

ANTIOXIDANT ACTIVITY OF DIOSCOREA CAUCASICA AND DIOSCOREA NIPPONICA LEAVES AND ROOTS EXTRACTS OBTAINED BY DIFFERENT EXTRACTION METHODS

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Dioscorea nipponica Makino and *Dioscorea caucasica* Lipsky plants belong to Dioscoreaceae family. The genus consists of more than 600 species native to Africa, Asia, the Caribbean, South America, and the South Pacific Islands. *Dioscorea* plants are rich in steroids, quinones, cyanides, phenols, diterpenes, diarylheptanoids, and nitrogen-containing compounds. One of the most important bioactive compounds diosgenin possesses various biological effects, including antioxidant, hypoglycemic, hypolipidemic, antimicrobial, inflammatory, antiproliferative, androgenic, estrogenic, and contraceptive properties. To sum up, *Dioscorea* spp. is a potential source of bioactive substances for the prevention and treatment of several diseases. However, ultrasound-assisted extraction (UAE) and pressurized liquid extraction (PLE) have not been used to recover bioactive compounds from *D. nipponica* and *D. caucasica* leaves and roots. This study aimed to compare the extracts obtained by PLE and UAE antioxidant activity of *D. caucasica* and *D. nipponica* leaves and roots. The plants were grown in the collection of medicinal plants of the Kaunas Botanical Garden of Vytautas Magnus University. Pressurized liquid extraction (PLE) was accomplished with ethanol (EtOH) and water (H₂O), while ultrasound assisted extraction (UAE) with water. Antioxidant properties of extracts were evaluated by the in vitro antioxidant capacity assays. ABTS radical cation scavenging and oxygen radical absorbance capacity (ORAC) were expressed in trolox (synthetic antioxidant) equivalents (TE), while total phenol content (TPC) was determined by Folin-Ciocalteu method and expressed in gallic acid equivalents (GAE). The results showed that *D. caucasica* and *D. nipponica* leaf extracts obtained by two different extraction methods had stronger antioxidant activity, while roots extracts. TPC values of *D. caucasica* and *D. nipponica* extracts obtained by different extraction methods were not significantly different and varied in the range of 205-240 and 219-253 mg GAE/g, respectively. In ABTS radical cation scavenging assay *D. caucasica* (836-866 mg TE/g) extract had higher antioxidant capacity than *D. nipponica* (681-686 mg TE/g); however, the differences between extraction methods were not observed. It may be concluded that *D. nipponica* and *D. caucasica* plants extracts are a rich source of various bioactive compounds, which possess strong antioxidant activity and may find applications in nutraceuticals and functional foods.
