

Title Effects of coating, modified atmosphere (MA) and plastic film on the physical and sensory properties of apricot

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Abstract

The Kabaş1 apricot is an important export product of Turkey, but the shelf life of unpackaged fresh apricot is generally limited to 3-5 days due to fruit softening and color changes. The objective of this study was to investigate the important physical quality parameters of fresh apricot packaged or unpackaged during cold storage.

Apricots were first washed in chlorinated water (100 µL/L), dried and then divided into two batches. The first batch of apricots was coated with 5% Natureseal and the second batch was uncoated. Coated and uncoated apricots were packaged under active (5% O₂, 10% CO₂ and 85% N₂) and passive atmospheres (~21 % O₂ and 79% N₂) using PP (Polypropylene) trays sealed with two different films as CPP (Cast Polypropylene) and BOPP (Bioriented Polypropylene). The packaged and unpackaged products were stored at 4°C for 42 days. Textural analysis was carried out using a texture analyzer. Penetration force (N) was measured using 0.2 mm cylindrical probe with 1 mm/s speed and 6 mm penetration distance. External and internal color (L*, chroma (C*) and hue angle (H°)) measurements were performed using a Minolta chromameter.

The results showed that in general coating, MAP application, or packaging material did not affect the penetration force (N) ($P>0.05$); however, a significant ($p\leq 0.05$) coatingxMAP applicationxpackaging material interaction was determined. The penetration force of unpackaged apricots significantly decreased especially after the 7 days due to decrease in firmness. On the other hand, the packaged apricots preserved the texture better than the unpackaged ones during 42 days of storage. In terms of color, the control group (unpackaged) had lower external and higher internal L* values than the packaged applications. The color values (L*, C* and H°) for all applications decreased after the 28 days of storage ($p\leq 0.05$). The chroma values did not change significantly ($p>0.05$) indicating that the fruit color (tonality) remained constant.

In summary, MAP using CPP or BOPP films preserved the physical and sensorial qualities of apricots coated or uncoated during 28 days of storage. The viability of unpackaged apricots, however, was limited to 7 days due to significant change in physical and sensory properties.