

Abstract

An experiment was conducted to evaluate phenological traits and yield of *Plantago ovata* influenced by biological and chemical fertilizers in response to the limited irrigation, in research field of Faculty of Agriculture (Sistan Dam), University of Zabol, during 2015. The experimental design was split plot, using randomized complete block with three replications. Main plots treatment was irrigation regimes including; Normal irrigation, irrigation cutting before flowering stage and irrigation cutting after flowering stage, and four levels of phosphorus fertilizers including: without any fertilizer, 100% chemical phosphorus fertilizer, combined fertilizer including 50% of phosphate fertilizer + biofertilizers (Phosphate B-2), biological fertilizer (Phosphate B-2). The results of this experiment showed that drought stress was significant on traits of plant height, spike length, number of spikes per plant, number of seeds per plant, seed weight, seed and biological yield, phosphorous, sodium and potassium, protein and nitrogen, the percentage of mucilage, seed inflation index, seed inflation and chlorophyll pigments. Plant grown under cutting irrigation before flowering had the highest mucilage percentage, which was increased by 18.3 percent over controls. Reduced yield due to cutting irrigation treatments before and after flowering was 12.6 and 39.2 percent, compared to the control, respectively. The levels of phosphorus fertilizers had the significant effect on the all traits, except number of plant tiller and harvest index. 50% of phosphate fertilizer + biofertilizers produced the highest percentage of mucilage, seed and biological yield, which was 47.1, 50.7 and 51.3 percent greater in comparision with the control, respectively. Interaction of irrigation and phosphorus fertilizer on plant height, spike length, number of spikes per plant, number of tillers per plant, seed yield and biological, phosphorous, sodium, protein and nitrogen, chlorophyll pigments, inflation index and inflation means was significant. The results suggested that in most studied traits the greatest quantity archived in plant irrigated normally and fertilized with combined fertilizer.

Key words: cutting irrigation, Phosphate B-2, The percentage of mucilage, inflation index



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**Evaluation phenological triats and yield of *Plantago ovata* under
the influence of biological and chemical phosphorus fertilizers in
response to the limited irrigation**

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