

## Abstract

To evaluate the effect of foliar application of glycine betaine and ascorbic acid on some physiological traits and biochemical milk thistle (*Silybum marianum* L.) under drought stress experiment was a split plot in a randomized complete block design in year 2013 at the Institute of Agriculture, Zabol (Chah nime) was conducted . Treatments include stress levels in irrigation after 60 (control), 120 and 180 mm evaporation from pan Class A as a major cause of spray glycine betaine and ascorbic acid as a control (no spray), spray glycine betaine of 2 and 4 mM ascorbic acid sprayed at 1 and 2 mM were considered as sub plots. The results showed that the significant effect of drought stress on plant height, number of heads per plant, number of grains per head, grain weight, grain yield, biomass, harvest index, proline content carbohydrate content, cell membrane stability and chlorophyll concentration the entire milk thistle. So that stress increases the levels of the characters except for carbohydrate content and proline, which was more severe stress conditions, was reduced. Ascorbic acid and glycine betaine the effect of different treatments on biomass yield and stability of cell membranes showed that ascorbic acid enhances the performance of a biomass mM mM and 2 mM ascorbic acid increases the stability of the membrane. The interaction between water stress and foliar application on all traits except for plant height , number of heads per plant, seed weight and biomass yield significant. So that the highest number of seeds per head and seed yield of integrated treatment control and ascorbic acid 2 mM, the highest carbohydrate content relative humidity combined treatment of moderate drought and glycine betaine 4 mM, the highest proline in the treatment of severe drought stress and ascorbate 1 mM and highest sodium in the treatment of severe drought stress and ascorbate 2 mM and the highest membrane stability, chlorophyll and potassium in the treatment of moderate drought and 2 mM ascorbic acid, respectively. The results of these experiments can be concluded that the use of ascorbic acid, glycine betaine and drought conditions can result in increased physiological and biochemical traits studied in the experiment and placed to offset the harmful effects of stress in the herb milk thistle.

**Key words:** *Silybum marianum*, Glycine betaine, Ascorbic acid, Drought stress



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**The Thesis Submitted in Partial Fullfillment of the Requirment for  
the Degree of Master of Science (M. Sc) in Agronomy**

**Effect of glycine betaine and ascorbic acid  
on some physiological and biochemical  
characteristics of milk thistle under  
different levels of drought stress**

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Septamber 2014