



University of Zabol
Graduate School
Faculty of Agriculture

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Horticultural Science-Medicinal Plants

Title

**Effect of humic acid and micronutrients foliar sprays on
growth and essential oil concentration of savory herb**

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Abstract

Savory (*Satureja hortensis* L.) as a medicinal plants is very important in pharmaceuticals, food, cosmetics and health. In order to investigate the effect of humic acid and micronutrients foliar sprays on growth and essential oil concentration of savory herb an experiment was conducted as randomized complete block design with three replications in Zabol University Research Farm during 2012. Factors studied included 1- placebo (sprayed with water), 2- iron foliar spraying, 0.5% 3- zinc foliar spraying, 0.5% 4- humic acid foliar spraying, 0.5% and 5- iron, zinc and humic acid foliar spraying, 0.5%. Measurement of growth parameters including flowering time, plant height, branch number, plant dry and fresh weight and chlorophyll a and b began at flowering stage. The statistical analysis showed that treatment had significant effect on plant height, ash content, zinc concentration, chlorophyll b at the 5% level of probability and the number of branches, fresh weight, nitrogen concentration, protein content, iron concentration, chlorophyll a, total chlorophyll, essential oil percentage, oil yield, concentrations of phosphorus and potassium at 1% level of probability. Length of bearing flowers, plant dry weight, content of ash and organic matter were significant did not change significantly. The greatest essential oil percentage and yield was observed at non-fertilized plant. Savory essential oil concentrations were analyzed using GC / MS and found 32 compounds. The most important content of savory essential oil were Karvyn (28/32 percent), gamma-terpinene (17/1 percent), and thymol (12/47 percent), pinene (5/66 percent), alpha Myrsn (3/30) and camphor (1/88), which formed 69% of essential oil. Plants sown at non-fertilized plots had the highest essential oil content and yield, while control did not have significant influence on other parameters. Foliar spraying influenced essential oil quality, while essential oil yield had lesser impact.

Key words: Micronutrients, Medicinal plants, Savory, Lamiaceae