

Effect of planting environment, type of cuttings and media on propagation of rose (*Rosa damascena* L.) cv. LOCAL RED

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ABSTRACT

The present investigation was carried out on rose cv. LOCAL RED at AES, Paria in order to study the effect of three different planting environments, two types of cuttings and three types of media on rooting and survival performances of cuttings. The experiment was laid out in factorial randomized block design with eighteen treatment combinations and among this, polyhouse tent, hardwood cutting and coarse sand media either, individually or in combination with each other proved best for percentage of rooted and sprouted cuttings, number and length of rooted cuttings as well as quality of roots.

Key words : Rose, Planting environment, Cutting, Media, Rooting

Rose cultivation in open field is popular among the farmers and nurserymen, but it is still grown under traditional methods of propagation. Among the various vegetative methods of propagation of rose, cuttings such as hardwood or semi-hardwood cutting are most convenient and efficient method. The rooting and survival of stem cutting is a function of mainly three factors *i.e.* planting material, planting environment and treatment of growth substances. Therefore, investigations are still needed to find out the most suitable planting environment, planting media and proper type of cutting to propagate rose easily and efficiently by means of stem cuttings.

MATERIALS AND METHODS

The experiment was laid out in Factorial Complete Randomized Design, during 2003-04 at A.E.S., N.A.U., Paria. The treatments were comprised of three planting environments *viz.*, net house (E_1), polyhouse tent (E_2) and open field condition (E_3); two type of cuttings *viz.*, hardwood (C_1) and semi- hardwood (C_2) cuttings and three types of media *viz.*, red soil (M_1), cocopeat (M_2) and coarse sand (M_3), thus making eighteen treatment combinations, which were repeated four times.

The planting material was obtained from 2 year old uniformly growing shrubs of *Rosa damascena* L. cv. LOCAL RED and a vigorously grown one-year-old shoot was categorized into two main portions on the basis of maturity of wood as hardwood (basal portion of 20-25 cm length of matured stem) and semi-hardwood (middle portion of 12-15 cm length) cuttings with each cutting possessing three to four buds. A common treatment of

IBA at 1000 ppm was given to all the cuttings by dipping the basal portion of about 2.5 to 3 cm of cuttings for 10 seconds and then immediately planted in polythene bags of different media and were placed under different planting environment. The observations on percentage of rooted cuttings, sprouted cuttings, number of roots length of roots, fresh and dry weight of roots per rooted cuttings were recorded and analyzed statistically.

RESULTS AND DISCUSSION

The influence of planting environment, type of cutting and media are presented in Table 1 and the results are interpreted as below:

Effect of planting environment :

The influence of planting environment was found significant for various characters under study. Among the different planting environments, polyhouse tent (E_2) was found better with percentage of rooted cuttings (58.28 %), which was at par with net house (55.02 %). Highest number of roots (16.94), higher percentage of sprouted cuttings (81.67 %) and maximum fresh weight (658.17 mg) as well as dry weight (219.39 mg) of roots per rooted cutting were noted in polyhouse tent (E_2). Where as maximum length of root (7.33 cm) per cutting was also recorded under polyhouse tent, which was at par with net house (6.90 cm). The superiority of polyhouse tent on above characters was also observed by Singh and Rathore (1977) in bougainvillea. The polyhouse tent provides relatively high percentage of moisture and also allows free exchange of gases, which help in induction of