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Effect of chemicals and biomix on fruit setting & yield of Mango cv. Kesar

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Abstract

The research trial was carried out at Fruit Research station Aurangabad, during the year 2021-22. The trial was laid out in randomized block design with eleven treatments replicated thrice. Two foliar application of PGR's, humic acid & biomix (microbial consortium) was given at pea and marble stage of fruit development. The result of the investigation reported that, The treatment T₃ NAA (25ppm) had the significantly highest number of hermaphrodite flowers per panicle (162.01), Number of days taken from flowering to fruit setting treatment T₄ (NAA 30ppm) and T₆ (Triacantanol 750ppm) had the significantly lowest number of days taken from flowering to fruit setting (17.00), T₆ (Triacantanol 750ppm) had the significantly lowest number of days taken from fruit set to harvest (103.80), The treatment T₆ (Triacantanol 750ppm) had the significantly highest fruit retention at harvesting stage (1.00%). The data on effect of chemicals and biomix on yield observation, However, there were non-significant differences were recorded in length of fruit (cm), breadth of fruit (cm), volume of fruit (ml). The Treatment T₆ (Triacantanol 750ppm) had the significantly maximum weight of fruit (320.50 g), maximum number of fruit (89.50), was recorded. However, the maximum yield per plant (29.39 kg) was recorded in the treatment T₆ (Triacantanol 750ppm). Where as, the minimum yield per plant (11.86kg) was recorded in treatment T₁₁ (control). However, the maximum yield per hectare (16.31 t) was recorded in the treatment T₆ (Triacantanol 750ppm). Whereas, minimum yield per hectare (6.58 t) was recorded in the treatment T₁₁ (Control).

Keywords: NAA, triconanol, humic acid, Kesar, biomix

Introduction

Mango is a favourite table fruit of tropical and subtropical regions of the world. It belongs to the family mangiferae. India is the largest producer of mango globally with the production of 20336 thousand MT from an area of 2339 thousand ha having productivity of 8.69 MT/ha (Gunadal *et al.* 2023) [3] and Maharashtra state production of 439.08 thousand MT from an area of 168.15 thousand ha having productivity of 2.61 MT/ha, (Anonymous 2021) [1]. Total area of mango under cultivation was 2212.24 thousand ha and total mango production in India was 19506.20 Thousand MT in the year 2016-17. Total export of mango from India in 2017-18 was 49.18 thousand MT and it gives about 38234.02 lakh rupees.

In view of the specific problems regarding productivity, it was felt necessary to assess the effect of pre harvest application of PGR's, humic acid and biomix (microbial consortium) on fruit setting and yield of mango.

Materials and Methods

The research trial was carried out at Fruit research station, Aurangabad during the year 2021-22. The experiment was laid out in randomized block design with eleven treatments replicated thrice. The three plant growth regulators with different conc., humic acid and biomix were included as treatments *viz.* NAA 15ppm (T₁), NAA 20ppm (T₂), NAA 25ppm (T₃), NAA 30ppm (T₄), Triacantanol 700ppm (T₅), Triacantanol 750ppm (T₆), Humic acid 1.5% (T₇), Humic acid 2% (T₈), Biomix 1% (T₉), Biomix 1.5% (T₁₀) and Control *i.e.* T₁₁. Two foliar spray of all the treatments were applied at pea and marble stage of fruit development and observation were recorded at fruit setting to harvesting of fruits.

Results and Discussion

The result of investigation revealed that there was variation in yield contributing parameters due to application of different plant growth regulators, humic acid and biomix. The application of NAA 25ppm (T₃) had the significantly highest number of hermaphrodite flowers per panicle (162.01), Number of days taken from flowering to fruit setting treatment T₄ (NAA 30 ppm) and T₆ (Triacantanol 750ppm) had the significantly lowest number of days taken from flowering to fruit setting (17.00), T₆ (Triacantanol 750ppm) had the significantly lowest number of days taken from fruit set to harvest (103.80), The treatment T₆ (Triacantanol 750ppm) had the significantly highest fruit retention at harvesting stage (1.00%).

The data on effect of PGR's and biomix on yield observation, However, there were non-significant differences were

recorded in length of fruit (cm), breadth of fruit (cm), volume of fruit (ml). The treatment T₆ (Triacantanol 750ppm) had the significantly maximum weight of fruit (320.50 g), maximum number of fruit (89.50), was recorded. However, the maximum yield per plant (29.39 kg) was recorded in the treatment T₆ (Triacantanol 750ppm). Whereas, the minimum yield per plant (11.86 kg) was recorded in treatment T₁₁ (control). However, the maximum yield per hectare (16.31 t) was recorded in the treatment T₆ (Triacantanol 750ppm). Whereas, minimum yield per hectare (6.58 t) was recorded in the treatment T₁₁ (Control).

