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Feasibility of Palm Oil Mill Effluent Sludge Oil as Cheaper Carbon Sources In Biosurfactant Production

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Abstract. Biosurfactant have received growing interest in recent years due to its capability in biodegradation of oils that would increase oil solubility in water, reduction of surface tension and low level of toxicity imposed to environment. Therefore, biosurfactant is less competitive than synthetic products, due to high production costs. Hence, low grade and cheaper carbon sources such as palm oil mill effluent (POME) sludge oil is used as alternative substrate in biosurfactant production of Pseudomonas aeruginosa RW9. In this work, different types and concentrations of carbon and nitrogen sources were supplemented in the mineral salt medium to obtain an optimal biosurfactant production. Rhamnolipids surfactant produced was extracted and purified by using solvent extraction process and silica gel column chromatography, respectively. The purified samples produced were characterized by emulsification index (E_{24},%), surface tension, NMR, HPLC and GC-MS.

Keywords: Biosurfactant, *Pseudomonas aeruginosa*, POME sludge oil, Rhamnolipid, Extraction, Purification