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## Effect of foliar application of micronutrients on chemical characters of winter season guava (*Psidium guajava* L.) cv.L-49

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**Abstract**

A field experiment was conducted during 2018 at Horticulture Research Farm-I, Babasaheb Bhimrao Ambedkar University, Lucknow on 6 year old guava plants, 'Effect of foliar application of micronutrients on chemical characters of winter season guava (*Psidium guajava* L.) cv.L-49', revealed that TSS (12.60 OBrix), Acidity (0.21%), Ascorbic acid content (209.69 mg/100 pulp), Total sugar (8.52%), Reducing sugar (5.01%) and Non-reducing sugar (3.51%) were maximized when foliar spray was done with Borax (0.1%) and Zinc Sulphate (0.2%) respectively.

**Keywords:** Guava, borax, zinc sulphate and chemical characters

**Introduction**

Guava (*Psidium guajava* L.), being most important cultivated species of Myrtaceae family. it is considered to be the apple of tropics because of its desert and culinary use. This fruit originated in Tropical America and seems to have been growing from Mexico to Peru. Guava is one of the most popular fruits grown in tropical, sub-tropical and some parts of arid region of India. This has 140 genera and 3000 species widely distributed throughout the tropical and subtropical regions of the world in India. It is the sixth most important fruit in production after banana mango, citrus, papaya and pineapple. Guava is an evergreen, shallow-rooted shrubs or small tree 4 m tall with spreading branches. The guava bears solitary flower or in cyme of two or three flower on the current season growth in the axils of the leaves. The bark is smooth, mottled green or reddish brown and peels off in thin flakes to reveal the attractive "bony" aspect of trunk. Leaves are opposite, simple, short-petioles, entire, oval to oblong-elliptic, somewhat irregular in outline, 2-6 inches long and 1-2 inches wide. Flowers white, fragrant, borne singly or in clusters in the leaf axils, are in 1 inch wide, with 4 or 5 white petals. The fleshy may be white, pink yellow, or red the sweet, musky odor is pungent and penetrating. The seeds are numerous but small and, in good varieties, fully edible. The fruit is juicy and crunchy and delicious with a distinct aroma. Records suggest that it has been in cultivation in India since early 17<sup>th</sup> century. The fruit (berry) is an excellent source of vitamin C (210-305 mg/100g fruit pulp) and pectin (0.5-1.8%) but has low energy (66 Cal/100g), the ripe fruits contain 12.3-26.3% dry matter, 77.9-86.9% moisture, 0.51-1.02% ash, 0.10-0.70% crude fat, 0.82-1.45% crude protein and 2.0-7.2% crude fibre. The fruit is also rich in minerals like phosphorus (22.5-40.0 mg/100g pulp), Calcium (10.0-30.0 mg/100g pulp) and Iron (0.60-1.39 mg/100g pulp) as well as vitamins like Niacin (0.20-2.32 mg/100g pulp), Thiamine (0.03-0.07mg/100g pulp), Riboflavin (0.02-0.04mg/100g pulp) and vitamin-A (Mitra and Bose, 2001). Composition and Nutritive value of guava fruits.

**Materials and Methods**

6- year- old uniform guava plants of L-49 cultivar planted at 6x6 m a part growing in Horticulture Research Farm-I of the Department of Horticulture, Babasaheb Bhimrao Ambedkar University (A Central University), Vidya Vihar, Rae Bareilly Road, Lucknow-226025 were taken for the investigation. T<sub>1</sub> (Zinc Sulphate 0.2%), T<sub>2</sub> (Zinc Sulphate 0.4%), T<sub>3</sub> (Borax 0.2%), T<sub>4</sub> (Borax 0.2%), T<sub>5</sub> (Borax 0.1%+ Zinc Sulphate 0.2%), T<sub>6</sub> (Borax 0.1%+ Zinc

Sulphate 0.4%), T<sub>7</sub> (Borax 0.2%+ Zinc Sulphate 0.2%) and T<sub>8</sub> (Borax 0.2%+ Zinc Sulphate 0.4%) along with T<sub>0</sub> Water spray. First spraying of micro nutrients and plant growth regulators were done before flowering (first week of August) and second after fruit set (second week of September) during 2018. The experiment was laid out in R.B.D. with three replications. Observations recorded to be TSS, Acidity, Ascorbic acid content, Total sugar, Reducing sugar and Non-reducing sugar. The data so obtained were analysed statically.

