

## Flower number and proline amount of *Petunia hybrida* “Carnival” as affected by irrigation levels in landscaping

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### INTRODUCTION:

*Petunia* is one of the most important annual flowers in urban landscape because of colors diversity. It is a member of the *Solanaceae* family and native to Argentina and Brazil (Dole and Wilkins, 2004). *Petunia hybrida* “Carnival” uses in the gardens that colors variety and flowers size are important. Deficiency and fast reduction of water resources have been the key issue in the world; especially the dry and semi dry areas. Water stress is one of the most important environmental stresses affecting agricultural productivity around the world. In order to survey effects of irrigation regimes on characteristics of this cultivar, the trial had been executed on the ET-HS water requirement model. This model has been designed to determine the water requirement of plants in arid and semi-arid regions of Iran (Najafi and Tabatabaei, 2007)

### MATERIAL AND METHODS

This experiment was done at Islamic Azad University, Khorasgan Branch (Isfahan), Iran. The treatments were in three irrigation levels. S1 (100% ET-HS equal to the plant water requirements), S2 (75% ET-HS) and S3 (50% ET-HS, severe stress). Plant height, number of axillary shoots, number of flowers per branch, leaf area, relative water content (RWC) and proline were measured. To remove the marginal effects, notes were taken from six centric plants in each row. To measure the leaf area of each sample, six of the middle stem leaves of the plants were selected and by using the leaf area meter in terms of square millimeters. To measure the proline, the technique of Bates et al. (1973) was used. The experiment was tested in completely randomized design with three replications. The data was obtained using SPSS software.

### RESULTS AND DISCUSSION

Results showed that reducing in amount of irrigation to 50% ET-HS, caused to significant decrease in the number of flower and leaf area. This result showed, plant flowering decreased with severe stress. There were no significant differences between 100% and 75% treatments. In this study decreasing in irrigation, the plant height, the number of axillary shoots and RWC were declined slight. Proline amount enhanced with decreasing irrigation and 50% ET-HS had significant difference with two other treatments. In this study 75% ET-HS did not lead to the reduction of the flower number. Therefore plant had the ability to maintain of flowers. But in severe stress, the plant flowering reduced for storage of growth compounds. Treatment 75% ET-HS suggested for saving water in resent drought stress because of the important flower number in this cultivar.

**Keywords:** *Petunia*, irrigation, flowering, proline

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