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Analyzing the effects of Au/Ag alloy Nanoparticles which were synthesized by green chemistry method, on physiological factors of *Mentha piperita* under salinity stress conditions

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Salinity stress caused decreases in plant metabolic activity specially photosynthesis and reduces plant growth in passionate environment. In this study, effect of this stress analyzed in growth and physiological factors of *Mentha piperita*. Results show that salinity stress causes decreases in length of root and shoot, fresh and dry weight of leave and root, number of area of leaf, content of chlorophyll a and b, carotenoids, anthocyanin and nitrate and potassium's ions. Results also show that it causes increase in activity of Catalase and Guaiacol peroxidase enzymes, amount of soluble sugars and Na and Cl ions in leaf and roots. In the following, effects of nanoparticles as a factor which improves plant resistance in salinity stress, was studied. The high amount of antioxidant compounds in mentha's extract provides possibility of nanoparticle synthesis by mentha extract. Au-Ag alloy Nanoparticles which has consolidated properties of Nanoparticle of Au and Ag synthesized by mentha extracts (green chemistry method) . Parameters affecting the synthesis of plant extracts were improved such as temperature, time and amount of extract. For this aim, *Mentha piperita* was under salt stress condition with the treatment of Au-Ag alloy NPs synthesized by plant extract. Treatment with Nano particles improved many growth parameters of the plant organs such as antioxidants enzymes activities, amount of mineral ions , fresh and dry weights of the plant, area and number of leaf and amount of proline , Although it doesn't significantly effect on amount of anthocyanin , carotenoid and some of mineral ions like Cl and nitrate.

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