GROWTH STUDIES ON THREE SACCHAROMYCES STRAINS OF PALMYRAH AND COCONUT WINE

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Growth studies and yield measurements on 'combines growth' media were carried out on Saccharomyces cerevisiae (PY1), and Saccharomyces chevalieri (PY10) isolated from palmyrah wine and Saccharomyces cerevisiae (CY1) isolated from coconut wine.

Palmyrah sap and sugar cane molasses were used in the growth studies. Diluting the fresh sap by a factor of 1/15 to give a strength of 1% w/v of sugar and molasses by a factor of 1/80 to give an approximate strength of 0.81% w/v sugar was found to give satisfactory growth. Lesser dilutions showed slower growth and poor yields. The addition of NH_4Cl (1g/1), $MgSO_4$ (0.2g/1), and yeast extract, together with aeration, led to improvement in growth. Addition of 6% dried palmyrah fruit pulp to the growth medium gave satisfactory growth and replaced the need to add yeast extract.

The optimum pH and temperature for the growth of all three strains were found to be 4.0 and 35°C respectively. These strains utilized glucose, fructose and sucrose readily while utilization of maltose was poor by strains PY1 and CY1. Strain PY10 was unable to assimilate maltose.

On a small scale batch culture trial using 15 1 medium with 1 1 of sap, 200 ml of molasses and 0.9 kg dried fruit pulp, recovery of 230 g dried yeast (30% moisture) was obtained. The yield is about 0.48 g of yeast per g of sugar utilized. Crude protein contents of strains CY1, PY10 and PY10 were 52.4%, 58.4% and 61.7% respectively and their respective nucleic acid contents were 8.5%, 10% and 7%. Of the three strains, CY1 showed higher invertase activity and greater CO_2 output.