

Effect of IBA and NAA on Root Initiation of Various Varieties of Bougainvillea Species

K. K. Deshmukh and A. V. Barad

Department of Horticulture, Gujarat Agricultural University,
Sardar Krushinagar - 385 506

ABSTRACT

A nursery experiment on seven varieties of bougainvillea cuttings treated with IBA and NAA (each at 3000, 4000, 5000, 6000 ppm or control) during spring season at North Gujarat condition revealed that different levels of growth regulators (IBA and NAA) significantly effected rooting in hardwood cuttings of bougainvillea cultivars. IBA 6000 ppm was found superior on percentage of rooting, which was also at par with the NAA 3000 ppm treatment. Rooting percentage incerase with the incerase trend of IBA concentration but which was reverse in levels of NAA. Among the six cultivars tested the cultivar 'Blondie' was found with the highest rooting and cultivar 'Snow White' was with the lowest rooting.

(Received on 18th Febr. 2000)

INTRODUCTION

Bougainvillea is one of the most popular flowering plant grown in the garden for decoration. The large number of varieties bears beautiful flowers during summer and winter. Due to hard nature of the cuttings, the rooting is difficult and hence the garden growers are facing difficulty in multiplying plants from the cuttings. One of the new approaches is the use of the plant growth regulators for inducing rooting in bougainvillea (Bhattacharjee and Balkrishna, 1983). Hence plant growth regulators were tried for quicker multiplication of bougainvillea at nursery level.

MATERIALS AND METHODS

To study the rooting of cuttings in seven varieties of bougainvillea namely Mahara, Roseville's Delight, Blondie, Lady Mary Baring, Snow White, Mary Palmer and Thimma, the cuttings of these varieties were treated by plant growth regulators viz; IBA and NAA (each at 3000, 4000, 5000, 6000 ppm concentration and control). The experiment was conducted at Gujarat Agricultural University, S.K. Nagar in the month of February - April 1995 and it was laid out in a factorial completely randomized design with three replications.

Hardwood cuttings of 15-20 cm lengths and of about 0.8-1.0 cm diameter with 4-6 nodes were taken from years old plants in the month of February. These cuttings were dipped for 15 seconds in the

** Present Address : Associate Professor, Department of Horticulture, College of Agriculture, Gujarat Agricultural University, Junagadh-362 001 Gujarat (India).

plant growth regulators of desired concentration and then inserted 2/3 of its length in to the bags, filled with garden soil as media into polythylene bags containing identical planting mixture. These bags were watered daily and kept under shade. The data were recorded 50 days after planting of the cuttings and was subjected to statistical analysis after transformation of the present values.

RESULTS AND DISCUSSION

Effect of growth regulators : All the levels of growth regulators proved significantly superior over control for the rooting of cuttings. Among the different levels, maximum rooting (68.09 per cent) was obtained in IBA 6000 ppm and it was followed by the lowest level (3000 ppm) of NAA (66.42 per cent) (Table - 1). Rooting percentage increased with the increasing level of IBA concentration whereas the increased concentration of NAA gave decreased rooting percentage.

These results are in agreement with the findings

of Bhattacharjee and Balkrishna (1983), Awad *et al.* (1988) and Joshi *et al.* (1989). It may be due to the enzymatic action of IAA oxidizes on exogenously applied auxin in the process of formation of root primordias in which there is division of cells of phloem parenchyma or paricycle is resulted. And, thus, this may be enhanced higher percentage of rooting.

Effect of varieties : The results presented in table-1 indicated that variety Blondie (V3) produced the highest rooting percentage (73.51) followed by Lady Mary Baring (V4), Roseville's Delight (V2), Mahara (V1), Mary Palmer (V6) and Thimma (V7), respectively. The lowest percentage of rooting (42.95) was recorded in variety Snow White (V5). These results are in agreement with the findings of Mishra and Singh (4).

Interaction effect : The interaction effect between different levels of growth regulators and varieties (G X V) was found non-significant.

TABLE 1

Effect of growth regulator (G) and varieties (V) on percentage of rooted cutting.

