



OPTIMIZATION OF PECTINOLYTIC HYDROLYSIS IN CAATINGA PASSION FRUIT MUST WITH COMMERCIAL PECTINASE USING THE CENTRAL COMPOSITE ROTATABLE DESIGN

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A native Brazilian fruit, the Caatinga passion fruit (*Passiflora cincinnata* Mast.) has a high agro-industrial potential for the processing of alcoholic beverages. However, in the preparation of the wine, the presence of pectin becomes undesirable, as it influences the efficiency of the fermentation process and the clarity of the final product. In order to reduce these negative effects, pectinolytic enzymes are widely used by industries. The objective of this study was to optimize the pectin hydrolysis process in Caatinga passion fruit must for wine production with pectinolytic enzymes, using a Central Composite Rotatable Design (CCRD). The 2³ factorial DCCR was applied with six axial tests and three replications in the central point, resulting in a total of seventeen assays (E01 to E17). Caatinga passion fruit must was obtained with 40% of pulp and 60% of distilled water. Commercial enzyme with high concentration of pectinase was tested (Endozym Pectofruit, AEB). Concentration of enzyme (1.4 to 5.6 g hL⁻¹), working temperature (43 to 57 °C) and reaction time (12 to 139 min) were the independent variables in the optimization process; and the soluble pectin content (mg 100g⁻¹) corresponded to a process-dependent variable. Prior to the beginning of the assays, in order to provide the optimum working pH range for the pectinase, correction of the must pH to 3.9 was performed using a deacidifying complex (DEACID®, AEB). The must had 24.06 mg 100g⁻¹ of soluble pectin in its composition. After the optimization, the treatments presented pectin contents ranging from 6.81 (E16: 1.4 g hL⁻¹/50°C/75 min) to 0.00 mg 100 g⁻¹ (E05: 5.0 g hL⁻¹/45°C/30 min and E06: 5.0 g hL⁻¹/45°C/120 min). According to the results, the optimized pectinolytic hydrolysis process in Caatinga passion fruit must was accomplished by 5 g hL⁻¹ of pectinase at 45°C for 30 to 120min.

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