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EFFECT OF NAA ON THE FRUITY YIELD OF TOMATO (*LYCOPERSICON ESCULENTUM* M.)

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INTRODUCTION

A large number of growth regulators like NAA, GA_3, IBA and IAA have been used to obtain their beneficial effects on the growth and yield of different crops. To study the response of a growth regulator NAA treatments on the yield of tomato, seeds of tomato (*Lycopersicon esculentum*) sterilized with 3% chlorox solution washed and dried, were sown in wodden tray containing sterilized and tap water irrigated sand. After germination it was irrigated with 1/10th Hoagland solution, and its concentration increased gradually to full strength. The seedling were then kept in the growth room under a photoperiod of 14th hr. at 26°. After 15 days seedlings were transfered to perforated plastic bags (60 x 40 cm) and irrigated with nutrient solution. One month old seedlings transplanted in the soil manured earlier with 67 kg N/ha (urea) and 45 kg P_2O_5/ha (superphosphate) in AERC export farm in twelve rows (4 plant in each row) at a distance of 60 cm from plant to plant and 90 cm from row to row. Two rows assigned for each treatment. The mean average temperature was 20° during growing season (November-March). The only source of water was irrigation during the season. The plant were sprayed with a aqueous solution of (water) 5, 10, 15, 20 and 25 ppm NAA at flowering time. In addition wetting agent Tween 0.07 % and insecticide anthio 0.1 % were also used.

RESULT AND DISCUSSION

Foliar spray of naphthaleneacetic acid had pronounced effect on increasing the yield of tomato fruits. Increasing concentrations of NAA significantly increased the yield by increasing number of fruits retained in the tomato cultivar tested (Table 1). Compared with control the percent increase was 172 at 5 to 242 at 25 ppm NAA. It was further observed that the increase in yield was not due to increase in the size of the fruit but due to increased retention of fruits per plant.

Results obtained indicating the increase in yield of fruits with NAA treatments are similar to those already reported for tomato [1,2], chilli [4], mango [5] and citrus [6]. These workers also sprayed aqueous solution of NAA at concentration ranging from 5-25 ppm to above plants and found stimulating effects on fruit and grain yields, Chandramony and George [3] reported 132 % increased in fruit yield of chilli cv. Kantari by spraying 20 ppm NAA. In several experiments using 10-25 ppm NAA on mango, chilli and cotton, increased in yields have been reported for mango cvs. Dasehri to 199 % Langra 133 %, Sindhri 100 %, chilli cv. Ghotki 162 % cotton cv. Qalandri 153 % compared to control [4,5].

Table 1. Effect of naphthalene acetic acid on the fruit yield of tomato (cv. Marmande).

Levels of NAA (ppm)	Number of fruit/plant	Wt./fruit (g)	Fruit yield/ plant (g)	Percent increase over control
0	30 a	51.75 b	1557 a	100
5	42 b	63.75 e	2681 b	172
10	56 c	54.57 b	3056 c	196
15	63 d	48.86 b	3078 c	198
20	68 d	49.60 b	3373 d	217
25	88 e	42.83 a	3769 e	242
L.S.D. 1%	7.96	12.42	181.45	–

It is therefore concluded that foliar spraying of naphthalene acetic acid at the time of flowering prevent preharvest flower abscission by increasing the available auxin concentration at this critical phase of reproductive development.

Key words: Growth regulators, Tomato, Nutrient contents.

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