ISOLATION AND SCREENING OF BIOSURFACTANT PRODUCING BACTERIA FROM DIFFERENT FUEL CONTAMINATED SITES

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Abstract
Biosurfactants, which are surface-dynamic specialists that can lessen both surface and interfacial pressure, have been seen as helpful for a long time. In the food business, they are utilized for adjustment, surface and taste improvement, and timeframe of realistic usability lengthening. The soaps, personal care and consumer product sector utilize nearly 60% of all surfactants. This envisaged in the present study to collect 70 different soil samples from Hub Road, Karachi port, Saeed Abad, Site area, Korangi industrial area, Gadani, Ettehad town, Baldi town. Soil samples were inoculated to mineral salt medium containing 0.1% crude oil and incubated on ambient temperature for 48 hours. After incubation samples were serially diluted by 10 folds dilution up to four consecutive dilutions and last two dilution was plated on nutrient agar. Screening of isolates were carried out on the basis of drop collapse assay, hemolysis, and oil spreading methods. Out of 80 only 14 found positive for drop collapse assay and oil spreading methods and among these only 5 were hemolytic. Identification of isolated strains were carried out on morphological and biochemical basis. Consortium of positive strains were develop using streak plate methods for increased biosurfactant production and its application in seed germination in plant growth promotion and oil emulsification were studied. Results have shown that isolated bacteria have the potential to produce biosurfactants of great importance hence it can be concluded that after further detailed investigation can be used for industrial scale.
Keywords: Biosurfactant, Marine, Petroleum, Soil.

INTRODUCTION
Surfactants are compounds that reduce the surface tension between two liquids, between gas and liquid, or between liquid and solid. Surfactants can act as detergents, wetting agents, emulsifiers, leavening agents, and dispersants. This session is a basic introduction to the types of surfactants found in the industry, their properties, and how these properties can improve performance in a particular application (1).

Biosurfactants are amphiphilic biological compounds produced extracellularly or as part of the cell membranes by a variety of yeast, bacteria and filamentous fungi from various substances including sugars, oils and wastes. They are generally lipid compounds whose features are related to two ends present in the molecule, one end is hydrocarbon part which is less soluble in water (hydrophobic end) (2).

The hydrophobic part of the molecules is a long chain of fatty-acids, hydroxyl fatty acid or α-acyl hydroxyl-fatty acids. The other end is hydrophilic, more soluble in water and consists of carbohydrate, amino acid, cyclic peptide, phosphate and carboxylic acid or alcohol (3). Interest in microbial surfactants has been consistently expanding lately, as they enjoy various benefits contrasted with substance surfactants as well as less poisonousness, higher compostable, elevated frothing, well natural similarity and viable resources upon outrageous temperature, pH levels, saltiness. Broadened implementation in petroleum & oil businesses, drug store, clinical, beauty care products, food and drug. Accordingly, among all lubricant factories are best market of product (4).