

ID 208

MICROBIAL BIOSURFACTANTS: CLOSING THE GAP IN THE INNOVATION CHAIN.

Sophie Roelants^{1,2}, L. Van Renterghem¹, R. Gheys¹, H. Moens², B. Everaert², I. VanBogaert¹, B. Vanlerberghe² and W. Soetaert^{1,2}.

University of Ghent, InBio.be, Ghent, Belgium¹; Bio Base Europe Pilot Plant, Ghent, Belgium²

Sophie.Roelants@ugent.be or Sophie.Roelants@bbeu.org

Biosurfactants are produced by a variety of microorganisms. Their biodegradability, application potential and the fact that they can be produced from renewable resources gives them an advantage over their chemical counterparts. The major two factors limiting further commercialization of biosurfactants are firstly the limited structural variety and secondly the high production price due to low inherent productivities and/or a lack of process knowledge.

A solution can be offered by an integrated process design (IPD) approach, where the entire innovation chain is taken into account. Genetic engineering on one side of the spectrum generates engineered strains, which efficiently produce new-to-nature biosurfactants. Key to the IPD approach is the subsequent and thorough investigation of the production processes (fermentation and purification) with feedback coupling to the strain level. The scale up provides the opportunity to assess the scalability of the processes, while at the same time producing enough product to enable specialized application testing. This IPD approach is expected to result in real market penetration of microbially derived surfactants in the near future and will be illustrated with one of the showcases for biosurfactant production; the yeast *Stammerella bombicola*.