



Response of Foliar Application of Plant Hormones and Nutrients to Enhance the Fruit Set in Jamun cv. Konkan Bahadoli

N. Bhavya¹, J. Satisha², K.S. Shivashankara³, Venkat Rao¹

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ABSTRACT

Background: Fruit production is primarily influenced by the percentage of flowering and fruit set; flower and fruit drop are significant factors contributing to reduced production and productivity in numerous fruit crops. Though jamun, till recently, was categorized as an underutilized fruit, but due to growing health concerns, jamun was drawn to the limelight because of its nutritional and economic value. Hence, to increase profitability from the cultivation of Jamun, it's important to enhance fruit set in Jamun.

Methods: The present investigation on foliar sprays to enhance fruit set was conducted at the College of Horticulture, Bengaluru, for two consecutive years, 2022-2023 and 2023-2024. The experiment was conducted on Jamun cv. Konkan Bahadoli by spraying two plant hormones GA₃ (50 and 100 ppm) and NAA (100 and 200 ppm) and three nutrients, namely KNO₃ (0.5 and 1%), Urea (7.5 and 10%) and micronutrients (mango special at 0.5 per cent).

Result: The results indicated that the maximum number of flowers per panicle had been observed in treatment T₃: NAA at 100 ppm (39.91), while the highest percentage of fruit set occurred in treatment T₅: KNO₃ at 0.5% (65.87%), which was comparable to T₆ (64.33%). The control treatment T₁₀ exhibited the lowest fruit set at 47.87%. The number of fruits per panicle (15.50) and yield per tree (8.20 kg) had been maximized in T₅: KNO₃ at 0.5%, comparable to T₆ (KNO₃ at 1%), whereas the control treatment exhibited the lowest values.

Key words: 1-Naphthaleneacetic acid, Gibberellic acid, KNO₃, Micronutrients, Urea.

INTRODUCTION

Jamun (*Syzygium cumini* Skeels) is a significant fruit crop indigenous to India, classified under the Myrtaceae family. Jamun fruit and seed have medicinal properties used to treat diabetic patients. They regulate the rapid conversion of starch into sugar and mitigate the variability of sugar levels in the body. Jamun fruit contains bioactive compounds such as anthocyanins, flavonoids, phenols, antioxidants and vitamin C. The seed contains glycoside jambolin and alkaloid jambosin. Jamun possesses numerous therapeutic properties, including anti-diabetic, anti-cancer, antimicrobial, blood purification, anti-inflammatory, antibacterial, antipyretic, antiviral, antifungal and radioprotective activities. Jamun can be well cultivated in all kinds of soils, it tolerates saline and sodic soils up to pH of 10.5 (Singh *et al.*, 1997). It thrives well under dry climatic conditions, especially during flowering and fruit set. Fruit is a berry and polyembryony is found in seeds. Flowering occurs in February and fruits come to harvest in July. Maximum fruit set observed in jamun varied between 36% to 44% (Devi *et al.*, 2016) when pollination occurred on the same day of anthesis. Flower drop and fruit drop lead to economic losses. An investigation to enhance fruit set in jamun is a major concern. Many proven results on effective foliar spray to enhance fruit set were studied in different crops with plant hormones and nutrients such as GA₃, NAA, KNO₃, Urea and micronutrient sprays. GA₃ helps in reducing flower and fruit drop and thus enhances fruit set (Sharma and Tiwari, 2015). NAA is known to reduce premature dropping of flowers and fruit, reducing abscission (Nartvaranant, 2018). KNO₃ acts as a nutrient source and mobilizes minerals, leading to higher fruit

¹Department of Fruit Science, College of Horticulture, Bengaluru, University of Horticultural Sciences, Bagalkot-587 101, Karnataka, India.

²Division of Fruit Crops, ICAR-Indian Institute of Horticultural Research, Hesaraghatta, Bengaluru-560 089, Karnataka, India.

³Division of Basic Sciences, ICAR-Indian Institute of Horticultural Research, Hesaraghatta, Bengaluru-560 089, Karnataka, India.

