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Evaluation of antioxidant activity of wild medicinal plant *Ziziphora tenuior* L and using plant tissue culture to increase its activity

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Medicinal plants played an important role in the treatment of diseases and health disorders for thousands of years and are still important in traditional medicine systems around the world. *Ziziphora tenuior* L. (*Lamiaceae*) is an aromatic herb used for its medicinal values against fungi, bacteria. *Z. tenuior* has been used to treat fever, dysentery, diarrhea, gut inflammation, cough, bladder stones, and painful menstruation. For increased human needs of medicines, plant tissue culture is used widely for micro-propagation of medicinal plants to produce enough amounts of drugs and secondary metabolites, using this technology, the natural products can be provided at any time of the year without waiting for the suitable season to collect the plant. This work aims to develop a reliable protocol for the *in vitro* propagation of *Z. tenuior*, and increase active substances to compare the antioxidant activity between *in vitro* propagated and wild plants. The explants were sterilized and cultured on MS medium containing different concentrations of growth regulators naphthalene acetic acid (NAA) or indole-3-butyric acid (IBA) with 0.5 mg/L of kinetin (Kin) callus formation was 70.2% after 45 days of incubation in dark on medium supplemented with 1.5 mg/L of NAA. After one month of callus culture on medium supplemented with 2 mg/L BA the shoot number was 5.12 and for the multiplication stage. The shoot number was 4.21 and length was 6.17 cm on medium supplemented with 1 mg/L Kin +0.1 mg/L NAA. DPPH (2,2-diphenyl-1-picrylhydrazyl) reagent was used to test the antioxidant activity. The aqueous and methanol extracts of *in vitro* plants which were treated with 1.5 and 1 mg/L of kin plus 0.1 mg/L of NAA showed a strong DPPH scavenging activity where IC50 was 0.307 and 0.369 mg/ml, respectively, while the IC50 of aqueous and methanol extracts of wild plants was 0.516 and 9.229 mg/ml, respectively.

Biography

Abdulkarim Dakah is a Doctor at Damascus University, he has done his Doctorate in Plant Biology, worked at the International University for Sciences and Technology, Kalamoon University and Damascus University. He has a lot of Laboratory skills, like: test of bioactivity of plants, plant tissue culture and molecular characterization. He has published many articles in international journals. He has done his work on Bio-pesticidal Proteins: from isolation to molecular characterization and applications and has been certified by the Atomic Energy Commission of Syria in cooperation with International Centre for Genetic Engineering and Biotechnology (ICGEB). He has reviewed a lot of manuscripts for international journals.

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