

Production of Biosurfactant Using Different Hydrocarbons by *Pseudomonas aeruginosa* EBN-8 Mutant

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The present investigation dealt with the use of previously isolated and studied gamma-ray mutant strain *Pseudomonas aeruginosa* EBN-8 for the production of biosurfactant by using different hydrocarbon substrates viz. *n*-hexadecane, paraffin oil and kerosene oil, provided in minimal medium, as the sole carbon and energy sources. The batch experiments were conducted in 250 mL Erlenmeyer flasks, containing 50 mL minimal salt media supplemented with 1% (w/v) hydrocarbon substrate, inoculated by EBN-8 and incubated at 37 °C and 100 rpm in an orbital shaker. The sampling was done on 24 h basis for 10 d. The surface tension of cell-free culture broth decreased from 53 to 29 mN/m after 3 and 4 d of incubation when the carbon sources were paraffin oil and *n*-hexadecane, respectively. The largest reduction in interfacial tension from 26 to 0.4 mN/m was observed with *n*-hexadecane, while critical micelle dilution was obtained as 50 × CMC for paraffin oil as carbon source. When grown on *n*-hexadecane and paraffin oil, the EBN-8 mutant strain gave 4.1 and 6.3 g of the rhamnolipids/L, respectively. These surface-active substances subsequently allowed the hydrocarbon substrates to disperse readily as emulsion in aqueous phase.

Key words: Biosurfactant, Hydrocarbons, *Pseudomonas aeruginosa*