

Evaluation of ethanol production by yeast strains isolated from soil samples

Richa Arora, Shuvashish Behera, Sachin Kumar*

* Sardar Swaran Singh National Institute of Renewable Energy, Jalandhar-Kapurthala Road, Wadala Kalan, Kapurthala, Punjab-144601, India

Abstract

Recent production of bio-ethanol by microbial fermentation as an alternative energy source has renewed research interest because of the increase in the fuel price. Yeast strains are commonly associated with the ethanol production with sugar rich environments. In this current study, isolation of various yeast strains were carried out from different soil samples collected from different sites. A total of eight yeast strains were isolated and used for the further study. An attempt has been made to evaluate the sugar utilization and ethanol productivity by the free cells of these yeast strains using the salt medium containing 12 % hexose sugar. The results obtained in this study shows a range of ethanol production between 7.74 ± 0.012 - 46.92 ± 0.08 g/L in all the strains was achieved during the stationary phase of the growth (72 h). Two isolates designed NIRE-AM1 and NIRE-AM2 showed highest ethanol concentration producing 42.46 ± 0.033 and 46.92 ± 0.08 g/L ethanol, respectively after 72 h of incubation at 37° C. However, these strains show positive result in presence of pentose sugars with the phenol red test.

*Corresponding author. Tel.: +91 1822 255543; fax: +91 1822 255544.

E-mail address: sachin.biotech@gmail.com (S. Kumar)