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PRODUCTION OF SOME METABOLITES BY *DEBARYOMYCES HANSENII* DURING GROWTH UNDER DIFFERENT STRESSES

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ABSTRACT

The metabolic behavior of *Debaryomyces hansenii* was investigated in terms of substrate utilization and by product formation under different cultural conditions. *Debaryomyces hansenii* exhibited best growth and most tolerant of increased NaCl, sucrose and potassium sorbate at their optimum pH (5.0). A combination of two or more environmental stresses had stronger inhibitory effects on their growth kinetics, utilization of carbohydrate substrates and the production of organic acids, volatile compounds and other metabolites. Significant amounts of glycerol (0.35-4.4 g/L) and arabitol (0.08-9.8 g/L) were produced by *D. hansenii*. The main organic acids produced were citric (0.6-1.4 g/L), acetic (0.3-2.8 g/L), fumaric (0.2-1.0 g/L) and malic acids (1.1-1.7 g/L). A range of other compounds such as ethyl acetate, n-propanol, isoamyl alcohol, 2-phenylethanol and acetoin were also produced. The concentration of these compounds varied with the cultural conditions. Such compounds would have specific impacts on food quality in which *D. hansenii* is found.