

Title Degradation of chlorophyll during processing of green vegetables: a review
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Abstract

Purpose of review: Retention of greenness, which is attributed by the pigment chlorophyll, is desired by consumers and processors of thermally processed green vegetables. However, the retention of chlorophyll during the cooking/processing of green vegetables has been recognised as a problem. To overcome this problem, researchers have explored various techniques including alkaline salt solutions and high-temperature short-time treatments. The kinetics of chlorophyll degradation have also been studied with respect to water activity, pH, temperature, pressure, etc. This review is an effort to put together the findings of various researchers on chlorophyll degradation.

Recent findings: The traditional approach to model only the retained chlorophyll has been criticised. With newer and more precise techniques to detect and quantify the degradative intermediates and products of chlorophyll, attempts are being made to model further degradation of pheophytins to pheophorbides. Newer information is also being generated to decipher the mechanism of chlorophyll degradation in senescent tissues and during processing, and multi-response models are being introduced to model the chlorophyll degradative reactions in foods.

Directions for future research: More precise modelling approaches need to be introduced to model chlorophyll degradation in view of newer analytical instrumentation and processing methods becoming available, and considering the role of associated enzymes and other process parameters.