

## Physicochemical Stability of Pulse Spreads during Storage after Sous Vide Treatment and High Pressure Processing

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**Abstract :** Pulses are high in plant protein and dietary fiber, and contain slowly digestible starches. Innovative products from pulses could increase their consumption and benefit consumer health. This study was conducted to evaluate physicochemical stability of processed cowpea (*Vigna unguiculata* (L.) Walp. cv. Fradel) and maple pea (*Pisum sativum* var. *arvense* L. cv. Bruno) spreads at 5 °C temperature during 62-day storage. Physicochemical stability of pulse spreads was compared after sous vide treatment (80 °C/15 min) and high pressure processing (700 MPa/10 min/20 °C). Pulse spreads were made by homogenizing cooked pulses in a food processor together with salt, citric acid, oil, and bruschetta seasoning. A total of four different pulse spreads were studied: Cowpea spread without and with seasoning, maple pea spread without and with seasoning. Transparent PA/PE and light proof PET/ALU/PA/PP film pouches were used for packaging of pulse spreads under vacuum. The parameters investigated were pH, water activity and mass losses. Pulse spreads were tested on days 0, 15, 29, 42, 50, 57 and 62. The results showed that sous-vide treatment and high pressure processing had an insignificant influence on pH, water activity and mass losses after processing, irrespective of packaging material did not change ( $p > 0.1$ ). pH and water activity of sous-vide treated and high pressure processed pulse spreads in different packaging materials proved to be stable throughout the storage. Mass losses during storage accounted to 0.1% losses. Chosen sous-vide treatment and high pressure processing regimes and packaging materials are suitable to maintain consistent physicochemical quality of the new products during 62-day storage.

**Keywords :** cowpea, flexible packaging, maple pea, water activity

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