The Effect of Nano Fe Chelate and Fe Chelate on the Growth and Activity of some Antioxidant Enzymes of Satureja Hortensis

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Abstract

Aim and background . Satureja is a genus of aromatic plants of the family Lamiaceae .The effect of nano Fe chelate and Fe chelate on the growth of Satureja hortensis was investigated .

Materials and methods . The experiment was conducted in farm condition in the form of randomized design based on four replications. Plants were treated by different concentrations of iron chelated fertilizer (0, 1.5 ,4.5 ,7.5 $kgha^{-1}$) and nano chelated fertilizer (0, 1, 3 ,5 $kgha^{-1}$).

Results. Catalase and ascorbate peroxdiase activity was significantly increased in nano Fe fertilizer (4.5 $kgha^{-1}$). The chlorophyll a content was significantly increased in the Fe chelate (1 $kgha^{-1}$) and all nano Fe treatments. The effect of nano Fe on chlorophyll b content was more than Fe chelate.

Conclusion. The length of stem and root were decreased in all Fe and nano Fe treatments in comparison to control. Also by using the fertilizers, the protein content showed significant differences. High concentrations of Fe chelate and nano Fe chelate decreased the protein content. In the nano Fe treatments indicated that decreasing protein content was more than Fe treatments. Fe chelate decreased and nano Fe increased the total chlorophyll content.

Keywords. Satureja hortensis, nano Fe chelate fertilizer, Catalase, Peroxdiase, ascorbate peroxdiase

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