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Effect of PGR's and rooting media on air layering of different pomegranate (*Punica granatum* L.) cultivars

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Abstract **:** The experiment on response of different media and PGR's on rooting and survival of air layers in pomegranate was carried out at Horticultural Research Farm, Department of Horticulture, B.A. College of Agriculture, Anand Agricultural University, Anand during the month of July 2010 to November 2010. The experiment was laid out in Factorial Completely Randomized Design (FCRD) with three varieties, seven treatments and four replications. The results indicated that the treatment sphagnum moss with IBA 5000ppm in cultivar G-137 was found the best combination for giving more number of roots, high survival percentage with economical rate for preparing of pomegranate air layers. The air layering prepared in G-137 variety by using sphagnum moss + IBA 5000ppm (T_1) showed early root initiation (16.79 days and 15.08 days, respectively), early bulk appearance of roots in layering (25.86 days and 23.67 days, respectively), maximum numbers of primary roots (13.89 and 19.75, respectively), maximum numbers of secondary roots (34.43 and 41.83, respectively), maximum root length (11.29 cm and 14.35 cm, respectively), fresh root weight (0.55 g and 0.85 g, respectively) and maximum dry root weight (0.28 g and 0.43 g, respectively) followed by cvs. BHAGVA AND MRIDULA. The maximum survival percentage of air layers in poly bags at 30 days (73.57% and 83.33%, respectively) was observed in G-137 variety with sphagnum moss + IBA 5000ppm (T_1) by using rooting media, maximum number leaves at 60 days (51.68 and 56.83, respectively) were observed in G-137 variety with sphagnum moss + IBA 5000ppm (T_1). Whereas, the results regarding length of shoots and number of branches were found to be non-significant.

Key words **:** PGR, Sphagnum moss, Air layering, Pomegranate

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Pomegranate (*Punica granatum* L.) is an ancient favorite table fruit of tropical regions of the world and it belongs to the family Punicaceae. Pomegranate is native of Iran and is widely cultivated throughout India. It is excellent crop for cultivation under arid and semi-arid conditions as it tolerates drought and adverse climatic conditions. India produces pomegranate fruits about 8.58 lakh MT from an area of about 1,22,000ha but exports only 5000MT, whereas, Spain produces 1 lakh tone and exports 75,000 tones during the month of December (Anonymous, 2009). India has a scope to export pomegranate during January to June months in European countries. Gujarat produces 56,600 MT from an area of about 5,600 ha. (Anonymous, 2009). The area under pomegranate is increasing day by day due to its export potential as well as demand in domestic market. The pomegranate is propagated through cutting or layering on commercial scale but the rooting and survival success is very less. The different rooting media and plant growth regulators (PGR's) played a major role in rooting. Different rooting media like sphagnum moss, coco peat and saw dust have higher moisture holding capacity with lighter weight, which enhance root formation (Bhosale, 2009). The exogenous application of indole butyric acid (IBA) and naphthalene acetic acid (NAA) induce rooting in stem cuttings and in air layers due to their ability to activate cambium regeneration, cell division and cell multiplication (Rymbai and Reddy, 2010). Similarly different