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RESEARCH PAPER

Effect of pre-harvest and post-harvest treatments on physico-chemical characteristics and shelf-life of guava fruits (*Psidium guajava* L.) during storage

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SUMMARY : The physico-chemical characteristics and shelf-life of guava fruits treated with 2.0 per cent calcium chloride, 2.0 per cent calcium nitrate, 1000 ppm copper oxychloride and distill water were studied. All tested treatments indicated a significant changes in weight loss, total soluble solids, non-reducing, reducing, total sugars, pectin and rotting percentage in guava fruits of experimental set that that of the control set. Moreover, the physicochemical analysis of guava fruits of experimental set revealed that it also contain higher amount of pectin content. The significant impact of treatment is found on the least rotting percentage in the order of fruits treated with calcium nitrate 2.0 per cent and calcium chloride 2.0 per cent. Hence, it could be concluded that post-harvest chemical treatment with calcium nitrate has the potential to control rotting incidence, prolong the shelf-life and preserve valuable attributes of post-harvest guava, presumably because of its effect on inhibition of ripening and senescence process.

KEY WORDS : Guava, Post-harvest treatments, Shelf-life, Physico-chemical

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Guava (*Psidium guajava* L.) is one of the most important, highly productive, delicious and nutritious fruit gown commercially throughout tropical and subtropical region of India. It occupies fifth position in terms of area and fourth position in terms of production among fruits of India. In M.P. the area under guava fruit is 4800 ha and production is about 95,000 MT (NHB, 2009). Though, successfully grown all over the country, Uttar Pradesh, Bihar, and Madhya Pradesh are the largest growers and produces best quality guava. Allahabad has the distinct reputation of growing best quality guavas in the world.

It is climacteric fruit and highly perishable in nature and should be marketed immediately after harvest; it can only be stored up to 2 to 3 days under ambient conditions. In order to minimize these losses and to quality of fruits during storage, the study was carried out to evaluate the efficacy of different chemicals on qualitative characters of the guava fruits.

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EXPERIMENTAL METHODS

The present investigation of pre and post-harvest application of different chemicals effect on shelf-life of guava fruits was conducted during January 2007 to April 2008. The treatments consisted of 20 combinations of pre-harvest spray (5 levels) and post-harvest dip (4 levels) comprising three replications were tested under Factorial RBD.

Pre-harvest spray treatment :

Single spray of calcium chloride 2 per cent (A_1), calcium nitrate (A_2), starch (A_3) and copper oxychloride (A_4) were carried out one month before harvesting in the first year on 10th December 2007 and in the second year on 2nd December 2008 with the help of foot sprayers using 0.1 per cent teepol as surfactant. The control trees were sprayed with distilled water