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EFFECT OF SALICYLIC ACID AND CALCIUM NITRATE SPRAYING ON QUALITATIVE PROPERTIES AND STORABILITY OF FRESH JUJUBE FRUIT (ZIZYPHUS JUJUBA MILL)

Hadi Zeraatgar, PhD St. Department of Horticultural Science, Ferdowsi University of Mashhad, Mashhad, Iran; zeraatgarh@yahoo.com
Prof. Gholamhossain Davarynejad, Department of Horticultural Science, Ferdowsi University of Mashhad, Mashhad, Iran; davarynej@um.ac.ir (Presenting author)
Assist. Prof. Farid Moradinezhad, Department of Horticultural Science, University of Birjand, Birjand, Iran; fmn_46@yahoo.com
Assist. Prof. Bahram Abedi, Department of Horticultural Science, Ferdowsi University of Mashhad, Mashhad, Iran; abedy@um.ac.ir

Jujube fruit is one of the important medicinal plants grown in Iran. This valuable fruit, has a short post-harvest life. Delaying in quality reduction for few days can help maintaining the shelf life of fresh jujube fruit. This study was conducted to investigate the possible effects of pre-harvest foliar application of salicylic acid (0, 2 and 4 mM) and calcium nitrate (0, 1 and 2 %) on physico-chemical characteristics and shelf life of fresh jujube fruit. Fruit firmness, total soluble solids (TSS), titrable acidity (TA), total phenolic content (TPC), antioxidant activity (AOC), ascorbic acid (Vit C) and catalase enzyme (CAT) were determined at harvest and during storage at 10-days intervals for 40 days. The study was performed in a factorial split-plot based on randomized complete block design with 3 replications in Agricultural Research Center of Southern Khorasan province (Birjand), Iran. Results indicated that salicylic acid and calcium nitrate played an important role in maintaining and extending post-harvest quality of fresh jujube fruit, as both substances increased fruit firmness, TA, TPC, AOC, Vit C, CAT, but reduced TSS. The highest TPC (2.38 µg gallic acid/gFW), AOC (76.73%), VitC (222.4 mg/100mg $^{-1}$) and CAT (16.67 U. mg^{-1}protein), and the lowest TSS content (23.11%) observed in salicylic acid 4mM. Furthermore, maximum fruit firmness (4.22 N) was obtained in treatment containing calcium nitrate 2%. Treatment containing salicylic acid 2 mM and calcium nitrate 2% had the highest amount of TA (0.45 %). Based on the results, reducing trends of some characteristics (Vit C, antioxidant and phenol, respectively) were very fast, and although use of salicylic acid and calcium nitrate application could cause a delay in these processes, the reduction found in these characteristics could not be compensated. In other characteristics that reducing trend was slower, application of salicylic acid and calcium nitrate could cause at least a 10-day delay in the reduction of the amounts of these attributes.