

Abstract:

Shelf-life of minimally processed vegetables (and fruits) is limited because peeling, cutting, mincing, and other preparatory operations cause cell damage and the release of compounds that mutually interact. Apart from that, such a product is more susceptible to microorganisms from the air or from the objects that it might get in contact with. The aim of this study was to investigate the quality changes in vacuum packed cut Iceberg lettuce (Igloo variety) treated with propionic or ascorbic acid during a 10-day storage at 4 °C. The cut lettuce was rinsed with cold water, centrifuged at 920 rpm during 2 min and dipped in 1 % of ascorbic acid or in 0.1 % of propionic acid solutions for 20 s. The residual surface water was removed by centrifugation. About 300 g of product was packed in the polypropylene (PP) bags of 60 µm film thickness, which were evacuated to a pressure of 60 mm Hg and sealed. After each period of storage two replicates were tested for dry matter, total acidity, polyphenoloxidase (PPO) activity, total ascorbic acid content (TTA), total colour, overall visual quality (all at days 0,3,6 and 10), microbial load (all at days 0,6 and 10) and volatile compounds (at day 7). The results have shown that treatment with 1 % of ascorbic acid solution after cutting may successfully prevent PPO activity and enzymatic browning of the minimally processed Igloo lettuce if it is vacuum packed into PP bags and stored for 7-8 days at 4 °C. The treatment with ascorbic acid caused, at the very beginning, a slight loss of green colour intensity (the decline of colour L value and -a value), but better colour stability, better overall visual quality scores for appearance as well as less PPO activity during storage, compared to the samples treated with propionic acid and untreated samples. The treatments with ascorbic acid solution prevented the production of acetaldehyde, ethylacetate and ethanol and some other volatile compounds.