

**P-135 (105)****EFFECT OF HIGH CO<sub>2</sub> CONTROLLED ATMOSPHERE PACKAGING ON POSTHARVEST QUALITY OF FRESH PISTACHIO FRUITS (CV. BADAMI)**

**Assoc. Prof. Seyed Hossein Mirdehghan**, Department of Horticultural Science, College of Agriculture, Vali-e-Asr University of Rafsanjan, Rafsanjan, Iran; [mirdehghan@vru.ac.ir](mailto:mirdehghan@vru.ac.ir)  
(Presenting author)

**Mr. Abdollatif Sheikhi**, Department of Horticultural Science, Rafsanjan, Iran;  
[sheikhi.abdollahatif@gmail.com](mailto:sheikhi.abdollahatif@gmail.com)

The present study was performed to investigate the effects of high CO<sub>2</sub> controlled atmosphere packaging on the shelf life and fruit quality of fresh pistachio fruits. The experiment was based on Complete Randomized Design (CRD), four atmospheric conditions at three replications. Fully ripe fresh pistachio fruits were packaged at 5% O<sub>2</sub> with elevated concentrations of CO<sub>2</sub> (5, 25 and 45%) all balanced with N<sub>2</sub>, while ambient air was used as control. Fruits were stored at 3±1°C for 45 days and measured for following traits during storage: hull firmness, color indices, weight loss and sensorial quality. Analysis of variance of data showed that the treatments had significant effects on some of the quality factors of fresh pistachio fruits, such as, weight loss, color, and sensorial quality factors. However, no significant differences were observed in terms of firmness, chroma, hue angle and browning index. According to the results, CO<sub>2</sub> enrichment in the modified atmosphere package decreased weight loss. The highest CO<sub>2</sub> concentration led to the lowest weight loss (0.14%), whereas, control treatment showed the highest weight loss (0.18%). Regarding to the appearance and flavor, trained panelists preferred the fruits stored under low concentrations of CO<sub>2</sub>. Our investigations demonstrated that increasing the concentration of CO<sub>2</sub> within the packages containing fresh pistachio fruits, had no significant effect on majority of postharvest quality factors investigated in this study. Furthermore, it can be concluded that in spite of adding different concentrations of CO<sub>2</sub>, fruits experienced the similar atmospheric conditions in the sealed packages.

**Keywords:** Firmness, Weight loss, Color indices, Shelf life, Browning.