

عنوان مقاله:

Antioxidant Activity, Phenolic and Flavonoid Contents of Echium Species from Different Geographical Locations of Iran

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خلاصه مقاله:

Iranian Echium species (Boraginaceae), popularly known as "Gol-e-Gavzaban" are native plants that some of them have been used widely as food and traditional medicine since long times. In this work organs from different populations of two Iranian Echium species were collected from their natural locations in order to analyze their phenolic content and antioxidant activity. Hydroalcoholic extracts of organs were assessed for total phenolic content (TPC) and total flavonoid content (TFC). 1, 1-Diphenyl-2-picrylhydrazyl (DPPH) free radical scavenging and ferric ion reducing antioxidant power (FRAP) assays were also used to evaluate the antioxidant properties of the extracts. Among the examined organs, leaves of *E. amoenum* (Hezar Jarib location) contained the highest (119.50 ± 2.00 mg GAE/g DW) TPC, followed by seeds of *E. italicum* L. (Alamute Qazvin location) (117.91 ± 7.29 mg GAE/g DW). Seeds of *E. amoenum* (Ramsar location) showed the highest (62.17 ± 3.59 mg QE/g DW) TFC value. All extracts also exerted antioxidant properties, the most active one was the seed extract of *E. amoenum* (Behshahr location) which contained the highest free radical scavenging effect ($76.67 \pm 0.33\%$) and the highest FRAP value (20.88 ± 0.72 mg GAE/g DW). The study revealed that phenolic compounds may be the main contributors to the antioxidant activity of some organs of Echium plants and they could be explored as potent natural antioxidants in the future. Correlative effects of altitude and precipitation, as two important environmental factors on the content of phenolics were also investigated. Results showed that the patterns of phenolic and flavonoids contents in the different organs of Echium plants were differently affected by two environmental factors.

کلمات کلیدی:

Echium species, Antioxidant activity, DPPH radical scavenging, Phenolic and flavonoid contents, FRAP

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