### Results and Discussion

A perusal of data in table.1 shows that significant response in the maximum TSS (12.60<sup>0</sup>Brix) was recorded with T<sub>8</sub> (ZnSO<sub>4</sub> 0.4% + Borax 0.2%), followed by T<sub>7</sub>, T<sub>6</sub>, T<sub>5</sub>, T<sub>4</sub>, T<sub>3</sub>, T<sub>2</sub>, and T<sub>1</sub> while minimum (09.29<sup>0</sup>Brix) TSS was noted in control. that different levels of boron and zinc considerably

acidity as compared to control. The lowest acidity (0.21%) was recorded with T<sub>8</sub> (ZnSO<sub>4</sub> 0.4% + Borax 0.2%), followed by T<sub>7</sub>, T<sub>6</sub>, T<sub>5</sub>, T<sub>4</sub>, T<sub>3</sub>, T<sub>2</sub>, and T<sub>1</sub> while it was highest in control. The highest (3.51%) ascorbic acid was recorded with T<sub>8</sub>, (ZnSO<sub>4</sub> 0.4% + Borax 0.2%), followed by T<sub>7</sub>, T<sub>6</sub>, T<sub>5</sub>, T<sub>4</sub>, T<sub>3</sub>, T<sub>2</sub>, and T<sub>1</sub> while it was lowest in control. The highest (8.52%) total sugar content was recorded with T<sub>6</sub> (ZnSO<sub>4</sub> 0.4%+ Borax 0.1%), followed by T<sub>7</sub>, T<sub>6</sub>, T<sub>5</sub>, T<sub>4</sub>, T<sub>3</sub>, T<sub>2</sub>, and T<sub>1</sub> while it was lowest (5.53%) in control. The highest (5.01%) reducing sugar % content was recorded with T<sub>8</sub> (ZnSO<sub>4</sub> 0.4%+ Borax 0.2%) followed by T<sub>7</sub>, T<sub>6</sub>, T<sub>5</sub>, T<sub>4</sub>, T<sub>3</sub>, T<sub>2</sub>, and T<sub>1</sub> while it was lowest in control. The highest (3.51%) non-reducing sugar content was recorded with T<sub>8</sub>, (ZnSO<sub>4</sub> 0.4% + Borax 0.2%), followed by T<sub>7</sub>, T<sub>6</sub>, T<sub>5</sub>, T<sub>4</sub>, T<sub>3</sub>, T<sub>2</sub>, and T<sub>1</sub> while it was lowest in control.

**Table 1:** Effect of foliar application of micronutrients on chemical characters of winter season guava (*Psidium guajava* L.) cv.L-49

Treatment	TSS (0Brix)	Acidity (%)	Ascorbic acid content (mg/ 100g pulp)	Total sugar (%)	Reducing sugar (%)	Non-reducing sugar (%)
T <sub>0</sub> (Control)	9.29	0.36	141.98	5.53	3.18	2.31
T <sub>1</sub> (Zinc Sulphate 0.2%)	10.38	0.31	151.10	6.82	4.11	2.50
T <sub>2</sub> (Zinc Sulphate 0.4%)	11.49	0.24	159.93	7.27	4.29	2.60
T <sub>3</sub> (Borax 0.1%)	11.38	0.27	166.33	7.33	4.59	2.62
T <sub>4</sub> (Borax 0.2%)	12.37	0.22	174.92	7.50	4.70	2.70
T <sub>5</sub> (Borax 0.1%+ Zinc Sulphate 0.2%)	11.54	0.27	180.51	7.57	4.79	2.74
T <sub>6</sub> (Borax 0.1%+ Zinc Sulphate 0.4%)	12.26	0.24	184.22	7.71	4.80	2.86
T <sub>7</sub> (Borax 0.2%+ Zinc Sulphate 0.2%)	12.51	0.21	193.17	7.86	4.82	3.20
T <sub>8</sub> (Borax 0.2%+ Zinc Sulphate 0.4%)	12.60	0.22	209.69	8.50	5.01	3.51
S.Em ±	0.13	0.005	0.27	0.009	0.009	0.008
C.D. at 5%	0.19	0.016	0.38	0.028	0.026	0.026

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