Corresponding Author: J. Satisha, Division of Fruit Crops, ICAR-Indian Institute of Horticultural Research, Hesaraghatta, Bengaluru-560 089, Karnataka, India.

Email: satilata@gmail.com

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retention (Vijay *et al.*, 2016). Urea contributes to ovaries development and enhances fruit set (Katiyar *et al.*, 2010). Micronutrients (mango special) play a major role in hormone regulation and metabolic processes and enhance fruit set and fruit quality (Gurjar *et al.*, 2015). This research investigates the application of plant hormones and nutrition sprays for the foliage to enhance fruit set and retention in the Jamun cultivar Konkan Bahadoli. In many fruit crops use of nutrients and plant hormones to enhance fruit set and productivity has been carried out and has shown positive results. Hence, to increase profitability from the cultivation of Jamun, it's important to enhance fruit set in Jamun. Nearly 50 to 60 per cent of flower drop is seen

post-pollination. Enhancing the fruit set to 50 to 60 per cent can increase the profitability. The premature fruit drop may occur due to many factors, such as problems during post-fertilization, or due to complex interactions between physiology, environment, genetic and hormonal factors. Flower drop and fruit drop lead to economic losses. To increase profitability from the cultivation of Jamun, it's important to enhance fruit set in Jamun.

MATERIALS AND METHODS

Research site

The research was performed at the College of Horticulture, UHS campus, Bengaluru, located in the Eastern dry zone (Zone 5) of Karnataka's agro-climatic zones at 12°58' North Latitude and 77°35' East Longitude, at an elevation of 930 meters above mean sea level. The work was conducted over two consecutive years, 2022-2023 and 2023-2024, focusing on the Jamun cultivar Konkan Bahadoli. The 7-year-old Konkan Bahadoli variety was selected for investigation. Each tree was randomly tagged in a Jamun block and twelve trees for each treatment were selected. The investigation was planned with ten treatments and three replications in a randomised block design. Trees were spaced at 5 × 5 meters.

Treatment details

T₁: GA₃ @ 50ppm, T₂:GA₃ @ 100ppm, T₃: NAA @100ppm, T₄: NAA @ 200ppm, T₅: KNO₃ @ 0.5%, T₆: KNO₃ @ 1%, T₇: Urea @7.5%, T₈: Urea @10%, T₉: Micronutrient's mixture (Mango special) @ 0.5%, T₁₀: control.

Treatment application

Spray treatments were carried out twice with a time gap of 8 to 10 days, wherein the first spray was taken at the flower initiation stage and the second spray was taken at the full bloom stage. GA₃ and NAA were first dissolved in ethanol and mixed with 15 litres of water and a spray was taken using a knapsack sprayer. Spray was taken in the early morning hours between 7 AM to 9 AM.

Observation recorded

Flower and fruit parameters

1. Number of flowers per panicle.
2. Percentage of fruit set.
3. Fruit weight.
4. Seed weight.

Yield parameters

1. Number of fruits per panicle.
2. Yield/tree.

Biochemical parameters

1. TSS (p B).
2. Acidity (%).
3. Phenols (mg/100 g FW).
4. Antioxidants (mg/100 g FW).
5. Flavonoids (mg/100 g FW).
6. Anthocyanins (mg/100 g FW).

Statistical analysis

The data had been presented as pooled analysis data by taking the means of two years in each replication and emphasis is given to the pooled analysis results. Each season's data was statistically analysed using RBD design and presented. The data presented above across all parameters were organized and subjected to statistical analysis through "ANOVA (Analysis of Variance)" to compare treatment means. A significant F-test at a 5 per cent critical difference (C.D. at 5%) was utilized to compare the two treatments. Statistical analysis was conducted using R software and Microsoft Excel 2003.

RESULTS AND DISCUSSION

The fruit set percentage was significantly higher in trees treated with nutrients and hormones, whereas the biochemical composition, viz., anthocyanins, flavonoids and antioxidant contents of fruits, was higher in the control treatment due to smaller fruit size.