Interaction (G x V)	I.B.A. (ppm)				N.A.A. (ppm)				Control (G9)	Mean
	3000 (G1)	4000 (G2)	5000 (G3)	6000 (G4)	3000 (G5)	4000 (G6)	5000 (G7)	6000 (G8)		
V1	55.33 (50.06)	63.33 (53.01)	66.66 (55.01)	70.00 (57.08)	68.33 (56.04)	65.00 (54.01)	60.00 (51.04)	55.00 (48.13)	48.33 (44.31)	61.66 (52.06)
V2	61.66 (52.01)	66.66 (55.01)	70.00 (57.08)	73.33 (59.21)	71.66 (58.13)	68.33 (56.04)	63.33 (53.01)	57.33 (49.49)	51.64 (46.20)	64.88 (44.02)
V3	70.00 (57.05)	75.00 (60.31)	78.00 (62.59)	81.66 (65.00)	70.00 (63.78)	76.66 (61.43)	71.66 (58.13)	66.66 (55.05)	61.66 (52.01)	73.51 (59.48)
V4	66.66 (55.01)	71.66 (58.13)	76.00 (60.95)	78.33 (62.59)	76.66 (61.43)	73.33 (59.21)	68.33 (56.04)	68.44 (53.07)	58.33 (50.06)	70.30 (57.39)
V5	40.00 (39.50)	45.00 (42.40)	45.33 (44.31)	51.66 (46.21)	50.00 (45.26)	46.66 (43.35)	41.66 (40.47)	36.33 (37.54)	26.66 (31.39)	42.95 (41.16)
V6	51.66 (46.21)	56.66 (49.09)	60.00 (51.04)	63.33 (53.01)	61.66 (52.01)	58.33 (50.06)	53.33 (47.17)	48.33 (44.31)	40.00 (49.50)	54.81 (48.05)
V7	46.66 (43.35)	51.66 (46.21)	55.00 (48.13)	58.33 (50.06)	56.66 (49.09)	53.33 (47.17)	48.33 (44.31)	43.33 (41.43)	35.00 (36.55)	49.81 (45.155)
Mean	56.42 (49.03)	61.42 (52.02)	64.90 (54.16)	68.09 (56.17)	66.42 (55.11)	63.09 (53.04)	58.09 (50.02)	52.96 (47.00)	45.94 (42.86)	59.70 (51.05)

	G	V	G x V
S.E.m ±	0.32	0.37	0.95
C.D. at 5	0.90	1.02	N.S.
C.V.%	2.84	2.84	

G indicates level of growth regulator.

V indicates variety.

N.S. indicates Non-significant.

Figures in the parenthesis indicate transformed values.

Different levels of growth regulators (IBA and NAA) significantly affected on rooting in hardwood cuttings of bougainvillea cultivars. IBA 6000 ppm was found superior on percentage of rooting, which was also at par with the NAA 3000 ppm treatment. Rooting percentage increased with the increasing trend of IBA concentration but which

was reverse in levels of NAA. Among the six cultivars tested the cultivar 'Blondie' was found with the highest rooting and cultivar 'Snow White' was with the lowest rooting.

REFERENCES

- Awad, A. E.; Dawh, A. K. and Attia, M. A. (1988). Cutting thickness and auxin effecting the rooting and consequently the growth and flowering of *Bougainvillea glabra*. *Acta Horticulture* **226** : 495-454.
- Bhattacharjee, S. K. and Balakrishna M. B. (1983). Propagation of bougainvillea from stem cutting. Effect of growth regulators, rooting media, left number, length and woodiness of cuttings. *Haryana J. Hort. Sci.* **12** (1-2) : 7-12.
- Joshi, A. R.; Mahorkar, V. K. and Sadawarte, K. T. (1989). Studies on rooting of cutting in some *Bougainvillea* varieties as influenced by plant by plant growth regulators. *P.K.V. Res. J.* **21**: 166-167.
- Mishra, H. P. and Singh, K. P. (1989). Varietal difference rooting of *Bougainvillea* stems cutting. *South Indian Hort.* **32** (2) : 113-119.