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Bioemulsifier mediated high concentrations of sludge treatment technology and application**Gao Xiaolong, Wang Xingbiao and Huang Zhiyong**
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The bioemulsifier was secreted by strain *Geobacillus pallidus* XS2-450 which was obtained based on atmospheric and room temperature plasma (ARTP) mutation of XS2, isolated from oil-contaminated soil in the Yumen oilfield, China. The bioemulsifier was extracted, purified and characterized, and its emulsifying properties were evaluated. The purified bioemulsifier showed high emulsifying activity ($E_{24\%}=83\%$) on xylene. The chemical characterization of the bioemulsifier was performed using HPLC/MS/MS and GC/MS. It was found to contain 76.2% of carbohydrates, consisting mainly of galactose mannose rhamnose and glucose, 7.3% proteins with a 60 KDa active component and 16.5% of lipids. The results suggest that the bioemulsifier was a glycolipids-protein complex. Furthermore, the composite microbial communities major including bioemulsifier, biosurfactants and other active metabolites coupled with nutrients and trace elements were used to deal with sludge samples, the oil content of the oily sludge samples decreased from 6.1% to 0.8%. These data illustrated that the bioemulsifier performed a high potential in applications and had important economic values.

Biography

Gao Xiaolong is a Master's student whose research focuses on the purification and structure analysis of bioemulsifier, and environmental remediation of petroleum hydrocarbon pollution, especially towards the heavy crude oil polluted soil and water.

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