Flower and fruit parameters

Number of flowers per panicle were significantly higher (39.91) in trees which received T₃ treatment (NAA @100 ppm) followed by T₈ (39.66), T₅ (39.33), T₄ (38.91) and T₉ (38.58) and least number of flowers per panicle (33.50) were observed in T₂ GA₃ @ 100ppm (Table 1). NAA is known to induce flowering and decrease flower fall by reducing abscission. Comparable results were documented in Guava by Sagar *et al.* (2024) and in Litchi by Anand *et al.*, (2003), indicating that KNO₃ facilitates the mobilization of essential resources, including nitrogen and potassium, while promoting starch and carbohydrate accumulation, hence triggering and sustaining flowering. Similar reports were found in mango (Afiqah *et al.*, 2012). The percentage fruit set was significantly higher (65.87%) in treatment T₅ (KNO₃ @ 0.5%) which was at par with T₆ (64.33%), T₉ (62.09%), T₂ (61.64%) and T₁ (60.36%) and the lowest fruit set (47.87%) was observed in control treatment T₁₀ (Table 1). Potassium has a major role in plants' physiological activity, such as energizing enzymes and nutrient mobilization, when foliar application is done at the time of flowering and fruit bud differentiation. Similar findings were observed in the mango cv. Alphonso, when KNO₃ was applied at 2% concentration (Sudha *et al.*, 2012).

The fruit weight was highest (9.12 g) in treatment T₉ (Micronutrients (Mango special) @ 0.5%), which was on par with T₆ (8.81g) and T₅ (8.77 g) and the lowest fruit weight was found in treatment T₁₀ control treatment (Table 1). A combination of micronutrients has a significant effect on enhancing fruit weight. Copper, zinc and borax play a significant role in enhancing fruit size (Ilyas *et al.*, 2015 and Sebastian *et al.*, 2025) similar study was conducted by Vijayvargiya and Singh (2024) in mango. The maximum seed weight was noted at 1.48 g in treatment T₉ (Micronutrients (Mango special) @ 0.5%), which was comparable to treatment T₄: NAA @ 200 ppm (1.39 g). The minimum seed

Table 1: Effect of foliar application of plant hormones and nutrients on number of flowers per panicle, percentage of fruit set and fruit weight in Jamun cv. Konkani Bahadoli.

Treatment	No. of flowers/panicle		Pooled mean	Treatment	Percentage of Fruit set (%)		Pooled mean	Treatment	Fruit weight (g)		Pooled mean
	(Season1)	(Season2)			(Season1)	(Season2)			(Season1)	(Season2)	
T ₁	30.66 ^{ab}	40.50 ^{ab}	35.58 ^{ab}	T ₁	58.17 ^{abc}	62.55 ^{abc}	60.36 ^{abc}	T ₁	7.40 ^{ef}	8.26 ^{cd}	7.83 ^{de}
T ₂	29.50 ^{ab}	37.5 ^b	33.50 ^b	T ₂	60.52 ^{ab}	62.76 ^{abc}	61.64 ^{abc}	T ₂	6.81 ^f	7.71 ^{de}	7.40 ^e
T ₃	34.33 ^a	45.50 ^a	39.91 ^a	T ₃	54.94 ^{bc}	59.13 ^{bc}	57.05 ^{cde}	T ₃	7.90 ^{cde}	8.43 ^{bcd}	8.16 ^d
T ₄	32.83 ^{ab}	45.00 ^a	38.91 ^a	T ₄	56.42 ^{abc}	59.29 ^{bc}	57.86 ^{bcde}	T ₄	8.65 ^a	8.33 ^{cd}	8.49 ^{bc}
T ₅	32.50 ^{ab}	46.16 ^a	39.33 ^a	T ₅	62.50 ^a	69.24 ^a	65.87 ^a	T ₅	8.55 ^a	9.00 ^{abc}	8.77 ^{ab}
T ₆	31.33 ^{ab}	42.50 ^{ab}	36.91 ^{ab}	T ₆	62.29 ^a	66.37 ^{ab}	64.33 ^{ab}	T ₆	8.45 ^{ab}	9.18 ^{ab}	8.81 ^{ab}
T ₇	33.16 ^{ab}	42.16 ^{ab}	37.66 ^{ab}	T ₇	51.40 ^b	57.42 ^{cd}	54.41 ^{def}	T ₇	8.00 ^{bcd}	9.13 ^{ab}	8.56 ^{bc}
T ₈	34.33 ^a	45.00 ^a	39.66 ^a	T ₈	53.84 ^{bc}	50.51 ^d	52.17 ^{ef}	T ₈	8.35 ^{abc}	9.02 ^{abc}	8.68 ^{ab}
T ₉	32.50 ^{ab}	44.66 ^a	38.58 ^a	T ₉	60.46 ^{ab}	63.72 ^{abc}	62.09 ^{abc}	T ₉	8.65 ^a	9.59 ^a	9.12 ^a
T ₁₀	30.66 ^{ab}	43.00 ^{ab}	36.83 ^{ab}	T ₁₀	45.55 ^c	50.20 ^d	47.87 ^f	T ₁₀	7.50 ^{def}	7.26 ^e	7.38 ^e
S.E.m±	1.46	2.24	1.46	S.E.m±	2.35	2.70	2.30	S.E.m±	0.17	0.25	0.16
CD@5%	4.34	6.68	4.34	CD@5%	6.98	8.02	6.84	CD@5%	0.50	0.76	0.49

