



Research Paper

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Effect of application of nutrients and growth regulator on storage life of peach

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ABSTRACT : This experiment was carried out through two successive seasons (2010 and 2011) on 8 years old “Shan-i-Punjab” peach fruits grown at Punjab Agricultural University (PAU) seed farm orchard, Ladhawal- Ludhiana. The objective of this investigation was to find out the influence of pre-harvest spraying of three levels each of CaCl₂, boric acid, KNO₃ (1 %, 2 % and 3 % each) and GA₃ (20, 40 and 60 ppm) on storability of the stored fruits for 35 days at 0- 1^oC and 90-95 per cent RH. Two superimposed sprays were applied from each concentration in the two weeks before harvesting and one week before harvesting during the two seasons. The pre-harvest treatment of peach fruits with 2.0 per cent CaCl₂ and 40 ppm GA₃ recorded significantly the lowest level of loss in fruit weight and rate of spoilage and have registered high firmness and sensory evaluation. The study suggests that both 2.0 per cent CaCl₂ and 40 ppm GA₃ as pre-harvest spray could preserve the physiological changes and improve the shelf life upto 28 days and quality in Shan-i-Punjab peach fruits.

KEY WORDS : Shan-i-Punjab peach, Calcium chloride, GA₃, Pre-harvest treatment, Storability, Quality

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Shan-i-Punjab is one of the most important temperate fruit primarily cultivated in Punjab. Despite the fact that fruits are nutritionally rich, this crop could not be exploited at a large scale due to high perishability and poor post-harvest storage facilities. The shelf life of peach fruits is relatively shorter than other temperate fruits as a direct consequence of weak cell wall integrity. It was reported that calcium chloride treatment of fruits protects them against post-harvest deterioration by binding with hydrolysis such as galacturonase and promote shelf life. Further calcium has been shown to inhibit ethylene production and thus delay ripening (Al-Ani and Richardson, 1985). It was observed that the fruits that are rich in calcium are more resistant to mechanical injury and post-harvest losses. Foliar application of boron act as a signal capable of interacting with cellular transcription factors to regulate various physiological processes affected by boron deficiency (González-Fontes *et al.*, 2008). In addition to this, gibberellic acids have also been reported to prolong shelf life by affecting the physiological processes in plants and also

inhibit specific aspects of abnormal senescence of fruits. Application of plant growth regulators, play a role in re-enforcing cell hormonal balance, thus preventing the synthesis of hydrolytic enzymes such as cellulose which decompose the cell wall (Davies, 1995). Gibberellic acid has been known to delay ripening and senescence in various fruits (Abdel-Gawad and Romani, 1967, Coggins and Lewis, 1962). Sprays of GA₃ have been widely adopted in commercial orchards because they have consistently been shown to increase fruit firmness and size (Clayton *et al.*, 2006, Ozkaya *et al.*, 2006). In the present studies, an attempt has been made to prolong the post harvest life of peach fruit with pre-harvest foliar application of calcium chloride, boric acid, potassium nitrate and gibberellic acid.

RESEARCH METHODS

The uniform sized, hard mature and good looking peach cv. Shan-i-Punjab where harvested at proper hard mature stage from pre-treated plants in Punjab Agricultural University (PAU) seed farm orchard, Ladhawal- Ludhiana during the years 2010