عنوان مقاله:

Determination of Phenolic Compounds and Antioxidant Activities of ۵۵ Iranian Berberis Genotypes

محل انتشار:

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خلاصه مقاله:

The genus Berberis belongs to the Berberidaceae family, with ۱۵ genera and ۶۵۰ species around the world. It has valuable potential in the medicinal and food industries. In this study, the phytochemical diversity of ۵۵ fruits of the Iranian Berberis genotype were investigated. The results of this study could be used in the breeding and determination of superior genotypes in the future. Plant materials were collected from the barberry Collection Garden of Mashhad and also different natural habitats of barberry in various provinces of Iran. The samples were air-dried, finely grounded, and extracted by methanol at room temperature. Then, total phenol and total flavonoid were measured by Folin-Ciocalteu and AlCl۳ assays, respectively. Radicals neutralizing effects of extracts were examined through the ۲,۲-Diphenyl-۱- picrylhydrazyl (DPPH) method. The results showed a significant difference between phenolic content, flavonoid content, and antioxidant properties of various extracts, at a probability level of ۱%. A methanol extract of B. integerrima × crataegina (genotype code ۴-۱) resulted in the highest phenolic content with an average of ۴.۲ mg gallic acid equivalents (GAE) ml-۱ extract, while the lowest content was recorded for B. integerrima) genotype code ۲۳-۴) with an average of ۱.۷ mg gallic acid equivalents (GAE)/ ml extract. The highest flavonoid content was observed with extracts of B. integerrima (genotype code ۴-۴) and B. orthobotrys × crataegina (genotype code ۱۵-۴) with an average of ۶.۳ mg quercetin equivalents (Q)/ ml extract. The least was recorded for B. integerrima (genotype code ۲۳-۴) with an average of ۰.۴ mg quercetin equivalents (Q)/ ml extract. The highest and lowest rates of free radical scavenging DPPH were ۵۹.۰۶% and ۱۲.۳%, respectively. The results showed that barberry has a great diversity in terms of phytochemical characteristics in different genotypes and is a valuable genetic source for breeding research.

کلمات کلیدی:

Phenolic compound, Folin-Ciocalteu, flavonoid, Antioxidant, Berberis