Treatment details: T₁: GA₃ @ 50 ppm, T₂: GA₃ @ 100ppm, T₃: NAA @100 ppm, T₄: NAA @ 200 ppm, T₅: KNO₃ @ 0.5%, T₆: KNO₃ @ 1%, T₇: Urea @7.5%, T₈: Urea @10%, T₉: Micronutrients (Mango special) @ 0.5%, T₁₀: control.

weight of 1.14 g was obtained in treatments T₁ and T₂ (T₁: GA₃ @ 50 ppm, T₂: GA₃ @ 100 ppm) (Table 2). Iron, manganese, zinc and boron have a greater effect on enhancing seed weight. Micronutrient sprays have a major effect on enhancing physical attributes of fruit, such as fruit length, width and weight. The augmented fruit size in trees treated with a micronutrient mixture may be ascribed to the zinc content, which could facilitate the synthesis of tryptophan, a precursor to IAA synthesis, hence increasing the cell count in early fruitlets. An increased quantity of cells directly influences the ultimate size of the fruit. Application of GA₃ at the bud break and flowering stages has caused seedlessness in Jamun (Raja and Rani, 2021).

Yield parameters

The largest number of fruits per panicle had been recorded in treatment T₅ (KNO₃ @ 0.5%) with 15.50 fruits, followed by T₆ (KNO₃ @ 1%), while the lowest count of 9.00 fruits per panicle was found in treatment T₁₀ (control). The maximum yield per tree was recorded at 9.85 kg in treatments T₅ (KNO₃ @ 0.5%) and T₆ (KNO₃ @ 1%), whereas the minimum yield per tree, 5.15 kg, was noted in treatment T₁₀ control (Table 2).

Potassium helps in stress resistance, activation of metabolic processes and mobilization of nutrients from source to sink, enhancing yield and quality in fruits. Nitrogen in the form of nitrate helps chlorophyll and protein synthesis. Similar works were also reported in many fruit crops. In pear fruit, yield was maximum (60.1 kg/tree) when KNO₃ at 2% concentration was applied as a foliar spray reported by Sajid *et al.* (2022) and investigation done by Arora *et al.* (2021) on mango, foliar spray of KNO₃ at 3% concentration significantly enhanced fruit yield (39.79 kg/tree). KNO₃ application had increased yield in other crops as reported by Machado and Sao Jose (2000) and Debnath and Kundu (2001).

Biochemical parameters

TSS and acidity showed significant differences in the 2nd season, whereas the 1st season data and pooled data showed a non-significant difference, the highest phenolic content (1047.49 mg/100 g FW), antioxidant content (775.09 mg/100 g FW), flavonoids (217.56 mg/100 g FW) and anthocyanin content (360.14 mg/100 g FW) was recorded in T₁₀ treatment (control) and lowest phenol content (501.58 mg/100 g FW) and antioxidant capacity was observed in treatment T₈ (Urea @10%). The lowest flavonoid content and anthocyanin content were observed in T₃ (NAA @100 ppm) (Table 3 and 4).

