

Title Influence of cold storage and washing treatments on total polyphenols content in globe artichoke heads

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Abstract

In order to prevent damages of perishable vegetables during storage it is necessary to maintain their nutritional value and organoleptic properties. Artichoke is very perishable because of its high respiratory activity and susceptibility to weight loss, decay and biochemical and physiological damages. To avoid postharvest disorders and extend shelf life, the use of different heads treatments and chilling temperatures could help to realize these goals. In this work, the total polyphenols changes of globe artichoke ('Violetto di Sicilia') heads during storage at two different temperatures (4°C and 8°C) and two washing treatments (distilled water and 2% ascorbic acid in distilled water) were investigated.

Half of the harvested heads without stems were washed with distilled water, the other half was washed with 2% ascorbic acid in distilled water. After 30 minutes of dipping the two washing solutions were removed and washed buds were placed inside perforated polypropylene food bags (five × bag) and stored at the two different temperatures for four weeks. At harvest and after every week of chilling storage for a total of five samplings, on 3 bags (experimental unit) heads weight (g) and total phenols ($\text{mg}_{\text{GAE}} \text{kg}^{-1}$ f.w.) were analyzed.

During the weeks of storage, a constant loss of head weight was observed. After four weeks of storage, averaged for washing medium, the weight of buds was reduced of 2.6% at 4°C and 4.7% at 8°C. At harvest total phenols resulted in 2158 $\text{mg}_{\text{GAE}} \text{kg}^{-1}$ f.w. In both temperatures, averaged for weeks of storage, total phenols degradation appeared more marked in ascorbic acid solution than in water; this degradation was much more accentuated at 8°C than 4°C.

At 4°C, in both washing mediums, after two weeks of storage peaks of 3216 (water) and 2774 $\text{meq}_{\text{GAE}} \text{kg}^{-1}$ f.w. (ascorbic acid 2% in water) were observed.