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Response of different medias and PGR's on rooting and survival of airlayers in pomegranate [*Punica granatum* (L.)] cv. SINDHURI

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ABSTRACT

The experiment was conducted at Horticulture Research Farm, Department of Horticulture, B. A. College of Agriculture, Anand Agricultural University, Anand during *Kharif* season in the year 2008-09. The experiment was laid out in Completely Randomized Design (CRD) with thirteen treatments and three replications. The treatments were T_1 (Soil-Black fertile garden soil), T_2 (Soil + IBA 5000 ppm), T_3 (Soil + NAA 5000 ppm), T_4 (Soil + IBA 2500 ppm + NAA 2500 ppm), T_5 (Sphagnum moss + IBA 5000 ppm), T_6 (Sphagnum moss + NAA 5000 ppm), T_7 (Sphagnum moss + IBA 2500 ppm + NAA 2500 ppm), T_8 (Coco peat + IBA 5000 ppm), T_9 (Coco peat + NAA 5000ppm), T_{10} (Coco peat + IBA 2500ppm + NAA 2500 ppm), T_{11} (Saw dust + IBA 5000 ppm), T_{12} (Saw dust + NAA 5000 ppm) and T_{13} (Saw dust + IBA 2500 ppm + NAA 2500 ppm). The air layers prepared with sphagnum moss + IBA 5000 ppm (T_5) showed early root initiation (17.33 days) and also recorded minimum number of days (25.66 days) for emerging bulk of roots. The significantly highest number of primary roots (14.00) and secondary roots (40.00) were recorded with treatment of sphagnum moss + IBA 5000 ppm (T_5). The treatment combination sphagnum moss + IBA 5000 ppm (T_5) significantly influenced root length and fresh root weight, dry weight of root and showed maximum root length (7.5 cm), fresh root weight (0.73 g) and dry root weight (0.29 g) after 45th days. The maximum survival percentage of air layers in the nursery bed (73.33%) and in poly bag (100%) was observed in air layering with sphagnum moss + IBA 5000 ppm (T_5) at 45th days. The significantly maximum number of leaves were recorded with sphagnum moss + IBA 5000 ppm (T_5) in nursery bed condition (52.33 days) and in poly bags (46.66 days) at after 45th days. The highest net CBR 1 : 2.13 was observed in the planting rooted layers in nursery bed with the treatment sphagnum moss + IBA 5000 ppm (T_5).

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Pomegranate is an excellent crop for cultivation under arid and semi-arid conditions as it tolerates drought and adverse climatic conditions. Another peculiarity is that it has best keeping quality which helps in marketing of fruits in distant place. The total pomegranate production in the world is 10 lakh tones. India produces 5 lakh tones from an area of about 25,000 ha but exports only 5000 tones, whereas Spain produces 1lakh tone (Anonymous, 2007).

Extensive survey work on pomegranate orchards indicated that the 'Sindhuri' variety of pomegranate is heavy yielder and possesses desirable fruit characters making it suitable for export. This variety matures in 180-190 days with an average fruits yield of 30.38 kg/tree. Bigger fruit size, sweet, bold and attractive arils, glossy, very attractive saffron colored thick skin makes with suitable for export to distant markets. This variety was found less susceptible to fruit spots and thrips as compared to other varieties of pomegranate. There is need to increase area under this variety, 'Sindhuri' variety selected for study purpose. This can be achieved by producing large number of plants.

Its export potential and demand of domestic market area under cultivation of pomegranate is increasing continuously. The vegetative means of propagation ensures transfer of good characters and ensure genetical purity of the cultivar. The pomegranate is propagated through cutting and layering on commercial scale but the rooting and survival successes is very less.

The different media and PGR's played a major role in rooting while different media like sphagnum moss, coco peat and saw dust have higher moisture holding capacity with lighter weight enhance root formation. The exogenous application of IBA and NAA induces rooting in stem cuttings due to their ability to activate in cambium regeneration, cell division and cell multiplication while, root elongation is also recorded with the application of auxin.

MATERIALS AND METHODS

The experiment was conducted at Horticulture Research Farm, Department of Horticulture, B. A. College