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Influence of storage at 4 ° C on the stability of high hydrostatic pressure treated onion

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The effects of refrigerated storage on the microstructure and physicochemical properties of high hydrostatic pressure (HHP) treated onion were evaluated. Onion was submitted to 100 MPa at 50 ° C or 400 MPa at 25 ° C for 5 min, and stored for 28 days at 4 ° C. Electron microscopy techniques and light microscopy were used for the microstructural study. Total soluble phenolics, soluble protein percentage, and shear force were also studied. HHP treatments affected the cell wall and membrane permeability, favouring the diffusion of soluble material to the apoplast. Storage at 4 ° C also caused important structural degradation in the HHP-treated samples, which was higher when 400 MPa at 25 ° C were applied

during the first week of storage. Interactions between phenolics and solubilised cell wall material or proteins could explain the decrease in soluble phenolics and proteins during storage.

Keywords:

Allium cepa; postharvest processing; phenolics; protein; shelf life; microstructure

[fulltext]