

Effect of different doses of nitrogen, phosphorus and potash application on physico-chemical characteristics of guava (*Psidium guajava* L.) cv. ALLAHABAD SAFEDA

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SUMMARY

The present experiment entitled effect of different doses of nitrogen, phosphorus and potash application on physico-chemical characteristics of Guava (*Psidium guajava* L.) cultivar Allahabad Safeda was conducted on 12 year old guava trees at Research Orchard/Farm, Department of Horticulture, Allahabad Agricultural Institute-Deemed University Allahabad. The NPK were applied in the form of ammonium sulphate, single super phosphate and muriate of potash. Experiment was laid out in a randomized block design with four treatments consisting of T₀-control (no. application of A.S, S.S.P and MOP), T₁ (A.S: S.S.P: MOP @ 860:440:440 g/tree), T₂ (A.S: S.S.P: MOP @ 720:360:360 g/tree) and T₃ (A.S: S.S.P: MOP @ 600:280:280 g/tree). The maximum fruit length (6.4cm), diameter (6.98cm), weight (173.36g), volume (160.0ml), specific gravity (1.085), TSS (12.0%), total sugar (9.20%) and ascorbic acid (206.08 mg/100ml juice) was recorded with treatment T₁ (A.S:S.S.P: MOP @ 860:440:440 g/tree, as far as acidity of guava is concerned, the treatment T₀ (Control- no application of NPK) recorded maximum acidity (1.77%).

Key Words : Guava, NPK, Physico-chemical characteristics

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Guava, the apple of tropics is one of the most common fruit in India. The popularity of the guava can be judged by the fact that it is said to be the poor mans apple in India. It has wider adaptability, profuse yield, delicious taste, attractive colour and high nutritive value. Guava fruits are very rich source of ascorbic acid and minerals, such as calcium, iron and phosphorus. The fruits are suitable for several kinds of products. Among the products guava jelly, guava cheese and guava nectar are very popular products. Guava may be

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an important future fruit due to its high medicinal, nutritional value, high productivity per unit area and suitability even in waste lands. However, the fruit shows great potentiality for processing into quality products, which have great in demand in national and international markets. The guava orchard selected for investigation produced fruit of inferior quality in winter season with respect to physico-chemical characteristics of fruits due to poor nutrition. Keeping this in view, the present experiment entitled effect of different doses of nitrogen, phosphorus and potash application on physico-chemical characteristics of guava (*Psidium guajava* L.) cultivar Allahabad Safeda was carried out at Research Orchard/Farm, Department of Horticulture Allahabad Agricultural Institute-Deemed University Allahabad to ascertain the treatment, which improve the quality of winter season guava.

MATERIALS AND METHODS

The experiment entitled effect of different doses of nitrogen, phosphorus and potash application on physico-

Table 1 : Effect of nitrogen, phosphorus and potash application on physical characteristics of guava cv. ALLAHABADSAFEDA

Treatments	Length of fruits (cm)	Diameter of fruits (cm)	Average of fruits (grams)	Volume of fruits (ml)	Specific gravity (%)
T ₀ (No fertilizers)	5.14	5.92	126.65	118.6	1.068
T ₁ (AS:SSP:MOP@ 860:440:440g/tree)	6.4	6.98	173.36	160.0	1.085
T ₂ (AS:SSP:MOP@ 720:360:360g/tree)	5.78	6.56	151.7	140.2	1.081
T ₃ (AS:SSP:MOP@ 600:280:280g/tree)	5.58	6.28	131.5	124.0	1.074
C.D. at 5%	0.59	0.51	17.5	18.04	0.01

AS = Ammonium sulphate, SSP = Single super phosphate, MOP = Muriate of potash

Table 2 : Effect of nitrogen, phosphorus and potash application on chemical characteristics of guava cv. ALLAHABADSAFEDA

Treatments	Total soluble solid (%)	Total sugar (%)	Vitamin C (per 100 ml juice)	Acidity (%)
T ₀ (No fertilizers)	10.2	6.48	145.44	1.770
T ₁ (AS:SSP:MOP@ 860:440:440g/tree)	12.0	9.2	206.08	1.348
T ₂ (AS:SSP:MOP@ 720:360:360g/tree)	11.3	8.09	175.52	1.386
T ₃ (AS:SSP:MOP@ 600:280:280g/tree)	11.0	6.60	155.60	1.536
C.D. at 5%	1.255	0.691	31.77	0.623

AS = Ammonium sulphate, SSP = Single super phosphate, MOP = Muriate of potash

chemical characteristics of guava (*Psidium guajava* L.) cultivar Allahabad Safeda was carried out at Research Orchard/Farm, Department of Horticulture Allahabad Agricultural Institute-Deemed University Allahabad. The NPK were applied in the form of ammonium sulphate, single super phosphate and muriate of potash. Experiment was laid out in a randomized block design with four treatments consisting of T₀-control (no application of fertilizers), T₁ (A.S: S.S.P: MOP @ 860:440:440 g/tree), T₂ (A.S: S.S.P: MOP @ 720:360:360 g/tree) and T₃ (A.S: S.S.P: MOP @ 600:280:280 g/tree). All the treatments replicated five times and the treatment unit was a single tree. The amounts of NPK were applied in the form of ammonium sulphate, single super phosphate and muriate of potash into two splits doses. The half dose of AS, SSP and MOP were given on 15th July and second dose on 15th August 2004. The fertilizers were incorporated into the soil in a basin about 15 cm from the trunk/stem with the help of khurpi, immediately followed by irrigation. The physico-chemical analysis of the fruits at harvesting was done using standard method and procedure as per A.O.A.C (1990) and was subjected to statistical analysis.

RESULTS AND DISCUSSION

It is clear from the data depicted in the Table 1 and 2 that there was significant difference between the different treatments of nitrogen, phosphorus and potash on physico-chemical characteristics of guava. Among all the treatments, the treatment T₁ (ammonium sulphate, single super phosphate and muriate of potash @ 860:440:440 g/tree) was found effective in term of physico-chemical characteristics of guava cv Allahabad Safeda. The maximum fruit length (6.4cm), diameter (6.98cm), weight (173.36g), volume (160.0ml), specific gravity (1.085), T.S.S (12.0%), total sugar (9.20%) and vitamin C (206.08mg/100ml juice) were recorded with T₁ (AS, SSP and MOP @ 860:440:440g/tree, followed by treatment T₂ (A.S: S.S.P: MOP @ 720:360:360 g/tree fruit length (5.78cm), diameter (6.56cm), weight (151.7g), volume (140.2ml), specific gravity (1.1.074), T.S.S (11.3%), total sugar (8.09%) and

vitamin C (175.52mg/100ml juice), as far as acidity of guava is concerned, the treatment T₀ (Control- no application of NPK) recorded maximum (1.77%). These results are in close agreement with Arora and Singh, (1970) Mitra and Bose (1985), Singh *et al.* (1988), Tassar *et al.* (1989), Ali *et al.* (1991), Tomar *et al.* (1992) and Walling and Sanyal (1995).

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