عنوان مقاله:

The effect of different periods of water restriction on the soluble sugar content of two grapevine cultivars

محل انتشار:

بیستمین کنگره ملی و هشتمین کنگره بین‌المللی زیست‌شناسی ایران (سال: 1397)

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خلاصه مقاله:

This research was carried out with the aim of investigating and comparing changes in the concentration of some soluble sugars of two grapevine cultivars, differing in drought tolerance, to different levels of water restriction. For this purpose, a factorial experiment was conducted in a completely randomized design with six replications in greenhouse conditions. Drought stress was performed by the method of cut off irrigation in four levels of 0 (control), 6, 12 and 18 days on the two Yaghuti and Bidanesefid cultivars. With increasing the drought period from 6 to 18 days, total soluble sugar (TSS) concentrations increased significantly in leaves of both cultivars compared to respective controls. TSS contents of „Yaghuti" were remarkably higher than those in „Bidanesefid" in all drought stress treatments. 0, 6, 12 and 18 days of drought stress, caused respectively18, 30, 51 and 46% higher content of TSS in „Yaghuti" than „Bidanesefid". There were no significant differences between the glucose, sucrose and fructose concentrations of the two cultivars in control treatment. Glucose, fructose, and sucrose exhibited a significant increase in droughtstressed vines of both cultivars. In 12days water stressed plants of „Yaghuti", the glucose, fructose, and sucrose concentration were found to be 35, 23 and 59% higher than those in „Bidanesefid". Compared to less drought tolerant cultivar of Bidanesefid, the glucose and sucrose concentration of drought tolerant cultivar (Yaghuti) was respectively 35 and 112% higher in 18 days water-stressed vines, while there was no significant difference between fructose concentrations of both cultivars in this level of the drought period. Totally, higher accumulation of soluble sugars, especially glucose and sucrose in drought tolerant cultivar, „Yaghuti", confirms the important role of these sugars in drought tolerance.

کلمات کلیدی:

Soluble sugars, Grapevine, Glucose, Fructose, Sucrose