

عنوان مقاله:

Antioxidant and Biochemical Alterations in Sea Beet (*Beta vulgaris* subsp. *maritima* (L.) Arcang.) and Sugar Beet (*Beta vulgaris* L.) Exposed to Salt Stress

محل انتشار:

مجله علوم و فناوری کشاورزی، دوره 24، شماره 1 (سال: 1400)

تعداد صفحات اصل مقاله: 16

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خلاصه مقاله:

A pot experiment was conducted using a randomized complete block design with a factorial arrangement and 3 replications. The treatments consisted of genotype (15 sea beet genotypes and two cultivated beets of one susceptible and one tolerant to stress), and salinity (four NaCl concentrations including 0, 50, 100, 200 and 400 mM) on the 35-days-old beet seedlings for 55 days. The following parameters and traits were recorded: activities of superoxide dismutase, catalase and glutathione peroxidase, malone dialdehyde, di-tyrosine, di-hydroxy guanosine, proline, and total soluble sugars. The results showed a highly significant effect of salinity treatments on the traits studied. Moreover, with increasing stress intensity, the effects of salinity on these traits increased. At least five genotypes of sea beet were clearly superior than the cultivated beet for producing a lower constitutive level of MDA, DT and 8-OH-dG destruction biomarkers, but higher activities of SOD, CAT and GPX enzymes, and proline, total soluble sugars, and glycine betaine contents were recorded under salt stress conditions. These results strongly suggest that the wild salt-tolerant sea beet possess distinct advantages over the sugar beet counterparts for protection mechanism against oxidative damage by maintaining a higher inherited and induced activity of enzymatic/ non-enzymatic antioxidant activities. Therefore, it can be concluded that under salt stress, sea beet has a significant potential for the physiological/biochemical variation in salinity tolerance, which can be exploited for improving salinity tolerance in sugar beet cultivars.

کلمات کلیدی:

.Antioxidants, Biomarkers, Oxidative stress, Salinity tolerance

