

Abstract

In order to investigate the effect of Nano-fertilizer and Cu fertilizer on some physiological attributes and yield of cowpea under drought stress levels, an experiment was conducted in split plot based on randomized complete block design with three replications in experimental farm of Zabol Agriculture University, located on Zahak province (Chah Nimeh). Major factor included different levels of drought stress: irrigation after 50 mm evaporation from Pan class A (Control), irrigation after 100 mm evaporation from Pan class A (Moderate stress) and irrigation after 150 mm evaporation from Pan class A (Severe stress) and minor factor included no fertilizer spraying (Control), spraying by Nano-NPK the amounts of 100% recommended quantity, spraying by Nano-NPK the amounts of 50% recommended quantity, spraying by NPK the amounts of 100% recommended quantity and spraying by NPK the amounts of 50% recommended quantity. The studied indices were grain yield, biomass yield, harvest index, number of grain per pods, soluble carbohydrate, Proline content, anti-oxidant enzymes content (Catalase, Peroxidase), protein content, Potassium and Calcium content of grain, the amount of Catalase and Peroxidase enzymes activity, soluble carbohydrate, leaf proline and grain potassium. Between all of NPK spraying treatments, studied indices were related to Nano-NPK spraying by 100% recommended content and minimum content of these treatments was the Control (no spraying). Interaction between drought stress and fertilizer spraying on grain yield was significant. Maximum grain yield resulted from application of 100% NPK fertilizer and irrigation after extra 50 mm Evaporation from the evaporation pan the amount of 126.33 g per plant.

Keywords: Antioxidant enzyme, Cowpea, Drought stress, Nano fertilizers, Carbohydrate, Physiologic Characteristics



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Effect of nano and compound fertilizers spraying on some physiological characteristics and yield of cowpea under levels of drought stress

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