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Research Paper

Biochemical studies in fruits of guava cultivars

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ABSTRACT

Guava (*Psidium guajava* L.) is one of the major commercial fruit crops of India. It ranks fourth in area and production of fruits after mango, banana and citrus. It is the favourite fruit of growers because of its wide adaptability and higher return per unit area. The guava fruit is a very rich source of vitamin – C, calcium and iron. Six cultivars of guava, *viz.*, Allahabad Safeda, Apple Colour, Behat Coconut, Lucknow-49, Pear Shaped and Red Flesh were evaluated for their physical characteristics and biochemical composition during the winter season under the arid irrigated conditions of Punjab at Regional Research Station, Abohar during the years 2006-2008. The data on physico–chemical characteristics and biochemical composition revealed that fruit yield (85 kg / tree), fruit weight (95 g), fruit size (6.5 x 5.4 cm) and vitamin-C content (266.0 mg/ 100 g pulp) were found to be higher in Lucknow – 49 when compared to the other cultivars. TSS (11.0 %), total sugars (3.60 %), total protein (0.595 %) contents were higher while total phenol (580.5 %) content was comparatively less in Allahabad Safeda (580.5 ug/g).

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The guava (*Psidium guajava* L.), popularly known as poor man's apple, is being cultivated in the tropical and sub tropical parts of India. This is a highly productive and nutritive fruit crop. The fruit is a rich source of vitamin C, calcium, iron and pectin. Guava is grown as a commercial crop in Northern India due to its high yield and good economic returns (Bal, 1997). Guava crop bears twice a year, *i.e.*, during rainy season and winter season. The quality of the guava fruit is observed to be better in winter season (Rathore, 1976). The analysis of physical and biochemical attributes would serve as a tool for evaluation of guava cultivars suitable for the arid irrigated region of Punjab.

MATERIALS AND METHODS

Six cultivars of guava *viz.*, Allahabad Safeda, Apple Colour, Behat Coconut, Lucknow - 49, Pear Shaped and Red Flesh were selected for the present investigation at Regional Research Station, Abohar during the year 2006-2008. The different cultivars were evaluated for the winter season crop (November – December). Five trees were selected for observation under each cultivar. Fruit samples collected at the time of maturity from all the cultivars were evaluated for physico – chemical and biochemical constituents. Total phenols, sugars and protein content were estimated by following the methods of Mahadevan (1974), Ketiku (1973) and Lowry *et al* (1951), respectively. The total soluble solids and vitamin C were determined using the method of AOAC (1984).

RESULTS AND DISCUSSION

The data presented in Table 2 reveals that fruit yield and fruit weight varies significantly in the different guava cultivars evaluated. Higher fruit yield (85 Kg / tree) was observed in Lucknow -49 followed by Allahabad safeda (60 Kg / tree) while minimum (35 Kg/tree) in Pear shaped cultivars of guava. Maximum fruit size (6.5 x 5.4 cm) and fruit weight (95 g / fruit) was observed in Lucknow – 49. However, higher fruit yield and fruit weight were reported in Allahabad safeda by Jana *et al*. (2010) and Athani *et al*. (2007), respectively.

Total soluble solids, vitamin C, total sugars, phenols, total protein contents varied significantly among different cultivars (Table 1). TSS (11.0 %), total sugars (3.60 %) and total protein (0.595 %) contents were higher in Allahabad safeda followed by Lucknow – 49 (TSS : 10.8 %, Sugars : 3.41 % and Proteins : 0.556 %) while vitamin C content was maximum (266 mg/ 100 g pulp) in Lucknow – 49. The phenol content was comparatively less in Allahabad safeda (580.5 ug/g) and Lucknow – 49 (585.6