Abstract

To evaluate the priming effect on eco-physiological characteristics of basil in non-stress (irrigation at the field capacity) and stress condition a field experiment was conducted based on randomized complete block design with three replications on University of Zabol Research Farm. Treatments included three levels of irrigation: 1 - Full irrigation or irrigation at 90% of field capacity as control; 2- Irrigation at 70 field capacity (mild drought stress); 3- Irrigation at 50 field capacity (strict drought stress) as main plots and the salicylic acid foliar sparying at the concentration of 0.1 mM, with 4 levels: seed priming at the acid salicylic solution, foliar spraying, and non-application of salicylic acid neither at seed nor as foliar spaying (control) as subplots. The experimental results showed that drought significantly decreased plant dry weight. Application of salicylic acid, especially as solutant priming, however, mitigates effect of drought stress. The gretest yield (208.5 kg ha-1) and morphological chahracteristcs (number of leaves per plant and plant height) was observed at the free stress condition, while the highest oil content was obtained at priming (2.41 %). The least dry matter of plants was achieved at salicylic acid sparying and interaction of them, and dry matter yield increased with increasing drought stress severity. In conclusion, due to increasing oil content percentage at irrigation at 70 % FC and oil yield and seed priming was promicable at Zabol condition.

Key words: salicylic acid, priming, Drought stress, Basil

University of Zabol
Graduate School
Faculty of Agriculture
Department of Agronomy
Thesis Submitted in Partial Fulfillment of the Requirement for the degree of Master of Science (M. Sc) in Agronomy

Effect of treatment with salicylic acid at different levels of drought stress on quantitative and qualitative characteristics Basil

Supervisor

Dr. A Sirousmehr

Advisor

Dr. M. Dahmardeh

By

Ehsan Sadeghpour

May 2013