Title Modified atmosphere packaging (MAP) effects on quality maintenance and storage life extension of local Iranian apple "Golab Kohanz"

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Abstract

Modified atmosphere packaging is the way that controls respiration rate of product and its spoilage through decrease in O_2 and increase in CO_2 levels. In order to maintain quality and increase in storage life of 'Golab Kohanz' apples an experiment was conducted in split factorial design with four replications. Treatments were three different storage temperatures (1, 4 and 25 °C); gas combinations with two levels (2% CO_2 – 3% O_2 and 4% CO_2 – 1% O_2) and two types of polymeric, films (polyethylene and polypropylene). The tissue firmness, TSS, EC, pH, TA, TSS/TA, humidity percentage and rate of ethylene production were measured and estimated every 14 days. According to our results, the treatment including 1°C with gas combination of 1% O_2 – 4% CO_2 and polypropylene film was introduced as the best treatment in maintaining quality factors. pH and TSS/TA of fruits showed an increased trend and TSS, TA decreased as well through the storage of fruits. The changes of quality factors occurred with slower rate than controls. The results indicated that modified atmosphere packaging has led to extension of storability and retardation of softening rate in fruits compared to controls.