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### Biosurfactants: Challenges, successes and future opportunities

The search for eco-friendly compounds supported by the drive for sustainable industrial practices has pushed biosurfactants research and investigations to a prominent position on the agenda of many industrial establishments. This is because they offer the opportunity to replace many undesirable chemical surfactants mostly produced from non-renewable resources with alternatives produced from cheap renewable bio-based feed stocks. Biosurfactants also mostly offers robust performances for many industrial applications while being less damaging to the environment. The most promising biosurfactants at the present time are the glycolipids including sophorolipids produced by members of the *Candida* yeasts, rhamnolipids produced by *Pseudomonas* bacteria and mannosylerythritol lipids (MELs) produced by *Pseudozyma* yeasts. Some successful application have been reported mainly related to environmental, petroleum and oil industries uses, however increased attention has recently focused on pharmaceutical, cosmetic and medical related potentials and uses. Despite the current enthusiasm for these compounds several residual problems remain. The ability to accurately detect and quantify the various congeners of biosurfactants typically produced by the wild strains and to efficiently separate and purify them is paramount. In addition successful tailoring of the biosurfactant produced to the specific needs of the product formulation through molecular biology techniques will be an important future phase in this research. In this presentation we aim to highlight the latest trends and indicative prospects for future commercial exploitations and the latest interest and direction for potential applications for microbial biosurfactants.

#### Biography

Ibrahim M Banat is a Professor of Microbial Biotechnology at the University of Ulster, UK, having more than 30 years' experience in academic and research institutions in Europe and abroad and has several active collaborative projects within the EU and other international academic and industrial establishments. His research interests include biosurfactant and bio-actives production and potential utilization in environmental oil pollution control and hydrocarbon polluted land bioremediation and microbial enhanced oil recovery. He is concentrating on investigating biomedical, pharmaceutical, health and cosmetics related applications of biosurfactants. He also has interest and worked on molecular and cell biology of thermophilic geobacilli bacteria and bioethanol fermentation and the molecular biology of biosurfactant producers.

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