عنوان مقاله:

Alternation of Growth, Phenolic Content, Antioxidant Enzymes and Capacity by Magnetic Field in Hyssopus officinalis under Water Deficit

محل انتشار:

مجله بین المللی علوم و فنون باغبانی, دوره 7, شماره 2 (سال: 1399)

تعداد صفحات اصل مقاله: 11

نویسندگان:

Rezvan Mohammadi - *Faculty of Agriculture, Shahrekord University, Shahrekord, Iran*

Parto Roshandel - *Faculty of Agriculture, Shahrekord University, Shahrekord, Iran*

خلاصه مقاله:

In the present study, the effect of seed priming with magnetic field (MF; 45, 90, 200 and 250mT for 5, 10, 20 and 30 min) was evaluated in 60-day-old Hyssopus officinalis plants grownunder 8 days irrigation intervals. The assessments were consisted of biomass, membranestability, photosynthetic pigments concentrations, polyphenols content, antioxidant enzymesactivities and antioxidant capacity. In comparison with the exclusively water-stressed plants,MF-priming significantly altered these parameters, particularly at 200 mT/5 min. At thisintensity, the level of biomass, total chlorophyll and polyphenols content increased by 2.2, 2.5and 7.7 folds, respectively. Furthermore, electrolyte leakage and MDA content decreased by35 and 33%. Reducing power, DPPH and superoxide anion scavenging activities highlyaugmented by MF. MF-priming at 200 mT increased catalase (+92%) and ascorbateperoxidase (+2.3 folds) activities. But, the highest activity of guaiacol peroxidase wasrecorded for MF-primed H. officinalis at 90 mT. In conclusion, seed priming with MFincreases drought tolerance in H. officinalis through protection of cellular membrane integrity,maintenance of photosynthetic pigments content and also alternation of antioxidant enzymeactivities. It also improves medicinal properties of the shoots via increasing polyphenolsconcentration and antioxidant capacity.

کلمات کلیدی:

Drought stress tolerance, Hyssop, Polyphenols, Radical scavenging activity, Seed priming