

## عنوان مقاله:

Study of Aluminum Toxicity on Photosynthetic Pigment, Soluble Sugars and Proline Contents in Two Sunflower Varieties

## محل انتشار:

مجله پژوهش های اکوفیزیولوژی گیاهان زراعی، دوره 9، شماره 2 (سال: 1393)

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## خلاصه مقاله:

Aluminum is one of the most important heavy metals which not only can be easily absorbed by roots, but it also damages its normal function and blocks absorption of water and nutrients. According to this fact that sunflower has been widely used in industry, this study investigates the effects of aluminum toxicity on biochemical factors in two sunflower varieties including Sirena (tolerant) and Sanbero (sensitive). The study was carried out in a completely randomized design with aluminum (0, 100, 200, 300, 400, 700  $\mu\text{M}$ ) treatments and four replications in hydroponic culture. Experiments are conducted in establishment stage of the plant in four iterations at concentrations of 0, 100, 200, 300, 400, and 700  $\mu\text{m}$  of aluminum. Results of biochemical tests show that aluminum, as a heavy metal, reduces the content of photosynthetic pigments and soluble sugars. In addition, it causes toxicity in sunflower plant. Increase in the proline content of two sunflower varieties show that varieties (Sirena and Sanbero) are more vigorous against oxidative stress with low concentrations of aluminum.

## کلمات کلیدی:

Aluminum, Carbohydrate, Chlorophyll, Proline, Sunflower

## لینک ثابت مقاله در پایگاه سیویلیکا:

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