



University of Zabol
Graduate school
Faculty of Agriculture
Department of Horticulture and Landscape

Title:

Evaluation of salicylic acid effects on antioxidant enzymes activity, Phenol, Flavonoid and some physiological traits of Three Mentha Species (Mentha Piperita, Mentha Canadensis and Iranian Mentha)

Supervisors:

Dr. Saleh Ganjali
Dr. Leila fahmideh

Advisor:

Forouzan Heidari

By:

Maryam abpykar

September 2019

Abstract

Mentha is scientifically known as *L. Mentha piperita*, a leafy vegetable of aromatic and medicinal plants belonging to the dark mint, which is mostly perennial and rarely one-year-old. In order to investigate the effect of foliar application of salicylic acid on some mint properties, a factorial experiment was conducted in a completely randomized design with three replications. Factors tested included three mint genotypes (pepper, Iranian, Canadian) and different levels of foliar application of salicylic acid (five levels: 0, 5, 10, 50 and 100 mg / L). The foliar application of salicylic acid was performed at the appropriate concentrations for two weeks, 8 weeks after implantation and 14 days after the first foliar application. The measured traits including amount of phenol, flavonoid, antioxidant activity, total protein as well as some other physiological traits such as carbohydrate, catalase, ascorbate oxidase, peroxidase and polyphenol oxidase as well as photosynthetic pigments were evaluated. After measuring the traits, the data were analyzed using Excell and SAS 9.1 software and analysis of variance showed that salicylic acid treatment and its interaction with genotype on most traits were significant at 1% level. The results also showed that foliar application of salicylic acid at different concentrations increased the growth and improved physiological traits of three mint cultivars. Canadensis had the most positive effect for most of the studied traits at 100 ppm salicylic acid.

Keywords: *Mentha Spp*, salicylic acid, antioxidant enzymes, physiological traits