University of Zabol
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Thesis submitted in partial fulfilment of the requirements for the degree of M.Sc in.Agronomy

Title:

Effects of seed priming with ascorbate, salicylic acid and zinc sulfate (various concentration and times) on quantitative and qualitative characteristics of *Ocimumbasilicum L.*

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2019 December

Abstract:

Priming or pretreatment of seeds is a pre-planting strategy to improve germination and seedling establishment by prioritizing metabolic activities prior to root emergence, often resulting in greater absorption of moisture, nutrients and sunlight, and ultimately enhanced yield. In order to study the effect of seed pretreatment with Ascorbate, salicylic acid and zinc sulfate (different concentrations and times) on the quantitative and qualitative yield of experimental basil in completely randomized design (CRD) in 2018-19 year in Research greenhouse of Agricultural Research (Ghah Nime) with 14 treatments and three replications was performed. The treatments examinated including seeds priming with two levels of ascorbate acid (1, 2 mM), two levels of salicylic acid (1, 2 mM), two levels of zinc sulfate (0.5 in thousand, 1 in thousand), control seed(treatment with distilled water) and time treatment were at 8 and 16 h levels, respectively. In this experiment, some morphological traits such as plant height, biomass yield, grain yield, thousand kernel weight, number of kernels per fruit, chlorophyll index, leaf carotenoid and qualitative traits such as Na and K content in the plant, essential oil percentage were investigated. According to the analysis of variance, pre-treatment significantly increased all traits evaluated in this experiment.Based on the results of meancomparisons, seed pre-treatment with 100 mM Ascorbate significantly increased most of the traits evaluated in this experiment. Next, it can be stated that pretreatment with zinc sulfate at a concentration of one in a thousand caused a significant increase in the studied traits. According to the overall results, it can be deduced that the effect of the pretreatment increases with time and concentration. Data analysis was performed using SAS software version 4.3 and the means were compared with Duncan test at 2% probability level. Charts and tables were drawn with EXCEL and Word software.

Key word: Seed Priming, *Ocimum basilicum L*, Biomass yield, Essential oil, Na^+ & K^+ absorption