

Antimicrobial Activity of an *Alcaligenes faecalis* Strain Isolated from Oil Contaminated Soil

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Abstract

Background and Objective: The bacteria living in the specific ecological conditions are among the most promising antimicrobial producers. This study aimed at isolating antimicrobial producing bacteria from soils contaminated with crude oil.

Material and Methods: the samples were obtained from crude oil contaminated soils around Dezful located in Khuzestan province, Iran, and antimicrobial producing bacteria were isolated using disc diffusion and cross streak culture. Then, the best bacterium was selected and its antimicrobial potency was studied against indicator microorganisms. The isolate was also characterized based on biochemical properties and phylogenetic analysis.

Results: based on the results, the highest antimicrobial activity of isolated bacterium was related to *Candida albicans*, *Aspergillus niger*, *Bacillus subtilis*, *E. coli* and *Klebsiella pneumonia*. An intermediate effect was determined against *Serratia marcesens* and *Staphylococcus aureus*, whereas no effect was observed against three strains of *Enterococcus*. Using biochemical characteristics and phenotypic traits, the isolate was identified as *Alcaligenes faecalis*.

Conclusion: given that the isolate has broad spectrum activity against a various range of microorganisms and in comparison with some antimicrobial compounds produced by other *Alcaligenes* species, it seems the novelty of this antimicrobial compound.

Keywords: Antimicrobial Compound, Oil Contaminated Soil, *Alcaligenes faecalis*