BIOSURFACTANT PRODUCTION IN DEPROTEINISED JUICE (DPJ) OF EUCALYPTUS BY *RHIZOPUS NIGRICANS*

**Uma Aulwar¹, Babu Patlolla² and R.S. Awasthi¹**

¹Mahyco Research Foundation Trust’s, Badrinarayan Barwale College, Jalna (Maharashtra) India
²Alcorn State University, Alcorn, MS, USA

**Abstract:** Surfactants and emulsifiers are widely used for industrial, agricultural, food, cosmetic and pharmaceutical applications. Most of the compounds are chemically synthesized. However, it is only in the past few decades that surface-active molecules of microbial origin, referred to as biosurfactants, have gained considerable interest. However, biosurfactants have been paid increasing attention to replace the synthetic surfactants owing to their advantages such as biodegradability and low toxicity. Nowadays, the use of biosurfactant has been limited due to the high production cost. Nevertheless, biosurfactants can be produced with high yield by some microorganisms. These microorganisms can use the various renewal resources, especially agro-industrial wastes, as the potential carbon sources. It was from this point of view DPJ (deproteinised juice) obtained from plant leaves were used. DPJ of Eucalyptus, Castor, Soyabean and Cauliflower were used. Fungi isolated from soil i.e. *Aspergillus niger*, *Aspergillus flavus* and *Rhizopus nigricans* were used for biosurfactant production. Amongst these *Rhizopus nigricans* was found suitable for maximum biosurfactant production *Rhizopus nigricans* shown 347mg/100ml growth and emulsion index determined was 25.02. Modified GN medium was used as control in which growth measured was 330mg/100ml and emulsion index was 21.33. DPJ was found supportive for growth and biosurfactant production by *Rhizopus nigricans*. Preliminary chemical analysis of biosurfactant was carried out. It was a heteropolymer consisting of protein, carbohydrate and lipid. Biosurfactant produced have necessarily reduced surface tension from 0.752 dyne/cm to 0.690 dyne/cm, determined by capillary rise method. The success of biosurfactant production not only depends on right choice of producer microorganism but also on selection of low cost waste material as substrate.

**Keywords:** DPJ, biosurfactant, emulsification and Surfactant property.