Note

Isolation and characterization of phenanthrene-degrading bacteria from urban soil

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Abstract

Phenanthrene (PHE) is one of the most abundant Polycyclic Aromatic Hydrocarbons (PAHs) found in urban soil. So far, majority of microbe-mediated degradation approaches have relied on microbes isolated from polluted or mined soils. These microbes, if introduced into non-native soil, may not able to establish themselves, or alter the native microbiome of soil, making their commercial use a challenge. Therefore, this study was conducted to screen and isolate bacteria, from urban soil that degrade PHE. Degradation of 50 mg/L PHE by day 4 was highest in *Providencia rettgeri* VMP5 (98.63%) followed by *Bacillus tropicus* VMP4 (89.9%), *Bacillus* sp. VMP2 (82.63%), *P. stuartii* VMP3 (39.72%) and least *Dellaglioa algida* VMP1 (3.32%). Besides, VMP5, showed the presence of several fatty acid ethyl esters that act as biosurfactants and anti-microbial agent, which may play a crucial role in increasing its