

Title Fresh-cut broccoli florets shelf-life as affected by packaging film mass transport properties
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Abstract

In this work, the influence of packaging film mass transport properties on the quality loss of fresh-cut broccoli florets is addressed. The work was divided into two subsequent experimental steps; first, the selection of potential packaging films was carried out by monitoring the headspace gas concentrations in package of broccoli. Then, the mass transport properties of some previous selected films were assessed on product shelf-life. To this aim, unpackaged fresh-cut broccoli and intact broccoli wrapped in polyvinyl chloride were used as controls. Headspace gas concentration, mass loss, sensorial quality and spoilage microbial growth were monitored. The micro-perforated films were the most effective in reducing mass loss, wilting and maintaining sensory quality for a longer period. In particular, the micro-perforated film that had the lowest OTR value showed the best performance in prolonging of the product shelf-life if compared to either control samples and fresh-cut broccoli packaged in the non-perforated film. The results highlighted that an approximately 50% shelf-life increase of fresh-cut florets broccoli compared to whole broccoli, and of about 30% respect to the unpackaged fresh-cut produce was obtained.