

Studies on the vegetative propagation of beach trees

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The present study was carried out in Strawberry Tissue Culture Laboratory and Non- Traditional Crops, Improvement Center, Faculty of Agriculture, Ain Shams University during 2000 and 2001 years. Hansen 536 peach rootstock explants of the renewed 7-year old trees grown in the same faculty were the plant material used for this dissertation. Hence, it was hoped to find out an ideal method as true propagation method for providing with the adequate quantities of nursery transplants of this desired rootstock to meet the increasing demand due to its advantages, especially under the new reclaimed area condition so, some treatments dealing with the various stages of direct regeneration through tissue culture technique i.e, establishment; proliferation, rooting and acclimatization were investigated as follows.

V.1.Establishment stage: -In this regard a factorial experiment was devoted for studying the effect of explant type (shoot tip and stem node cutting) combined with surface sterilization of these explants by soaking in diluted solution (10 or 20%) of sodium hypochlorite (commercial bleach "Clorox") for either 10, 15, or 20 min. were investigated regarding their influence on contamination; browning and survival % during this stage. Data were recorded after 4 weeks from culturing on MS base medium supplemented with 3% sucrose and 0.7% agar with adjusted pH at 5.6 - 5.8.

V.2.Proliferation "shoot multiplication" stage:-In this stage four weeks old aseptically growing explants obtained from the establishment stage were used as source for the multiplication stage. The excised shoot tips (5-7mm.length) were cultured on full strength solid MS medium to investigate the effect of some growth regulators added to culturing media. Hence, cytokinin (BA) at 3 concentrations (0.5; 1.0 and 1.5 mg/l) combined with IBA with or without using gibberlin at 0.1 mg/l for each were the investigated treatments through the successive four subcultures included in this stage as follows:

- 1-Full strength MS salts free hormone medium +vitamins & myo inositol.
- 2-Full strength MS medium supplemented with BA at 0.5 mg/l.
- 3-Full strength MS medium supplemented with 0.5mg BA+0.1 mg IBM.
- 4-Full strength MS medium supplemented with 0.5mg BA+0.1 mg IBA+0.1 mg GA3/l.
- 5-Full strength MS medium supplemented with 1.0 mg BA/l.
- 6-Full strength MS medium supplemented with 1.0mg BA+0.1 mg IBA/l.
- 7-Full strength MS medium supplemented with 1.0mg BA+0.1mg IBA+0.1mg GA3/l.
- 8-Full strength MS medium supplemented with 1.5 mg BA/l.
- 9-Full strength MS medium supplemented with 1.5mg BA+0.1 mg IBA/l.
- 10-Full strength MS medium supplemented with 1.5mg BA+0.1mg IBA+0.1 mg GA3/l.

At the end of each subculture of the four included ones in this stage (4 weeks interval) the response to the various investigated treatments was determined through the changes in average number of proliferation shootlets per original cultured shoot; average shoot length and number of leaflets included per each.

V.3. Elongation stage: -More elongated proliferated shootlets (<4cm.) obtained from multiplication stage are preferable to achieve higher rooting and survival% throughout both rooting and acclimatization stages, respectively. So, three levels of either GA3 (0.1; 0.2 and 760.4 mg/l) or activated charcoal (1.0; 2.0 and 3.0 g/l) added to the full strength MS medium through this stage were investigated at its end pertaining the response of shoot length and number of leaflets per each. The investigated treatments were as follows:

- 1-Full strength basal MS medium +0.1 mgGA3/l.
- 2-Full strength basal MS medium +0.2 mgGA3/l.
- 3-Full strength basal MS medium +0.4 mgGA3/l.
- 4-Full strength basal MS medium +1.0 g. activated charcoal /l.
- 5-Full strength basal MS medium +2.0 g. activated charcoal /l.
- 6-Full strength basal MS medium +3.0 g. activated

charcoal /1.V.4. Rooting stage:In this respect some rooting measurements (rooting %; number of roots /plantlet and average root length) in response to two auxins i.e. IBA and NAA each added at 3 levels (0.5; 1.0 and 2.0 mg/l) to one half strength of MS medium (either supplemented with 1.0g/l activated charcoal or not) were investigated. Thus, the twelve (12) investigated culturing media were as follows:1-Half strength MS supplemented with 1.0 g/l activated charcoal +0.5 mg/l IBA.2-Half strength MS medium +1.0g /l activated charcoal +1.0 mg/l IBA.3-Half strength MS medium +2.0g /l activated charcoal +2.0 mg/l IBA.4-Half strength MS medium +0.5g /l activated charcoal +0.5 mg/l NAA.5-Half strength MS medium +1.0g /l activated charcoal +1.0 mg/l NAA.6-Half strength MS medium +2.0g /l activated charcoal +2.0 mg/l NAA.