KINETICS OF THE COLOR CHANGES IN THERMAL PROCESSED CUPUAÇU (*Theobroma grandiflorum*) PUREE

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Color is many times related with the freshness of fruits and is also one of the most important fruit quality attributes because it is immediately perceived by the consumer. Unfortunately, undesirable color modifications can occur during fruit pasteurization processes. Changes in the color of cupuaçu fruit puree as the result of different intensity thermal treatments were mathematically modeled. Isothermal experiments were performed at 80°C, 90°C, 100°C, 110°C and 115°C for up to 120 minutes and color was measured by a tristimulus colorimeter using L (lightness), C (chroma) and h° (hue angle) CIE color space. When increasing time and/or temperature exposure, cupuaçu puree darkens (*i.e.* L decreases), gets a more vivid color (*i.e.* C slightly increases), and changes from a light yellow to a caramel like color (h° decreases). Total color difference (TCD), calculated as function of L, C and h° values, was the color parameter modeled. For each temperature, TCD increased along processing time following a power law model pattern ($TCD=a\times time^{b}$). The exponent *b*, was temperature dependent and was described by the Arrhenius law. One step non-linear regression to all data was carried out to estimate the model constants with its 95% confidence intervals. The parameters estimated values were $a=2.4$, $K_{100^{o}C}=0.4$ and $Ea=24.8$ *kJ/mol* with $R^{2}=0.98$. The results obtained are an useful tool to design pasteurization processes for minimizing puree color changes.