Biodegradation of hydrocarbon sludge by Pseudomonas sp.Strain UPM-KV

ABSTRACT

Ahydrocarbon-utilizing microorganism isolated locallywas characterized and investigated. This study involved standard biochemical tests and investigation of the bacterial growth based on the uptake of carbon and nitrogen source, temperature and optimum pH growth. The bacterium was found to be a Gram-negative rod, non-motile property with unique property to degrade hydrocarbon sludge. By using diesel as sole carbon source the bacterium was found to be an aerobe as further proven by the oxidase testing. The optimum conditions for the growth was found to be at 30 °C and pH 6.8 with optimum diesel concentration, 1% (v/v). The bacterium ideally used ammonium sulfate as source of nitrogen and was identified as Pseudomonas sp.strain UPM-KV. The ability of this bacterium to efficiently grow on hydrocarbon sludge makes the bacterium an important tool for bioremediation of this toxic sludge that contains high concentration of heavy metals.

Keyword: Hydrocarbon-utilizing; Pseudomonas sp.; Hydrocarbon sludge; Heavy metals