

Effect of pre and post harvest treatments on shelf life and quality of guava fruits. (*Psidium guajava* L.) cv. GWALIOR –27

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ABSTRACT

The shelf life of guava fruits increased with the increase in concentration of calcium compounds and bavistin. The maximum self life, T.S.S, Ascorbic acid, pectin content and minimum titrable acidity of guava fruits was obtained under 2.0% Ca (NO₃)₂ pre-harvest spray and 2.0% Ca(NO₃)₂ post –harvest dip. Pre and post-harvest application of calcium compounds and bavistin significantly affected the shelf life of guava fruits and calcium nitrate was proved better than calcium chloride and bavistin. There was gradual increase in TSS up to 6 days and decline there after, however, higher ascorbic acid and pectin content was maintained up to 9 days of storage in all the treatments. Titrable acidity was declined gradually with the increasing period of storage.

Key words : Guavava, Post harvest treatment, Shelf life, T.S.S., Ascorbic acid.

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. It is rich in vitamin C and a good source of calcium, phosphorus, pantothenic acid, riboflavin, thiamin and niacin. Guava ranks fifth in terms of acreage and fourth position in terms of production under different fruits in the country. There is enormous scope for increasing production with the availability of new selections and hybrids in guava. Being highly perishable, fruits have to be marketed immediately after harvest. The post harvest losses range from 10-15 per cent. The fruits of most of the cultivars can be stored only up to two days at room temperature (Chundawat *et al.*, 1976). Considering its short shelf life, work was carried out for longer availability of fresh fruits.

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° C) as well as in winter (minimum 1° 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 experimental field was layout 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 and the treatments were: T₁- post –harvest dip in distilled water, T₂- 2.0% CaCl₂ post –harvest dip, T₃- 2.0% Ca (NO₃)₂ post – harvest dip, T₄- 500 ppm bavistin post – harvest dip, T₅- 1.0% CaCl₂ pre-harvest spray, T₆- 1.0% CaCl₂ pre-harvest spray and 2.0% CaCl₂ post – harvest dip, T₇- 1.0% CaCl₂ pre- harvest and 2.0% Ca (NO₃)₂ post-harvest dip, T₈- 1.0% CaCl₂ pre-harvest spray and 500 ppm bavistin post – harvest dip, T₉- 2.0% CaCl₂ pre-harvest spray, T₁₀- 2.0% CaCl₂ pre- harvest spray and 2.0% CaCl₂ post harvest dip, T₁₁- 2.0% CaCl₂ pre – harvest spray and 2.0% Ca (NO₃)₂ post harvest dip, T₁₂- 2.0% CaCl₂ pre-harvest spray and 500 ppm bavistin post harvest dip, T₁₃- 1.0% Ca(NO₃)₂ pre harvest spray, T₁₄- 1.0% Ca(NO₃)₂ pre- harvest spray and 2.0% CaCl₂ post-harvest dip, T₁₅- 1.0% Ca(NO₃)₂ pre – harvest spray and 2.0% Ca (NO₃)₂ post harvest dip, T₁₆- 1.0% Ca(NO₃)₂ pre- harvest spray and 500 ppm bavistin post – harvest dip, T₁₇- 2.0 % Ca(NO₃)₂ pre-harvest spray, T₁₈- 2.0% Ca(NO₃)₂ pre-harvest spray and 2.0% CaCl₂ post – harvest dip, T₁₉- 2.0% Ca(NO₃)₂ pre- harvest spray and 2.0 % Ca(NO₃)₂ post-harvest dip, T₂₀- 2.0% Ca(NO₃)₂ pre harvest spray and 500 ppm bavistin post-harvest dip.

Single spray of calcium compounds was carried out one month before harvesting with the help of foot sprayer using 0.1% Teepol as surfactant, (Bhanja and Lenka, 1994). Harvesting of fruits were done one month after the pre-harvest spray of fruit and dipped for 2 minutes in the solution of definite concentration of different chemicals. The total soluble solids (T.S.S.) of the fruit Juice was determined by using a Zeis refractometer.