Similar result were also reported by Shinde *et al.* (2008)^[4] and Momin *et al.* (2016)^[2] in mango. Triacantanol increases chlorophyll content, photosynthesis rate, transpiration, stomatal conductance and uptake of nutrients in leaves hence yield per plant increased in mango.

Table 1: Effect of plant growth regulators, humic acid and biomix on fruit setting and yield parameters of mango cv. Kesar

Treatment no.	Treatment details	Number of hermaphrodite flowers	Number of days taken from flowering to fruit set	Days taken from fruit set to harvest	Fruit retention at Harvest (%)	Length of fruit (cm)	Breadth of fruit (cm)	Vol. of fruit (ml)	weight of fruit	Number of fruits/plant at harvest	Yield (kg/plant)	Yield (t/ha)
T ₁	NAA 15ppm	153.00	19.00	103.89	0.55	9.40	9.34	9.40	263.30	69.56	18.14	10.07
T ₂	NAA 20ppm	155.02	18.20	104.00	0.59	9.44	9.50	9.44	272.23	77.56	21.07	11.69
T ₃	NAA 25ppm	162.01	17.50	104.50	0.60	9.50	9.55	9.50	284.23	80.26	23.27	12.91
T ₄	NAA 30ppm	160.02	17.00	105.80	0.65	9.66	9.58	9.66	300.20	83.45	23.69	13.51
T ₅	Triacantanol 700ppm	155.01	18.00	104.00	0.90	9.80	9.73	9.80	315.23	85.60	26.67	14.80
T ₆	Triacantanol 750ppm	150.20	17.00	103.80	1.00	10.01	9.89	10.01	320.50	89.50	29.39	16.31
T ₇	Humic acid 1.5%	160.01	18.00	112.23	0.53	9.65	9.62	9.65	305.32	63.12	19.2	10.67
T ₈	Humic acid 2%	160.02	17.90	110.00	0.56	9.70	9.75	9.70	310.50	62.32	17.49	9.71
T ₉	Biomix 1%	154.02	18.50	108.00	0.75	9.35	9.30	9.35	258.20	63.00	16.50	9.16
T ₁₀	Biomix 1.5%	156.00	18.00	109.50	0.80	9.38	9.29	9.35	260.30	65.00	15.27	8.47
T ₁₁	Control	150.00	20.90	155.23	0.26	8.80	8.69	8.80	245.22	52.23	11.86	6.58
	S.E±	3.203	0.41	2.40	0.01	0.21	0.24	0.21	6.51	1.57	0.43	0.24
	CD at 5%	9.516	1.22	7.12	0.04	NS	NS	NS	NS	4.67	1.28	0.71

Conclusion

The application of NAA (25ppm) had the significantly highest number of hermaphrodite flowers per panicle, number of days taken from flowering to fruit setting. The treatment T₄ (NAA 30 ppm) and T₅ (Tricontanol 1%) had the significantly lowest number of days taken from flowering to fruit setting, the treatment T₃ (NAA (25 ppm) recorded the significantly lowest number of days taken from fruit set to harvest. The treatment T₈ (Humic acid 2%) had the significantly highest fruit retention at harvesting stage. The application of Tricontanol 750 ppm reported the maximum weight of fruit, length of fruit, breadth of fruit, volume of fruit, yield per plant and yield per hectare.

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References

- Anonymous, 2021. https://apeda.gov.in/apedawebsite/SubHead_Products/Ma

ngo.htm

- Momin SK, Gaikwad SS, Patel RJ, Amarcholi JJ, Sharma KM. Effect of foliar application of chemicals on fruiting parameters of mango cv. Kesar. *Research J of Agriculture Sci.* 2016;7(1):143-144.
- Narayan Murigeppa Gunadal, Mitrannavar DH, Arun Shivayogi Honyal. Growth and instability in area, production and productivity of Mango in Karnataka and India. *The Pharma Innovation Journal.* 2023;12(6):2572-2575.
- Shinde BN, Pawar BR, Pawar DB, Kalalbandi BM. Effect of chemicals and growth regulators on physical characters of Parbhani Bhushan mango. *Karnataka J Agric. Sci.* 2008;21(2):318-319.
- Bhosale SS, Dhakare BB, Jadhav SB, Kulkarni SS, Joshi VR. Study the effect of nutrient application in split doses on yield characters under high density planting of mango (*Mangifera indica* L.) cv. Kesar. *The Pharma Innovation Journal.* 2022;11(6):920-924.