

عنوان مقاله:

(sulfur nanoparticles effects on physiological parameters of Lettuce (*Lactuca sativa*)

محل انتشار:

هفتمین کنگره سالانه بین المللی توسعه کشاورزی، منابع طبیعی، محیط زیست و گردشگری ایران (سال: 1402)

تعداد صفحات اصل مقاله: 15

نویسنده:

Seyed Mehdi Razavi - Department of Biology, Faculty of Sciences, University of Mohaghegh Ardabili, Ardabil, Iran

خلاصه مقاله:

In this study, the effect of green synthesized sulfur nanoparticle (SNP) at different concentration (0, 0.01, 0.1, 1 and 10 mg/ml) on some physiological, phytochemical and biochemical traits of lettuce plants was investigated. For the first time, SNP were green synthesized using *Cinnamomum zeylanicum* barks extract. Our results indicated that the treatment of lettuce plants with 1 mg/ml of SNP improved the growth and photosynthetic parameters of lettuce plants than related control. Some other physiological parameters such as proline, glycine betaine and soluble sugars levels were enhanced after treatment of the plants with same concentration of SNP. However, a concentration of 10 mg/ml of SNP exhibited toxicity on lettuce plants with inducing oxidative stress markers (H_2O_2 and MDA) and consequently reducing plant growth and biomass. This oxidative stress tend to diminish some physiological, phytochemical and biochemical parameters in treated lettuce plants. Overall, it can be concluded that the green synthesized SNP at an optimal concentration of 1 mg/ml improved all of lettuce plant physiological parameters made the lettuce plants potent to tolerate stressful conditions. However, higher concentration of SNP (10 mg/ml) indicated toxic effects on all of the physiological parameters.

کلمات کلیدی:

sulfur nanoparticle, lettuce plant, green synthesis, antioxidant enzymes

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