Alleviation of the toxicity of oily wastewater to canola plants by the N2-fixing, aromatic hydrocarbon biodegrading bacterium *Stenotrophomonas maltophilia-SR1*

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**Abstract:**

Soils may be contaminated by oily wastewater during both upstream and downstream oil and gas production processes such as extraction, transportation, and refining. Oil-contaminated sites could nonetheless be used for agricultural purposes in arid regions provided they are managed appropriately. The present study introduces the successful application of a novel nitrogen-fixing, aromatic hydrocarbon-degrading bacterial isolate for the bioremediation of agricultural soils contaminated by oily wastewater. The isolate was recovered from uncontaminated soil and identified by 16S rRNA gene sequencing as *Stenotrophomonas maltophilia-SR1* (MH634684). It successfully utilized various aromatic hydrocarbons such as benzene, toluene, and xylene as its sole carbon source and presented with plant growth promoting (PGP) properties such as indoleacetic acid and ammonia production and phosphate solubilization.

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