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Faculty of Agriculture
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Master of Science (M. Sc) in Plant Breeding

**Effect of foliar application of salicylic acid on
morphological, physiological and biochemical traits of two
genotypes of mung bean (*Vigna radiate* L.) under drought
stress**

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Abstract

In order to study the effect of exogenous application of salicylic acid on quantitative and qualitative characteristic of two mung bean cultivars under drought stress an experiment was conducted as a split-split plots based on randomized complete block design with three replications in agricultural research farm of farm of University of Zabol in 2020-2021. Treatments were 3 levels of irrigations (irrigation after 70, 120 and 180 mm evaporation from the evaporation pan) as main plots and 2 mung bean cultivars (Parto and Sistan) as first sub plots and 3 levels of salicylic application (control, 0.5 and 1 mM) as second sub plots. In this study, some morphological traits (plant height, number of pods per plant, number of pods per square meter, number of seeds per pod, 1000-seed weight, fresh and dry weight of plant, economic yield, biological yield, harvest index percentage) Physiological traits (chlorophyll a, chlorophyll b, total chlorophyll and carotenoids, relative content of leaf water and protein) and biochemical traits (carbohydrates, proline and activity of antioxidant compounds catalase, peroxidase, ascorbate, peroxidase and polyphenol oxidase) were evaluated. The results showed that increasing drought stress levels decreased morphological traits, photosynthetic pigments, relative content of leaf water, protein and increased proline, carbohydrates, carotenoids, activity of antioxidant enzymes. However, the application of acid salicylic at each level of drought stress, changed the amount of Physiological, morphological and biochemical traits in two mung bean cultivars, So that its application in drought stress conditions improved morphological and physiological traits and increased biochemical traits. Therefore, according to the results, the use of salicylic acid under drought stress can have a positive and significant effect on the studied traits of mung bean cultivars.

Keywords:Salicylic acid, Antioxnidant enzymes, Osmotic regulators, photosynthetic pigments, Biological yield