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Effect of Blanching and Drying Methods on the Degradation Kinetics and Color Stability of Radish (Raphanus sativus) Leaves

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Abstract : Dehydrated powder prepared from fresh radish (Raphanus sativus) leaves were investigated for the color stability by different drying methods (tray, sun and solar). The effect of blanching conditions, drying methods as well as drying temperatures (50 – 90°C) were considered for studying the color degradation kinetics of chlorophyll in the dehydrated powder. The hunter color parameters (L*, a*, b*) and total color difference (TCD) were determined in order to investigate the color degradation kinetics of chlorophyll. Blanching conditions, drying method and drying temperature influenced the changes in L*, a*, b* and TCD values. The changes in color values during processing were described by a first order kinetic model. The temperature dependence of chlorophyll degradation was adequately modeled by Arrhenius equation. To predict the losses in green color, a mathematical model was developed from the steady state kinetic parameters. The results from this study indicated the protective effect of blanching conditions on the color stability of dehydrated radish powder.

Keywords : chlorophyll, color stability, degradation kinetics, drying
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