

## عنوان مقاله:

Investigation the Effect of silver nanoparticles on physiological and molecular parameters of *Phaseolus vulgaris* L.using RAPD Markers

## محل انتشار:

کنگره توسعه همکاری های علمی منطقه ای علوم صنایع غذایی و کشاورزی (سال: 1397)

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## خلاصه مقاله:

Effect of silver nanoparticles (AgNPs) on growth and DNA of *Phaseolus vulgaris* L was investigated in vitro. Three concentrations of silver nanoparticles were used in the present study. Murashige and Skoog (MS) nutrient media supplemented with different concentrations of AgNPs were evaluated for their effects on the plant molecular and physiological parameters. Plant seedling were obtained after 10 days of culture, the effects of nanoparticles on the physiological parameters were determined. Then the DNA was extracted to investigate the effects of the nanoparticles on the genomes of *Phaseolus vulgaris* L using RAPD-PCR. The bands obtained from electrophoresis of PCR products on agarose gel 1.5% were analyzed. Results shown that %seed germination increased significantly in the treatment 3.0mg/ml silver nanoparticles recording 85% compared with the control (75%), shoot length significantly increased in the treatments 0.75 and 3.0mg/ml silver nanoparticles recording 28cm and 28cm respectively compared to the control (21cm). Also there was asignificant increase occur in the fresh weight at the treatments 0.75 and 3.0mg/ml silver nanoparticles recording 45mg and 48 mg respectively compared to the control (31cm). Results also revealed that using the rapid marker OPA07, there was a new band appeared in the plant samples treated with 1.5 mg/ml silver nanoparticles with molecular size 4830bp, using OPA09 a new band with a molecular size 6820bp originated in the plant samples treated with 0.75, 1.5 and 3.0 mg/ml silver nanoparticles. While there was disappearing of some bands in the treated plant samlpes using OPA10 primes in comparasion to the control as shown in figure 3.4. Also a unique band appeared in the plant sample treated with 3.0mg/ml AgNPs using OPA12 primer with a molecular size 3610bp. Using the RAPD-marker OPC05, two different band originated in the DNA extracted from plant samples treated with 1.5 and 3.0 mg/ml AgNPs with 3200 and 6000bp molecular size compared with control, At the same time there was also two different band originated in the DNA extracted from plant samples treated with 1.5 and 3.0 mg/ml AgNPs with molecular size 4800 and 5000bp cmpared to the control

## کلمات کلیدی:

*Phaseolus vulgaris* L, RAPD Markers, silver nanoparticles

## لینک ثابت مقاله در پایگاه سیویلیکا:

