

CRUDE DATE SYRUP AS FERMENTATION MEDIUM FOR BIOSURFACTANT PRODUCTION BY NATRIALBA SP. STRAIN E21

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Résumé

Halotolerant microorganisms able to live in saline environments offer a multitude of actual or potential applications in various fields of biotechnology. This is why some strains of Halobacteria from an Algerian culture collection were screened for biosurfactant production in a standard medium using the qualitative drop collapse test and emulsification activity assay. Although biosurfactants exhibit such important advantages, they have not been yet used extensively in industry because of relatively high production costs. One possible strategy for reducing costs is the utilization of alternative substrates such as agroindustrial wastes. Hence, an isolate, strain E21 was obtained from a solar saltern located close to Ain Salah in the south of Algeria. Analysis of 16S rRNA gene sequence indicates that the strain has 93 % sequence similarity with the genus *Natrialba*. A similarity (based on partial 16RNAr sequence) significant for possible species relatedness (98%) is found with the two validly described species *Natrialba aegyptia* 40 (99%) and *Natrialba taiwanensis* strain B1 (98%). During the growth cultivation, the productions of biosurfactant by *Natrialba* sp stain E21 using crude date syrup medium (CDS) was investigated. The process was carried out at 40°C in a 1.5-L bioreactor and monitored through measurements of biosurfactant concentration and total sugars consumption. After 5 days of cultivation, 1.7 g/L of biosurfactant, surface, and interfacial tensions values of 43 and 25 mN/m, respectively; 67% of Emulsifying Index (E24), and 94% of total sugar removal were obtained. Best results of biosurfactant production were obtained when CDS was supplemented with peptone.