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Optimization of Thermal Degradation of Chlorophyll in Amaranth Leaves Puree Using Response Surface Methodology (RSM)

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Abstract: Amaranth (*Amaranthus tricolor*) is highly nutritious leafy vegetables containing higher amount of vitamins and minerals. The color of green leafy vegetables is due to the presence of chlorophyll molecule which gets affected during heat treatment. In the present wok, kinetics of thermal degradation of chlorophyll a (Cha) and chlorophyll b (Chb) in Amaranth leaf puree were studied at pH values of 5.6, 6.6 and 7.6 and temperatures of 70 to 90^{o}C for time 0 to 60 min. Nonlinear regression equation based on response surface method (RSM) has been developed for determining the concentration of chlorophyll a and chlorophyll b and comparison has been made with the experimental data for different parameters that describes the thermal preservation studies on Amaranth leaf puree considering the influence of temperature, pH and time. The adequacy of the proposed equation has been performed with normal probability plot of the residuals for Cha and Chb and coefficient of regression (R^2).

Keywords: Amaranth, Chlorophyll, Nonlinear Regression Equation, Response Surface Method, Thermal Degradation.

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