ABSTRACT

Isolation and characterization of paraffin-utilizing fungi

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Paraffin deposition is a major production problem in the petroleum industry and all methods now used to overcome the problem have tremendous disadvantages either in terms of cost or as hazards to the health and safety of workers. The discovery of microorganisms that could degrade these deposits may provide an effective, less costly and less hazardous means of alleviating the problems caused by the deposits.

Using standard enrichment techniques, five fungi were isolated from paraffin deposits and characterized as potential organisms for use in enhanced oil recovery programmes. Three of these isolates belong to the genus *Aspergillus* and one each to *Penicillium* and *Curvularia*.

Laboratory studies were conducted to understand their environmental and nutritional requirements. Fungal isolates were tested for their ability to grow on complex carbohydrates, hydrocarbons and petroleum distillates.

All isolates needed nitrogen for growth and were found to grow over a wide range of pH. These fungi belong to the group of mesophiles. Different isolates were able to efficiently utilize or oxidize petroleum distillates with different boiling points. This indicated that combination inoculation strategy would be more effective due to the complementary nature of the isolates and possible synergistic effects that can emerge by co-inoculation.