Comparative screening methods for the detection of biosurfactant-producing capability of Antarctic hydrocarbon-degrading Pseudomonas sp.

ABSTRACT

Four preliminary screening methods for biosurfactant synthesis - drop collapse assay, oil displacement activity, microplate assay and emulsification index (E24) were compared and evaluated for their reliability and ease of use. All screening methods showed positive indications for the synthesis of biological surface-active agents. Nevertheless, partial collapse of the supernatant and low emulsification index (E24) of Pseudomonassp. might signify a low production of biosurfactants. Based on our observation, both drop collapse and oil displacement assay is the fastest, easiest and most reliable analytical routine to be suggested to screen for biosurfactant producing strains. In the extent for a high throughput screening (HTS), drop collapse assay is the best method for an accurate screening of biosurfactant producers.

Keyword: Biosurfactants; Pseudomonas sp.; Hydrocarbon-degrading strain; Preliminary screening