ISOLATION OF A YEAST STRAIN FROM TODDY FOR CELL RECYCLING

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Yeast strains were isolated in toddy samples obtained from four areas in Jaffna peninsula. The strains were isolated based on their morphological characteristics. The yeast strains were labelled as BT_1, BT_2, BT_3, BT_4, BT_5 based on the place from where the toddy sample was obtained. The best alcohol producing yeast strain from the five isolated strains w s from Kokuvil area (BT_1) and it produced $65.5 gl^{-1}$ of alcohol from $150 gl^{-1}$ of sucrose in 72h. The optimum pH for the ethanol production by BT_1 strain was 5.0 at room temperature. To reduce the fermentation time (to increase the productivity) the optimum initial cell number in the inoculum was determined which was 2.2×10^8 /ml and the ethanol produced was $67.3 gl^{-1}$ at 24h instead of 72h The productivity increased from $0.91 g^{l-1} h^{-1}$ to $2.8 gl^{-1} h^{-1}$. To obtain a mutant. yeast with improved ethanol producing ability BT^1 strain was expo ed to UV radiation at 254nm for 30min at 6cm distance. The mutant (BT M) obtained showed 10% more efficiency than the parent strain. The yeast cells were recycled seven times for ethanol production. The productivity of ethanol reached the maximum at the second cycle $(1.35 gi^{-1} h^{-1})$ and then remained almost same in the next five cycles without any appreciable change in the efficiency of ethanol production. The average time per cycle to utilize the sugar completely was 48h. These results indicate that the BT_1 can be used in continuous cell recycle fermentation process for rhe production of ethanol without loss of productivity and efficiency.