



Production of Biosurfactant By *Arthrobacter* sp. P2(1) in The Carbohydrate-Containing Medium

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Abstract : Surfactants are surface active molecules which have ability to reduce the surface and interfacial tension between the two liquid phases. Biosurfactants, which is produced by living cells. Have more effective, selective, stable, and environmental- friendly than chemical synthesized surfactants. However, the producing cost of biosurfactants are tends to more expensive. Furthermore, inexpensive substrate selection and indigenous biological high-productivity producer strains is one way to reduce the production cost. The purpose of this study was to determine the ability of one of indigeneous petroleum-contaminated soil bacteria, *Arthrobacter* sp.P2(1), in producing biosurfactant in three types of carbohydrate substrates, such as High Fructose Syrup (HFS), sucrose, and molasses. Therefore, *Arthrobacter* sp. P2(1) was grown in mineral synthetic medium containing 2% carbohydrate. Cultures were incubated for 4 days and their surfactant producing ability was observed. The surface tension decrease of culture supernatant was measured using a Du Nouy tensiometer. Hydrocarbon emulsifying activity of supernatant was assayed using diesel oil and kerosene. *Arthrobacter* sp. P2(1) can grow well and produce bisurfactant in the three carbohydrate substrates and growth optimally in molasses-containing medium. *Arthrobacter* sp. P2(1) produce biosurfactant which has property as an emulsifier in the Hfs and sucrose-containing medium. Furthermore, *Arthrobacter* sp.P2(1) produce biosurfactant which has properties as surface active agent and emulsifiers in the molasses-containing medium.

Keywords: Biosurfactant, carbohydrate, surface tension, emulsification.