The fruit weight has a negative correlation with antioxidant and total phenolic content in the fruits of black jamun land races. Based on the fruit weight, fruits were categorized with land race codes and confirmed that the fruits (BJLR-6) with the lowest fruit weight (3 g) have the highest antioxidant activity and phenolic content. (Gajera *et al.*, 2017). Similarly, the TSS and acidity, TSS was higher in small fruits and acidity was lower here there is a negative correlation between TSS and acidity (Table 3). The dilution effect might be the reason for the lower concentration of

Table 2: Effect of foliar application of plant hormones and nutrients on number of seed weight, number of fruits per panicle and yield/tree in Jamun cv. Konkan Bahadoli.

Treatment	Seed weight (g)		Pooled mean	No. of fruits/panicle		Pooled mean	Treatment	Yield/tree (kg)		Pooled mean
	(Season1)	(Season2)		(Season1)	(Season2)			(Season1)	(Season2)	
T ₁	1.15 ^{cd}	1.14 ^d	T ₁	11.33 ^{bc}	15.00 ^{ab}	13.16 ^{bc}	T ₁	4.03 ^{ef}	7.70 ^d	5.86 ^d
T ₂	1.10 ^d	1.19 ^d	T ₂	12.00 ^{ab}	14.33 ^b	13.16 ^{bc}	T ₂	4.26 ^{def}	7.90 ^d	6.08 ^d
T ₃	1.23b ^c	1.35 ^{bc}	T ₃	10.66 ^{bcd}	13.66 ^b	12.16 ^{bc}	T ₃	5.16 ^c	9.56 ^c	7.36 ^c
T ₄	1.39 ^a	1.39 ^{ab}	T ₄	10.33 ^{bcd}	13.00 ^b	11.66 ^{bc}	T ₄	4.93 ^{cd}	9.50 ^c	7.21 ^c
T ₅	1.33 ^{ab}	1.36 ^b	T ₅	13.33 ^a	17.33 ^a	15.50 ^a	T ₅	7.00 ^a	12.86 ^a	9.85 ^a
T ₆	1.36 ^{ab}	1.35 ^{bc}	T ₆	13.66 ^a	17.33 ^a	15.33 ^a	T ₆	6.85 ^a	12.70 ^a	9.85 ^a
T ₇	1.36 ^{ab}	1.38 ^b	T ₇	9.33 ^{de}	13.33 ^b	11.33 ^c	T ₇	4.33 ^{de}	7.66 ^d	6.00 ^d
T ₈	1.35 ^{ab}	1.41 ^{ab}	T ₈	10.00 ^{cde}	12.66 ^b	11.33 ^c	T ₈	4.56 ^{cde}	8.00 ^d	6.28 ^d
T ₉	1.45 ^a	1.51 ^a	T ₉	12.00 ^{ab}	15.33 ^{ab}	13.66 ^{ab}	T ₉	6.08 ^b	11.08 ^b	8.58 ^b
T ₁₀	1.11 ^{cd}	1.24 ^{cd}	T ₁₀	8.33 ^e	9.66 ^c	9.00 ^d	T ₁₀	3.56 ^f	6.75 ^e	5.15 ^e
S.Em±	0.04	0.04	S.Em±	0.65	0.95	0.72	S.Em±	0.25	0.15	0.16
CD@5%	0.13	0.12	CD@5%	1.91	2.83	2.15	CD@5%	0.76	0.44	0.47

Treatment details: T₁: GA₃ @ 50 ppm, T₂: GA₃ @ 100 ppm, T₃: NAA @ 100 ppm, T₄: NAA @ 200 ppm, T₅: KNO₃ @ 0.5%, T₆: KNO₃ @ 1%, T₇: Urea @ 7.5%, T₈: Urea @ 10%, T₉: Micronutrients (Mango special) @ 0.5%, T₁₀: control.

