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Abstract

Evaluation of antioxidant activity and identification of main compounds of various extracts of *Artemisia turanica* aerial parts

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Background and objectives: *Artemisia turanica* Krash. grows wildly in north-eastern Iran. The aim of the present work was to undertake an investigation of the antioxidant activity as well as identification of main compound of different extracts and fractions of *A. turanica*. **Methods**: Total phenolic contents (TPC) and antioxidant activity of five different extracts (petroleum ether, dichloromethane, ethyl acetate, ethanol and ethanol-water) and seven fraction of hydroethanolic extract was investigated by Folin-Ciocalteu assay and three different methods: β-catotene bleaching (BCB) test, 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging method and ferrous ion chelating (FIC) assays, respectively. Purification of the major constituents of the most active fraction was done by preparative and semi preparative HPLC. Structure elucidation of isolated compounds was achieved using spectroscopic techniques including ESIMS, 1D and 2D NMR experiments. **Results**: Among the extracts analyzed, the hydroethanolic extract exhibited the highest phenolic content. Fraction D (40% MeOH in water) showed the highest total phenolics content and free radical scavenging activity but the only statistically significant correlation between TPC and EC_{50} values was observed for BCB. There were no significant differences (p<0.05) between the assays in screening the samples for the antioxidant ability. Two known isochlorogenic acid isomers, 3,5-dicaffeoylquinic acid and 4,5- dicaffeoylquinic acid were isolated from the most active fraction of hydroethanolic extract. **Conclusion:** The findings of the present study suggested that the hydroethanolic extract of *A.turanica*, (especially fraction 40% MeOH in water), could be regarded as a potential source of natural antioxidants.

Keyword: *Artemisia turanica*, structure elucidation, total phenolic content

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