Variation of carbon sources in producting rhamnolipid by Pseudomonas aeruginosa for microbal enhaced oil recover's application / Nafian Awaludin and Cut Nanda Sari

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ABSTRACT
The decrease in oil production is caused by the ageing of oil production wells. The enhanced oil recovery (EOR) technology is proven to increase oil reserves and production in mature oil fields. One EOR technology that has proven to be efficient in increasing oil production is microbial EOR by using biosurfactant. The most effective biosurfactant is rhamnolipid produced by Pseudomonas aeruginosa, the bacteria of which can lower the interfacial tension between the petroleum and water. In biosurfactant's production thanks to these bacteria, the substrate as the source of carbon in the fermentation process is needed. The sources of carbon used in this study are glucose, glycerol, molasses,banana peels, and waste cooking oil. This research aims to determine the most optimum carbon sources to produce biosurfactant from Pseudomonas aeruginosa by using Busnell Hass medium as a liquid medium of bacterial growth. Biosurfactant's production result are: 74mb/L from glucose; 63mg/L from banana peels; 66mg/L from glycerol; 85mg/L from waste cooking oil; and 64mg/L of molasses with the following decreasing surface tension: 33.55 mN/m from glucose; 32.51 mN/m from banana peels; 27.55 mN/m from glycerol; 22.46 mN/m from waste cooking oil; and 31.49 mN/m from molasses are as follows: 15.2 mN/m; 13.78 mN/m; 8:15 mN/m; 0.14 mN/m; and 11.2 mN/m respectively.