Table 3: Effect of foliar application of plant hormones and nutrients on TSS, acidity and phenols in jamun cv. Konkan Bahadoli.

Treatment	TSS (p B)		Pooled mean	Acidity (%)		Pooled mean	Treatment	Phenols (mg/100 g FW)		Pooled mean
	(Season1)	(Season2)		(Season1)	(Season2)			(Season1)	(Season2)	
T ₁	15.13	13.00 ^a	14.26	1.70 ^{ab}	1.86 ^c	1.78	T ₁	889.25 ^b	820.00 ^b	854.62 ^b
T ₂	15.06	13.16 ^a	14.13	1.60 ^{ab}	1.86 ^c	1.73	T ₂	844.59 ^b	875.01 ^b	859.80 ^b
T ₃	15.33	11.73 ^{ab}	13.66	1.54 ^b	2.24 ^a	1.89	T ₃	603.83 ^{de}	533.29 ^d	568.56 ^d
T ₄	15.96	10.73 ^b	13.35	1.54 ^b	2.13 ^{ab}	1.84	T ₄	615.48 ^{de}	533.94 ^d	574.71 ^d
T ₅	15.83	12.23 ^{ab}	14.10	1.62 ^{ab}	2.13 ^{ab}	1.88	T ₅	712.56 ^c	655.61 ^c	684.09 ^c
T ₆	15.73	12.00 ^{ab}	13.91	1.57 ^{ab}	1.92 ^{bc}	1.74	T ₆	656.90 ^d	670.49 ^c	663.70 ^c
T ₇	15.60	11.73 ^{ab}	13.73	1.70 ^{ab}	2.08 ^{abc}	1.89	T ₇	584.42 ^{ef}	556.59 ^d	570.50 ^d
T ₈	15.96	11.53 ^{ab}	13.86	1.68 ^{ab}	1.97 ^{bc}	1.82	T ₈	540.41 ^f	462.74 ^e	501.58 ^e
T ₉	15.10	13.00 ^a	14.06	1.76 ^a	2.08 ^{abc}	1.86	T ₉	727.45 ^c	646.55 ^c	687.00 ^c
T ₁₀	16.22	13.53 ^a	14.30	1.65 ^{ab}	1.86 ^c	1.76	T ₁₀	1097.62 ^a	997.33 ^a	1047.49 ^a
S.Em±	0.41	0.75	0.44	0.06	0.08	0.05	S.Em±	17.96	18.78	13.10
CD@5%	1.24(NS)	2.23	1.33(NS)	0.19	0.24	0.17(NS)	CD@5%	53.36	55.81	38.92

Treatment details: T₁: GA₃ @ 50 ppm, T₂: GA₃ @ 100 ppm, T₃: NAA @ 100 ppm, T₄: NAA @ 200 ppm, T₅: KNO₃ @ 0.5%, T₆: KNO₃ @ 1%, T₇: Urea @ 7.5%, T₈: Urea @ 10%, T₉: Micronutrients (Mango special) @ 0.5%, T₁₀: control.

Table 4: Effect of foliar application of plant hormones and nutrients on antioxidants, flavonoids and anthocyanins in jamun cv. Konkan Bahadoli.

