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强化嗜油微生物对盐碱土中石油类污染物的降解

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Degradation of Petroleum Pollutants in Saline-Alkali Soils Using Aboriginal Microbe

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摘要

利用从油田试验场油污土壤样品中分离出来的嗜油微生物，选择典型的石油与盐碱土制成的含油污泥作为研究对象.通过实验模拟，研究不同条件下微生物对油类污染物的降解作用特征.实验结果证明：在含水率50%及施加了氮磷比为10∶1营养物的样品中，微生物对油污的降解效果最好；通过施加适量的H_2O_2，可增强微生物的活性，进而提高微生物的降解油污能力；提供适宜条件，可以有效地加强嗜油微生物的降解能力及其对链烷烃的选择性降解.

关键词： 嗜油微生物；石油污染物；盐碱土；降解

Abstract:

The typical petroleum and oil-contaminated saline-alkali soil were chosen as samples. Aboriginal microorganisms were isolated from petroleum-contaminated soils at the oilfield test site. Microbial degradation characteristics of petroleum pollutants were studied in simulations under different conditions. Experimental results show that degradation rates of micro-organisms were high in samples under the conditions of 50% water rate and 10∶1 N/P ratio. In addition, the microbial activity and degradation ability can be enhanced by using moderate H_2O_2 to improve the oxygen content in the samples. If suitable conditions can be provided, degradation and selective consumption of microbes for paraffins can be effectively increased, and used for molecular markers of petroleum pollution.

Keywords: aboriginal-microbe; petroleum pollutant; saline-alkali soil; degradation

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