

Antimicrobial Potential of Biosurfactant Isolated From Oil-degrading Bacteria Against Multi-drug-resistant Pathogens

Anita Shafieesabet

Supervisor: Somaye Imanparast

Farzanegan 1 High School, Tehran/Iran

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1-Introduction

Hospital acquired infections are still a serious and common issue around the world leading to many undesirable consequences and even death of considerable percent of patients. Among the possible solutions, using biosurfactants seem to result in promising outcomes. The biosurfactants (BS) are materials that decrease the surface tension (SFT) and interfacial tension (IFT) making the bacteria to be disconnected from the surface. Besides, they possess other desirable properties such as biodegradability, low toxicity and high activity at extreme conditions. In this project, the effect of a biosurfactant on the bacteria that causes sort of hospital acquired infections is investigated.

2- Experiments and Results

The biosurfactant used in present work is derived out of existing bacteria in oil-contaminated soils in different refinery sites in Iran. Five soil samples were collected from different areas. The isolates were separated by serial dilution method. The bacterial isolates were purified by repeated subculturing. Bacteria produced biosurfactants when they were in some special conditions like yeast extract and olive oil. Screening was performed by using oil spreading test in order to find promising producers. Eventually, the antimicrobial activities of biosurfactants against *Staphylococcus aureus* and *Pseudomonas aeruginosa* were determined. The results were promising. Therefore, isolated strain of oil-contaminated soil may be a valuable candidate of favorable biosurfactant-producing bacteria for the inhabitation of infectious bacteria.