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Authors:

Valsala H

Prakash P

Elavarasi V

Pugazhendhi A

Thamaraiselvi K

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Abstract

Pyrene is a relatively persistent 4-ring polycyclic aromatic hydrocarbon (PAH) pollutant, and is often used as a model substrate in studies pertaining to high molecular weight PAH degradation. For degradation of pyrene, *Staphylococcus nepalensis* was isolated from diesel contaminated soil sample and it was tolerant to 50mgL⁻¹ of pyrene. In 16S rRNA gene sequence *Staphylococcus* sp. showed 96% sequence similarity with *Staphylococcus nepalensis*. For efficient degradation of pyrene, various parameters such as pH, temperature and contact time were optimized. In order to enhance the degradation rates of pyrene, carbon sources such as glucose and sucrose at different concentration were also evaluated. *Staphylococcus nepalensis* showed maximum degradation of pyrene at pH 8 and temperature at 30°C within 5 days of incubation. The excellent bacterial growth and efficient pyrene removal was more when enriched with carbon co-substrates (glucose 4%, sucrose 2%).

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Pyrene Staphylococcus Nepalensis Biodegradation Co-substrate.