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Propagation of Simmondsia chinensis (Link) Schneider by Stem Cuttings

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Abstract : Jojoba (Simmondsia chinensis (Link) Schneider), is a desert shrub which tolerates saline, alkyle soils and drought. The seeds contain a characteristic liquid wax of economic importance in industry as a machine lubricant and cosmetics. A major problem in seed propagation is that jojoba is a dioecious plant whose sex is not easily determined prior to flowering (3-4 years from germination). To overcome this phenomenon, asexual propagation using vegetative methods such as cutting can be used. This research was conducted to find out the effect of different Plant Growth Regulators (PGRs) and rooting media on Jojoba rhizogenesis. An experiment was carried out in a Factorial Completely Randomized Design (FCRD) with three replications, each with sixty cuttings per replication in fiberglass house of Natural Jojoba Corporation at Yemen. The different rooting media used were peat moss + perlite + vermiculite (1:1:1), peat moss + perlite (1:1) and peat moss + sand (1:1). Plant materials used were semi-hard wood cuttings of jojoba plants with length of 15 cm. The cuttings were collected in the month of June during 2012 and 2013 from the sub-terminal growth of the mother plants of Amman farm and introduced to Yemen. They were wounded, treated with Indole butyric acid (IBA), α-naphthalene acetic acid (NAA) or Indole-3-acetic acid (IAA) all @ 4000 ppm (part per million) and cultured on different rooting media under intermittent mist propagation conditions. IBA gave significantly higher percentage of rooting (66.23%) compared to NAA and IAA in all media used. However, the lowest percentage of rooting (5.33%) was recorded with IAA in the medium consisting of peat moss and sand (1:1). No significant difference was observed at all types of PGRs used with rooting media in respect of root length. Maximum number of roots was noticed in medium consisting of peat moss, perlite and vermiculite (1:1:1); peat moss and perlite (1:1) and peat moss and sand (1:1) using IBA, NAA and IBA, respectively. The interaction among rooting media was statistically significant with respect to rooting percentage character. Similarly, the interactions among PGRs were significant in terms of rooting percentage and also root length characters. The results demonstrated suitability of propagation of jojoba plants by semi-hard wood cuttings.

Keywords : cutting, IBA, Jojoba, propagation, rhizogenesis
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