Studies on micropropagation of poems

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This study was conducted at. Tissue Culture Laboratory,Horticulture Department, Faculty of Agriculture, Moshtohor duringthe period started from 1995 till 1997. This investigation was done toformulate the best suitable balanced medium for induction. largeI • number of healthy. homogenous, and similar to mother trees duringexact time with low expenses and reducing costs of importation.Shoot-tips and one-nodal cuttings of communis pear and MJ1-106 apple rootstock were collected at different quarters of yearround, washed, sterilized and cultured on different medium types,states, and strengtns. Also, different anti-oxidant treatments wereinvolved. Besides, medium state, cytokinin types, andconcentrations as well as different thidiazuron concentrations wereevaluated. Meanwhile, different medium strengths and GA3concentrations were tested. Furthermore, different auxin types andconcentrations. medium states and darkening treatments werestudied.!. IV.I. Establishment stage: 'The results can be summarized as follow: -1- Solidified Murashige and' Skoog medium for communis pear,and Lepoivre medium for MMI06 apple rootstock showed themost suitable ones for~decreasing and increasing necrosis,explant development and ~i rning.2- Shoot-tips surpassed one-nodal cuttings in reducing necrosis andincreasing explant development and greening of both communispear and M:M-106 apple rootstock.3- The best collection date for communis pear explantsaccomplished during the first quarter, which involved April,May and June. However, MM-I06 apple rootstock explantscollection was most suitable during the fourth quarter (January,February and March).4- The accumulated phenolic compounds in both communis pearand MIf-106 expl ants , which caused oxidation and finally thedeath of the established explants, were greatly reduced when thecombination of anti-oxidant solution plus PVP was usedfollowed by PVP alone.5-Activated charcoal had an adverse effect during establishmentstage on explant development and greening of either communispear or ~fM-I06 apple explants.6- Full and one-half medium strengths of either Murashige andSkoog for communis pear or Lepoivre medium Tor MM-I06 :apple were the most effective medium strengths for enhancingtshoot regeneration and greening parameters.IV.2.Proliferation stage:1-Semi-solid medium encouraged the highest possibleprotferation and necrosis of both studied rootstocks.-if2- Kinetin surpassed 6-benzylaminopurine in enhancing growthand greening. However, the reverse was true in case ofproliferation and necrosis.3- The best growth and greening were achieved bysupplementation of the culture medium with 2 mg/L. 6-benzylaminopurine, while this effect was more clear inproliferation when 4 mg/L. BAP was used for both communispear and l'IM-I06 apple rootstocks.4- Thidiazuron was effective in reducing necrosis and increasinggrowth, proliferation, and greening when added at lowerconcentrations i.e. 0.5 or 1.0 mg/L., while higher concentrations2.0 or 4.0 mg/L. had a lethal effect on the cultured explantsunder investigation.IV.3. Rooting stage:IV.3.t. Shoot elongation:1-Shoots elongation of either commurus or MM-106 applerootstocks as well as greening and root initiation increasedgreatly by using full or one-half medium strengths.2- Gibberellic acid at 4.0 mg/L. enhanced a noticeable ihcrease inshoot elongation in both used plant types, while greening andgrowth showed improvement by adding either 2.0 or4.0 mg/L.GA3 to the culture medium.IIIV.3.2. Root formation: ~----------~1-Indcle-S-buty TIC acid encouraged formation of callus andincreased necrosis. However, IBA and NAA succeeded inenhancing rooting of communis pear plantlets.2- Best rooting of communis pear was noticed when 1.0 mg/L. IBAwas added to the culture medium.3- Solid and liquid medium states induced best growth, whileliquid medium promoted the best rooting of communis pear.4- Surface or outer coverage and the combination between ~¥them

enhanced the highest root formation. However, callusincreased by all darkening treatments under investigation.