

Effects of drought stress on some biochemical indices of four groundcovers (*Lolium perenne*, *Potentilla* spp, *Trifolium repens* and *Frankenia* spp) with potential usage in landscape

E. Samieiani^{1*}, H. Ansari¹, M. Azizi², S. M. Hashemi-Nia¹ and Y. Salahvarzi²

(Received: 25 July 2012 ; Accepted: 28 Nov. 2012)

Abstract

Nowadays, stress management is considered to be very important in landscapes. The present research was conducted to investigate the effects of regulated deficit irrigation at 4 levels (25, 50, 75 and 100% of lawn irrigation requirement) on some biochemical indices of four groundcover plants (*Lolium perenne*, *Potentilla* spp, *Trifolium repens* and *Frankenia* spp) to be used in landscapes, with 3 replications. Results showed that *Frankenia* spp had the highest proline content (0.84 mg/g fresh weight) and the lowest chlorophyll content (15.9 mg/g fresh weight), the 75% stress treatment had the highest proline content (0.84 mg/g fresh weight) and control treatment had the highest chlorophyll content (32.6 mg/g fresh weight). For total carbohydrates, the highest and the lowest amounts (1.54 and 0.79 mg/g fresh weight) belong to *Lolium perenne* and *Trifolium repens*, respectively. Also, among the species, *Trifolium repens* showed the highest antioxidant activity (75.05%). In general, regulated deficit irrigation affected different biochemical characteristics of the examined groundcover plants significantly. But, applying it up to the damaging point for landscape plants can be an important management strategy for reduction of water consumption in green spaces.

Keywords: Antioxidant activity, Total carbohydrates, Proline content, Chlorophyll content.

1. Dept. of Water Eng., College of Agric., Ferdowsi Univ., Mashahd, Iran.

2. Dept. of Hort., College of Agric., Ferdowsi Univ., Mashahd, Iran.

*: Corresponding Author, Email: elhamsamieiani@yahoo.com