Abstract

***Silybum marianum* L.** is one of the importance medicind plants in commerce that has many application in drug and sanitary industries and it has a chemical composition that is variable from in bioactive substances. In this research, the effects of humic acid on growth, and some physiological parameters (photosynthetic pigmentation) ,accumulation of compatibility metabolites (proline and carbohydrates) and antioxidant properties of *Silybum marianum* L. were studied in Zahedan region. The treatments includes (control), one, two and three Kg hactar humic acid. Determination of total amount of phenolic compounds was evaluated by the Folin -Ciocalteu method and antioxidant activity was evaluated using 2,2-dimethy 1-1 picril hydrazil (DPPH) assay. Total chlorophyll content was determined by Arnon method and proline was determined by Bates method. The results showed humic acid was affective on growth, physiological parameters and antioxidant activity. Treatment with Three kilograms per hectare of humic acid caused the highest antioxidant activity in leaves (70%) and stems (63.32%) and root (14.45%) . It was determined that the antioxidant properties of leaves, stems and roots at the reproductive stage was greater than the vegetative stage and its amount in leaves was more than other organs.The highest chlorophyll **a** was observed in leaf and stem (9.68 and 3.11 mg / g green leaves) and the highest chlorophyll **b** was observed in leaves and stem (3.67 and 1.65 mg / g green leaf). The highest of anthocyanin was observed in leaf and stem(0.273 and 0.26 mg/g green leaves) the highest Carbohydrates was observed in leaf and stem(5.05 and 5.56 26 mg/g green leaves) the highest of Flavonoids in leaf and stem(227.29 and 225.13 mM/g dry leaves) and The highest total Phenol leaf and stem(1.31 and 1.86 mM/g dry leaves) and the lowest content of proline in leaves and stems was obtanined in tree Kg per hectare of humic acid. The Statistical results showed significant of humic acid on growth physiological parameters.

Keywords: Humic acid, Physiological Parameters , antioxidant properties *Silybum marianum*

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Effect of different levels of humic acid on growth and physiological parameters of purslan (*Silybum marianum* L.)

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