ISOLATION AND CHARACTERIZATION OF EFFICIENT HIGH-TEMPERATURE ETHANOL PRODUCING YEASTS

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Several yeast strains showing good growth at 40°C were isolated from samples of Coconut and Kithul (Caryota urenus) wine by enrichment culture followed by standard serial dilution and plating techniques using, yeast extract, peptone, dextrose and complete synthetic media. The purified strains were tested for ethanol production at 40°C using the above media containing 15% glucose (w/v) in flasks fitted with fermentation bungs. The initial inoculum size was $1x10^8$ cells/ml of the medium. The fermentation rate was monitored by measuring the daily CO_2 output, as reflected by the decrease in weight of the whole culture. The sugar consumption was estimated by the Gay-Lussac equation, i.e. CO_2 evolution (gm) x 2.0 = sugar fermented (gm). The amount of sugar consumed in fermentation was used as the criterion for the preliminary selection of yeast strains. In the second selection 15% sucrose was used instead of glucose and the final ethanol concentration and the CO_2 evolution rate were used as selection criteria. Fermentation rates, growth rates and final ethanol yield of the selected strains at different temperatures wer compared, with those of baker's yeast. Some of the selected strains gave higher ethanol when compared to baker's yeast at 40°C.

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