



## Effect of pre-harvest application of calcium compounds on chemical quality of guava fruits (*Psidium guajava* L.) cv. GWALIOR-27

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### ● ABSTRACT ●

The higher concentration of calcium nitrate 2% had improved the fruit quality evincing the highest TSS, reducing sugar, non reducing sugar, total sugars, ascorbic acid and pectin content, while recording the lowest titratable acidity in guava fruits. Thus highest level of calcium nitrate clearly improved the quality parameter of guava fruits under this study. Calcium nitrate 1% spray also improved the fruit quality traits in comparison to calcium chloride and control. The highest ascorbic acid and pectin content among all the treatments was recorded with 2% calcium nitrate which signifies positive role of calcium nitrate in improving the fruit quality.

**KEY WORDS :** Pre-harvest, Calcium compounds, Chemical quality, Guava

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### ● INTRODUCTION ●

Guava is one of the most important fruit trees grown in India. Comparative low cost of fruit production combined with high nutritive value makes it ideal desert fruit of the common man. In India, guava is cultivated in an area of 1.82 million hectares with annual production of 18.23 million tonnes. It occupies fifth position in terms of area and fourth position in terms of production amongst the fruits of India. (N.H.B. production profile, 2008). Total losses of fruits in India due to inadequate post-harvest handling, transportation and storage are estimated to be 10-15%. In terms of monetary value these losses worth more than Rs. 1200 corers annually. Guava fruits are highly perishable and their shelf life under ambient condition is 2 to 3 days on an average. The fruits of guava should be harvested carefully and brought quickly to packing house. Softening of fruits may be retarded and shelf life increased at ambient temperature by vacuum in filtration of packeted fruits in 10% calcium chloride (Ahlawat *et al.*, 1980). Calcium compounds are reported to have extended the shelf life of many fruits by maintaining their firmness and minimizing respiration rate, proteolysis disease incidence and tissue breakdown and thus reducing the loss in weight (Bramlage

*et al.*, 1974 and Sharples and Jhonson, 1977).

### ● MATERIALS AND METHODS ●

The experiment was carried out at Department of Horticulture and Food Science Laboratory, Jawaharlal Nehru Krishi Vishwa Vidhyalaya, College of Agriculture Gwalior (M.P) during the year 2002-2004. The experimental site is situated in the north of Madhya Pradesh and this tract enjoys sub-tropical climate with extreme of temperature both in summer (maximum temperature 47<sup>o</sup> C) as well as in winter (minimum 1<sup>o</sup> C). The frost is of rare occurrence but the cold waves are experienced from the middle of December up to end of January. The guava fruits were harvest at jelly making stage of maturity. Neither under ripe, nor over – ripe fruits were selected on the basis of uniformity in maturity, size and shape. The experiment was laidout in the Randomized Block Design with twenty treatments. All the treatments were replicated thrice and 25 fruits served as one unit of treatment in each replication. All the treatments were randomized separately in each replication.

Treatments: T<sub>1</sub>- post –harvest dip in distilled water, T<sub>2</sub>- 2.0% CaCl<sub>2</sub> post –harvest dip, T<sub>3</sub>- 2.0% Ca (NO<sub>3</sub>)<sub>2</sub> post – harvest dip, T<sub>4</sub>- 500 ppm bavistin post – harvest dip, T<sub>5</sub>- 1.0% CaCl<sub>2</sub> pre-harvest spray, T<sub>6</sub>- 1.0% CaCl<sub>2</sub> pre-harvest spray and 2.0% CaCl<sub>2</sub> post – harvest dip, T<sub>7</sub>- 1.0% CaCl<sub>2</sub> pre- harvest and 2.0% Ca (NO<sub>3</sub>)<sub>2</sub> post-harvest dip, T<sub>8</sub>- 1.0% CaCl<sub>2</sub> pre-harvest spray and 500

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