

Title Effects of heat treatment on atmospheric composition and color of peeled white asparagus in modified atmosphere packaging

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Abstract

Freshly harvested spears of white asparagus were subjected or not to heat treatment by immersion in a hot water bath at 55 °C for 3 min, then left unpeeled or were peeled before wrapping in 16 µm stretch film and stored at 3 °C for 6 days. During storage, the atmosphere within the packages was sampled for O₂, CO₂ and C₂H₄ determination, while spear fresh weight, color and anthocyanin content at the 3 cm apical peel segments were determined before and after storage. The results showed that CO₂ concentration in packages of white asparagus spears was not greatly influenced by peeling or heat treatment. On the other hand, a higher package O₂ depletion of treated (peeled or heated) spears was observed. Peeling also resulted in an increase of ethylene peak concentration, indicating wound-induced ethylene production, which was suppressed by heat treatment. The initial color of the whole spear was retained, while the appearance of a violet coloration on the spear tip was prevented by heat treatment in both unpeeled and peeled spears.