IMPACT OF USING NANO-PARTICLES DURING DATE PALM TISSUE CULTURE STAGES

By

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ABSTRACT

This study aimed of produce date palm plants from the immature inflorescences using two cultivars of Sewi and Medjool through tissue culture technique during the period 2017-2020. The response of explants was studied effecting by different nanoparticles Ag, ZnO and MgO and also, the effect of chitosan and tungsten as micrometric substances. The results showed Ag NPs had effective to completely eliminate plant microbial contaminates at sterilizing by 250µgL^{-1} for 10 min without affecting survival rate compared $HgCl_2$. Furthermore, 125µgL^{-1} is the best for the embryo formation, multiple and germination while 500µgL^{-1} recorded highest rate of callus formation and growth. The results showed 125µgL^{-1} of chitosan and tungsten was the best for embryo formation. 500µgL^{-1} achieved the highest rate of callus formation and growth and increasing embryo multiple and germination rate. The plantlets response rates when adding both ZnO NPs and MgONPs were more effective than added $ZnSO_4$ and $MgSO_4$ in culture media. 0.1mgL^{-1} ZNONPs recorded the highest rate of embryo multiple, leaves no. and number of root, length and thickness, this explains the decreasing IAA and chl a,b with increasing ZnONPs concentration. While 6mgL^{-1} of MgONPs is the highest in terms of embryo multiple, germination, number of leaves, root and

length. **Keywords:** *Phoenix dactylifera* L.**,** Inflorescence, Nanoparticles, *In Vitro*.

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