollutants

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zoologydeptt@poddarinstitute.org**Notes:**