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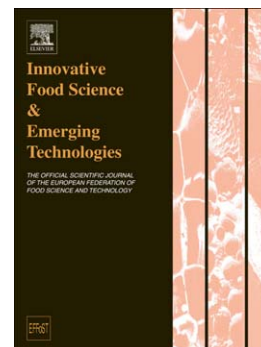
Optimization of high hydrostatic pressure processing for the preservation of minimally processed peach pieces

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## Optimization of high hydrostatic pressure processing for the preservation of minimally processed peach pieces

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### Abstract

Consumers demand fresh-cut fruits, free from additives and with fresh appearance. However, the alteration caused by the tissue processing limits their shelf life. The aim of this work was to optimize the pressure level (from 400 to 600 MPa) and the holding time (from 1 to 9 min) of the High Pressure Processing (HPP) to achieve enzyme inactivation while preserving texture and color of minimally processed peaches. Peach cylinders were processed by combining dipping in organic acid solution, with vacuum-packaging and HPP at room temperature. Results showed that higher pressure levels were more effective to inactivate enzymes and to preserve color than longer times. In addition, long treatments affected the microstructure and the texture of the tissues more seriously. Finally, a desirability study and a Principal Component Analysis were performed. These showed that the optimal treatment would be 585 MPa and 1 min and that the best treatment of the ones studied was 600 MPa for 5 min.

### Industrial Relevance

There is an increasing demand for minimally processed fruits as a result of their convenience and fresh-like characteristics. Although consumers are familiar with the consumption of canned peaches, the nutritional profile of this product is far from being optimal, and therefore minimally processing offers the unique advantage of maintaining the original quality of the fresh fruit. However, this product is prone to suffer alterations such as browning and softening. High Pressure Processing (HPP) is proposed as a non-thermal technology able to suitably preserve minimally processed peaches. This study aimed to optimize the conditions of the HPP-treatment, to achieve enzyme inactivation while maintaining texture and color. The promising results obtained can help promote the use of HPP as an alternative to preserve the quality and extend the shelf-life of minimally processed fruits.

**Keywords:** High Pressure Processing-peaches-microstructure-texture-enzymes-color-

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