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# Some notes about medical applications for microbial biosurfactants

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Bio-surfactants are amphiphilic biological compounds created extracellular or cell membrane part bacteria, yeast and filamentous fungi. Bio-surfactants are made up of a hydrophilic moiety, may be acid, peptide, cation, anion, mono, di or polysaccharides and a hydrophobic moiety, which may be unsaturated or saturated hydrocarbon chains or fatty acids. Many advantages for bio-surfactants include biodegradability, low toxicity, biocompatibility and digestivity, availability of raw materials and specificity. The bio-surfuctant production was detected by many methods includes, hemolytic activity, oil displacement test emulsification index, surface tension reduction, blue agar plate or CTAB agar plate method, hydrocarbon overlay agar method. There are many medial applications for bio-surfactant which includes antimicrobial activity. Bio-surfactants having ability to be toxic on cell membrane permeability in similar method to detergent effect, anti-cancer activity, the neuronal differentiation in PC 12 cells induced by MEL and get ready the ground work for the use of microbial extracellular glycolipids as novel reagents for cancer cell treatment, antiviral activity, the sophorolipids surfactants produce by *C. bombicola* having structural analogues such as the sophorolipid diacetate ethyl ester which is powerful spermicidal and virucidal agent and its virucidal activity similar to nonoxynol-9 against the human semen. Anti-adhesive agents, bio-surfactants having ability for adhesion inhibiting for pathogenic organisms to solid surfaces or infection site, anti-fungal activity, flocculosin is a glycolipid produced by yeast like fungus *P. flocculosa* having antifungal activity against pathogenic yeasts and human mycoses. Immunological adjuvants, bacterial lipo-peptides when mix with classic antigens having active nontoxic, non-pyrogenic immunological adjuvants. Gene delivery, the liposomes based on bio-surfactants having increasing efficiency for gene transfection than cationic liposomes trading use.

## Biography

Samer M Al-Hulu is a Microbiology Specialist. He has completed his PhD from Babylon University/College of Science. He has published more than 14 papers in Microbiology field. He has training at Ministry of Health at Laboratory of Babylon Maternity and Children Hospital. He is currently working at Al-Qasim Green University/College of Environmental Sciences.

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