

## Immobilization of Invertase from *Saccharomyces cerevisiae* onto Polyaniline for production of inverted sugar syrup

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The use of inverted sugar syrup ( $\alpha$ -D-glucose and  $\beta$ -D-fructose) presents advantages compared with the sucrose such as minimization of crystallization and microbiological contamination and sweetening power 20% higher. Several attempts have been made to immobilize invertase ( $\beta$ -D-fructofuranidase E.C.3.2.1.26), but production of sugar reached was very low. In this work, invertase produced by *Saccharomyces cerevisiae* was covalently immobilized in glutaraldehyde modified polyaniline and used in the production of invert sugar syrup. Immobilization was optimized at 30°C, 30 min, 25  $\mu$ L of enzyme solution, pH 4.6, resulting in 0.495 UE or 45.11% retained in 5 mg of PANIG. Reaction parameters were tested and optimized for PANIG-invertase. PANIG-invertase reactions were characterized concerning concentrations of substrate, temperature, time of reaction, optimum pH and thermal stability. Thermal stability revealed PANIG-invertase was stable during incubation at 40 and 50°C for 60 minutes. In optimal conditions the system was used in 15 cycles of reaction and washes, retaining activity of up to 50%.

Keywords: Invertase, Polyaniline, inverted sugar syrup.