

## Abstract

To investigate the effects of nanoparticles of titanium dioxide and Jasmonic acid hormone on the changes process of antioxidant material and proteins, the experiment was conducted on Factorial design in a completely randomized with three replications in the center of Agricultural Biotechnology, University of Zabol. For this purpose, seeds of five genotypes of Savory were grown in Pots of loam soil and after seedlings were grown to four-leaf stage, the treatment of titanium dioxide nanoparticles (four levels of zero (control), 30, 60 and 90 mg/liter) and Jasmonic acid (four levels) control), 50, 100 and 150 $\mu$ M) Were applied as a spray. Traits assessed include: catalase, Ascorbate peroxidase, polyphenol oxidase, peroxidase, total protein, total phenolics, Flavonoid, chlorophyll a and b, total chlorophyll, carotenoids. The data analyzed using SAS (version9.1), Excel, NTSys, Darwin software and comparison of means were performed Duncan's multiple range test. The results shown that the most effective Savory population based on physiological traits was population of Shahrrey and based on the amount of antioxidant was population of Mashhad. Nano titanium dioxide and Jasmonic acid increased antioxidant substances and Physiologically traits, as the most effective Titanium hormone and Jasmonic acid levels was 30 mg/ liter and 50 $\mu$ M respectively.

**Key words:** Titanium Dioxide, Jasmonic Acid, Antioxidant, *Satureja hortensis* L



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## **Title**

**Effect of Nanoparticles of Titanium Dioxide and Jasmonic Acid on the changes process of the Protein and Antioxidant in Savory Genotypes**

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September 2016