Immunome Res 2018,Volume:14
DOI: 10.4172/1745-7580-C3-021

Biosurfactants: potential applications in drug delivery systems

Mohammad Ghayyomi Jazeh[1], Atena Alirezaei Dizicheh[2], Ayat Nasrollahi Omran[1], Seyed Mansour Meybodi[1] and **Mansour Bayat[2]**
[1]Islamic Azad University, Tonekabon, Iran
[2]Islamic Azad University, Tehran, Iran

Biosurfactants are amphiphilic compounds produced by microorganisms, which either adhere to cell surfaces or are excreted extracellular in the growth medium. The potential commercial application of biosurfactants in the medical field has increased during the past decade. The antibacterial, antifungal and antiviral activities make them relevant molecules for applications in combating many diseases and as therapeutic agents due to their surface activity, these molecules interact with cell membranes of several organisms and/or with the surrounding environments, and thus can be viewed as potential cancer therapeutics or as constituents of drug delivery systems. Some types of microbial surfactants, such as lipopeptides and Surfactin, have been shown to selectively inhibit the proliferation of cancer cells. The aim of this study was to isolate biosurfactant producing bacteria and optimize the conditions like temperature, pH. In this study, 81 bacteria species were isolated. During primary and complementary screening tests, 29 species showed hemolytic activity, 23 had drop collapsing ability and 18 species showed positive results in emulsification, foaming and surface tension reduction. Finally, two Bacillus sp. were found to be able to reduce surface tension >40 mNm-1. Two strains with a high amount of biosurfactant production and emulsification ability were resulted from the present study. According to the high potential of biosurfactant especially for drug delivery system, we can hope that further study of the isolates characteristics and looking for new local strains can play an important role in their application in medicine.