



BIOAUGMENTATION OF CRUDE OIL CONTAMINATION

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ABSTRACT

Alternaria tenuis, *Aspergillus ramosus* and *Ulocladium atrum* were isolated from contaminated soil from Riyadh Refinery, Riyadh, Saudi Arabia, using dilution plate method and identified according to microculture technique. The bioaugmentation potential of the isolated fungi was evaluated using flasks containing mineral liquid media different concentrations of crude oil. *A. ramosus* able to grow and degrade crude oil more than the other tested fungi. The potential fungi to be bioaugmentation for removing crude oil contamination, so this can be a satisfactory tool to evaluate the potential of the tested fungi to remediate crude oil contamination in Saudi Arabia.

Keywords: Bioaugmentation, Bioremediation, Crude oil, Contamination, Saudi Arabia

INTRODUCTION

Bioaugmentation defined as the inoculation of contaminated site with special isolated microorganisms to clean up hazardous contaminants such as crude oil, while bioremediation is introducing selected microbial populations which known to be efficient degraders into a contaminated sites. Several conditions must be satisfied bioaugmentation, such as microorganisms must have a necessary enzyme for bioaugmentation, microorganisms must be present in the contaminated sites, the

pollutants must be accessible to the microorganisms with the requisite enzymes, and the conditions in the environments must be conducive to allow for proliferation of the potentially active microorganisms. Bioaugmentation for oil spills is a much more promising technique in Saudi Arabia. However, the effectiveness of bioaugmentation is viable, because the survival and the xenobiotic degrading ability of introduced microorganisms are highly dependent in environmental conditions.