

## Surface Active Phthalic Acid Ester Produced by a Rhizobacterial Strain

**Authors :** M. L. Ibrahim, A. Abdulhamid

**Abstract :** A surface active molecule synthesized by a rhizobacterial strain *Bacillus lentus* isolated from *Cajanus cajan* was investigated. The bioemulsifier was extracted, purified and partially characterized using standard methods. Surface properties of the bioemulsifier were determined by studying the emulsification index, solubility test and stability studies. Partial purification of the bioemulsifier was carried out using FT-IR analysis, Silica-gel column chromatography and thin layer chromatography. GC-MS analysis was carried out to detect the composition and mass of the lipids and esters. The isolate showed an emulsifying activity of 57% and surface activity of 36mm. The stability studies revealed that the bioemulsifier had better stability at temperature of 70°C, 8% pH and 8% NaCl concentration. FT-IR indicated the bioemulsifier to contain peptide and aliphatic chain, TLC revealed the compound to be ninhydrin positive and Column chromatography showed the presence of three amino acids namely; glutamine, valine and cysteine. GC-MS indicated the lipid moiety to contain aliphatic chain ranging from C9-C16 and two major peaks of 1,2-benzenedicarboxylic acid diethyl octyl ester. Therefore, surface active agent from *Bacillus lentus* can be used effectively in a wide range of applications such as in MEOR and in the biosynthesis of plasticizers for industrial uses.

**Keywords :** *Bacillus lentus*, bioemulsifiers, phthalic acid ester, Rhizosphere

**Conference Title :** ICBN 2015 : International Conference on Biotechnology and Nanotechnology

**Conference Location :** Paris, France

**Conference Dates :** February 23-24, 2015