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**EFFECT OF LOW ELECTRIC CURRENT ON PRODUCTION OF
BIOSURFACTANT BY *Pseudomonas aeruginosa***

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Abstract

Several studies have been attempted to investigate the effect of different cultural parameters on the performance of biosurfactant production by microorganisms. In literature, the studies devoted to the use of electric current are mostly focused on the treatment of wastewaters by electrocoagulation. However, to the best of our knowledge, no studies have been reported on the direct effect of electric current on microbial production of biosurfactants. The main purpose of this study was to investigate the effect of direct electric current on the performance of a biosurfactant-producing strain *Pseudomonas aeruginosa*, to produce biosurfactant under aerobic conditions. The effect of direct electric current on the biosurfactant production was evaluated by varying the inter-electrode distance (d) (2, 4 and 6cm) with current density values (D) of 3μA/cm² for 3 days at room temperature. The results clearly showed that direct current application with distance between electrodes of 2 cm yielded the highest biosurfactant production, and emulsification index (E₂₄). Besides, the production cost decreases of about 20% with electric current application, which contributes very slightly in the total energy consumption cost. This method might, in the future, lead the way towards profitable application in enhancing biosurfactant production.

Keywords: biosurfactant; electric current; emulsification index; *Pseudomonas aeruginosa*.