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Effect of Different Media on Propagation of Bi-color Bougainvillea Cuttings

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Abstract

The maximum sprouting percentage (70.83%), plant survival (51.16%) and plant height (19.03 cm) was recorded in silt. Similarly maximum root length (10.33 cm) and root number (9.33) was noted in sand. Minimum plant height (3.50 cm) was recorded in sawdust whereas minimum root length (3.33 cm) and root number (2.66) was recorded in mixture of sand, silt and clay (1:1:1). F.Y.M give zero survival.

Introduction

The rooting in Bougainvillea is affected by many factors. Among these, media play an important role in root initiation of Bougainvillea cutting. The growth of Rhododrom cv. chionoides was best in medium containing 60 and 70 percent peat, that of PJM Hybrid was best in 50, 60 and 70 percent peat and that of mother day in 40, 50 and 60 percent peat.

Sant *et al.* (1985) carried out research on the effect of peat and pine bark substrates and reported that plant grown in these media showed a delay in flowering while plant in pine bark showed slight Mg toxicity. The plants grown in potting media containing various combination of Florida sedge peat, builder's sand and shredded portion of *Melaleuca quinquenarvia* bark and wood. Plant height was not affected by treatment but plant grade, fresh weight and root grade decreased with an increase in the proportion of shredded Melaleuca bark and wood. The effect of waste tobacco dust on the growth of *Ficus* species. The medium rate of 87 gm produced the tallest plants with the greatest number of leaves. McConnell (1987) determined the size and potting medium affect on growth rate of weeping fig and loquat. Rooted (lifting of *Ficus* were grown in 4, 6 or 8 inch diameter. The potting medium was either 1:1:1 mixture of peat + sand + pine bark. Keeping fig grew fastest in 8 inch container and lowest in 4 inch container. Zubair *et al.* (1995) conducted trial on *Monstera deliciosa* by growing it in three different media and reported that bagasse + garden soil + sand was significantly superior to other media i.e, rice hulls garden soil + sand and leaf mold + garden soil + sand.

The present study was designed to study effect of different media (i) on root initiation (ii) to select best media for maximum root initiation of Bougainvillea cutting.

Materials and Methods

The experiment was conducted at Agricultural Research Institute, Tarnab, Peshawar.

The experiment effect of different media on root initiation and development was studied. Four different media i.e. silt and saw dust, Farm yard manure and a mixture of sand 1 M and silt in 1:1:1 ratio was used. First these media was

sterilized in a media sterilizer at a temperature of 90°C for one hour.

For preparation of cuttings and its plantation in plastic bags, first hardwood cuttings of Bougainvillea bi-color were obtained. These cuttings were made in uniform size of 5-6 inches with at-least two leaf per cutting (Edmond *et al.*, 1977). In preparation of cutting first cut was given at the lower and just below the bud in order to have more chances of root initiation while the upper cut is given just above the bud in order to accelerate the healing of the wound at the upper end. Then these cutting were planted in plastic bag up to one-third depth and were watered. The experiments were laid out at Randomized complete block design with three replications and five treatments. The data were recorded on different growth parameters.

Results and Discussion

Maximum sprouting percentage was recorded in silt (70.83%) because. it provide good aeration and moisture to cuttings followed by saw dust (62.6%). The minimum sprouting percentage was recorded in F.Y.M (16.66%) because after sterilization of F.Y.M it produced some sort of chemical which inhibited plant growth (Brady 1984), followed by a mixture of sand + silt + Farm yard Manure in 1:1:1 ratio.

Similarly the mean value of percent plant survival shows that the maximum plant survival was recorded in silt (54.16%) followed by sawdust (50%). Similarly the minimum percent plant survival was observed in F.Y.M (8.3%) followed by mixture of sand + silt + Farmyard Manure in 1:1:1 ratio. Maximum plant survival was recorded in silt followed by sand and sawdust (50 %), while no plant survived in F.Y.M, because in sterilization a chemical was produced which caused the mortality of the plants. The data recorded for plant height shows that the maximum plant height was recorded (19.03) in silt because silt provides nutrient and water to the cuttings. While minimum plant height was noted sawdust because it lack nutrient in available form. The analysis of variance of number of roots per plant of bi-color Bougainvillea cuttings in different media i.e sand, silt, sawdust, F.Y.M and a mixture of sand + silt + F.Y.M show highly

Rahman *et al.*: Silt, sand, saw dust, Bougainvillea cutting

Table 1: Effect of different media on survival percentage, sprouting percentage, plant height, root number and root length of bi-color *Bougainvillea spectabilis* cuttings

Media	Survival (%)	Sprouting (%)	Plant Height	Root Number	Root Length
Silt	51.16A	70.83A	19.03AB	5.00AB	09.00A
Sawdust	50.00A	62.60A	03.50AB	3.00AB	04.00AB
Sand	50.00A	50.00AB	08.53AB	9.33A	10.33A
F.Y.M	00.00B	16.66BC	00.00B	0.00B	00.00B
Mixture	08.30B	25.00C	08.00AB	2.66AB	03.33AB

LSD value at 5% level of probability for percent survival, percent sprouting, plant height, root number and root length 2.13, 2.20, 15.92, 8.13, 8.54, respectively. Figures followed by different letters show significant difference

significant variation. The mean value Table 1 shows that the maximum number of roots per plant was recorded in sand (9.33) followed by silt (5.00) because it provides ideal condition for root growth while the minimum number of roots was recorded in mixture of sand + silt + F.Y.M (2.66) followed by sawdust. The data recorded for root length reveals that the maximum root length was recorded in sand (10.33) followed by silt (9.00). The minimum root length was recorded in mixture (3.33) followed by sawdust. The maximum root length was noted in sand (10.33) because it provides ideal condition for root growth, while minimum root length was noted in sawdust.

References

- Brady, N.C., 1984. The Nature and Properties of Soils. 9th Edn., MacMillan Publishing Company, New York, pp: 260-265.
- Edmond, J.B., T.L. Senn, F. S. Andrews and R.G. Helfacre, 1977. Vegetative Propagation. In: Fundamentals of Horticulture, Edmond, J.B. (Ed.). Tata McGraw Hill Publishing Co., New Delhi, pp: 205.
- McConnell, D.B., 1987. Container size and potting medium affect growth rate of weeping fig and loquat. Proc. Fla. State Hort. Soc., 100: 337-339.
- Sant, M.D., A.R. Selember, H.R. Gislerod and K. Solbr, 1985. The effect of nitrogen fertilization on the growth of *Chrysanthemum* cv. White Horimum in bark cemp and peat. Acta Hort., 150: 371-381.
- Zubair, M., H. Inayatullah and N. Rahman, 1995. Effect of different growing media and different doses of nitrogen on the growth of *Monstera deliciosa*. Sarhad J. Agric., 11: 715-720.