

Abstract

An oil-degrading bacterium identified as *Acinetobacter lwoffii*. S2 was isolated by enrichment on the North Sea Forties oil from a water sample collected from the Medway estuary, Kent, England. This organism metabolises a wide range of long-chain n-alkanes (C₈–C₂₈) through the corresponding n-alkan-1-ols and n-alkanoic acids. A mixed microbial population was shown to effect a more extensive degradation of crude oil than single species. Simultaneous growth of five estuarine bacterial isolates on crude oil resulted in the synthesis of novel alkanes of higher molecular weights than those originally found in the crude oil sample. Results of further investigation however, showed that the novel alkane synthesis could be attributed to the synergistic relationship in the estuarine microbial community.