Treatment	Antioxidants mg/100 g FW		Pooled mean	Treatment	Flavonoids mg/100 g FW		Pooled mean	Treatment	Anthocyanins mg/100 g FW		Pooled mean
	(Season1)	(Season2)			(Season1)	(Season2)			(Season1)	(Season2)	
T ₁	742.89 ^b	657.01 ^b	699.95 ^b	T ₁	226.96 ^a	201.58 ^{ab}	214.27 ^a	T ₁	382.53 ^a	329.85 ^b	356.19 ^a
T ₂	744.70 ^b	610.19 ^c	677.44 ^c	T ₂	211.28 ^b	196.58 ^{bc}	203.93 ^b	T ₂	384.83 ^a	301.05 ^e	342.94 ^b
T ₃	623.12 ^d	514.74 ^f	568.93 ^f	T ₃	191.49 ^{de}	166.20 ^f	178.85 ^g	T ₃	339.89 ^{cd}	255.95 ^f	297.92 ^f
T ₄	569.58 ^e	557.42 ^e	563.50 ^f	T ₄	187.08 ^e	176.69 ^e	181.88 ^g	T ₄	337.10 ^{cd}	262.20 ^f	299.98 ^f
T ₅	642.01 ^{cd}	566.99 ^e	604.50 ^e	T ₅	203.54 ^c	173.55 ^e	188.55 ^{de}	T ₅	337.10 ^{cd}	303.68 ^{de}	320.39 ^d
T ₆	667.10 ^c	588.98 ^d	628.04 ^d	T ₆	197.17 ^d	184.63 ^d	190.90 ^{cd}	T ₆	342.20 ^c	314.05 ^{cd}	328.13 ^c
T ₇	587.43 ^e	499.74 ^f	543.58 ^g	T ₇	190.90 ^e	194.23 ^c	192.57 ^c	T ₇	329.85 ^{de}	316.36 ^c	323.10 ^{cd}
T ₈	575.79 ^e	505.69 ^f	540.74 ^g	T ₈	186.39 ^e	184.04 ^d	185.22 ^{ef}	T ₈	319.48 ^f	305.82 ^{de}	312.65 ^e
T ₉	668.13 ^c	556.90 ^e	612.52 ^{de}	T ₉	189.43 ^e	175.61 ^e	182.52 ^{fg}	T ₉	321.79 ^{ef}	299.24 ^e	310.51 ^e
T ₁₀	798.76 ^a	751.42 ^a	775.09 ^a	T ₁₀	229.71 ^a	205.40 ^a	217.56 ^a	T ₁₀	371.50 ^b	348.78 ^a	360.14 ^a
S.S.Em±	11.43	6.04	5.41	S.Em±	2.05	1.94	1.28	S.Em±	3.46	3.07	2.50
CD@5%	33.96	17.97	16.07	CD@5%	6.11	5.78	3.81	CD@5%	10.29	11.01	7.44

Treatment details: T₁: GA₃ @ 50 ppm, T₂: GA₃ @ 100 ppm, T₃: NAA @ 100 ppm, T₄: NAA @ 200 ppm, T₅: KNO₃ @ 0.5%, T₆: KNO₃ @ 1%, T₇: Urea @ 7.5%, T₈: Urea @ 10%, T₉: Micronutrients (Mango special) @ 0.5%, T₁₀: control.

most of the biochemical constituents in bigger fruits, which were harvested from trees treated with hormones and nutrients, while a higher concentration may be due to a greater concentration in smaller fruits where no sprays were given to those trees (T₁₀).

CONCLUSION

The experiment demonstrates that a 0.5 per cent concentration of potassium nitrate significantly enhances fruit set percentage, the quantity of fruits per panicle and yield per tree. Whereas fruit quality, such as fruit weight and seed weight, was significantly higher in the micronutrient treatment, as micronutrients enhance fruit quality. The biochemical parameters such as TSS, anthocyanin, phenols, flavonoids and antioxidant activity were high in the control treatment due to small-sized fruits.

Authors contribution

Bhavya N.: Performed experiment, data collection, analysis of data, drafted the paper and data interpretation. Dr. Satisha J.: Designed the experiment and methodology to carry out the experiments, manuscript corrections and helped in data interpretation. Dr. Shivashankara K. S.: Provided access to carry out analysis and research components and helped to interpret data. Dr. Venkat Rao: Provided access to research components (experimental site and samples) and helped in grammatical revision of manuscript.

Declaration

I confirm that all authors of the manuscript have no conflict of interest to declare and confirm that the manuscript is the author's original work and that the manuscript has not been previously published elsewhere. All authors listed on the title page have contributed significantly to the work, have read the manuscript, attest to the validity and legitimacy of the data and its interpretation and agree to its submission. We confirm that the paper now submitted is not a copied or plagiarized version of some other published work.

Conflict of interest

The authors have no conflict of interest.

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