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EFFECT OF HUMIC COMPOUNDS ON BACTERIAL GROWTH IN BIOREMEDIATION OF PAHS

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Abstract:

Polycyclic Aromatic Hydrocarbons (PAHs) which are introduced into environment are potentially carcinogenic, mutagenic and toxic contaminants. The effect of extractable humic substances (EHS) on bacterial density in bioremediation of anthracene in liquid systems was investigated. The ratio of EHS to anthracene were in two concentrations of 0.35 and 1.05 g dry EHS (with 30% organic matter) per one mg anthracene. In the tests with EHS, an increase in bacterial density even by 8 fold of magnitude was seen in 12-15 days. Then a fast decrease was occurred and prolonged till the end of the test time for the tests that had EHS without anthracene. In the tests which anthracene was the only substrate increasing in bacterial population was not seen. The results showed that up to 21 days the system was free from degradation. So the first increasing in bacterial population showed that EHS might be used as a readily substrate for PAH degraders. The presence of EHS (fulvic and humic acid) can stimulate bacterial community and activity that caused enhancement in anthracene bioremediation.

Keywords:

Anthracene , humic substance , microbial population

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