proceedings

MDPI

Abstract

In Vitro Antioxidant and Anticancer Activities of Some Local Plants from Bolu Province of Turkey †

Kadriye Nur Kasapoğlu [1,*], Abdurrahim Kocyigit [2], Vildan Betül Yenigun [2], Ezgi Balkan [2], Evren Demircan [1], Funda Karbancıoğlu-Güler [1] and Beraat Özçelik [1]

[1] Department of Food Engineering, Faculty of Chemical and Metallurgical Enginerring, Istanbul Technical University, Sarıyer 34467, Turkey; ozcelik@itu.edu.tr

[2] Department of Medical Biochemistry, Faculty of Medicine, Bezmialem Vakif University, Sarıyer 34467, Turkey; akocyigit@bezmialem.edu.tr

* Correspondence: kasapogluk@itu.edu.tr; Tel.: +90-212-285-7319

† Presented at the 2nd International Conference on Natural Products for Cancer Prevention and Therapy, Kayseri, Turkey, 8–11 November 2017.

Publish: 14 November 2017

Abstract: Polyphenolic compounds of plant origin are of growing interest in cancer prevention and treatment especially because of their antioxidant potential contributing anticarcinogenic and antimutagenic effects. The diversity of Turkeys' flora is remarkable for the development of new nutraceuticals or pharmaceuticals. In the present study, five local underutilized plant species: Kaldırık (*Trachystemon orientalis*), Sirken (*Chenopodium album*), Yağlı Mancar (*Rumex spp.1*), Efelek (*Rumex spp.2*), Ebegümeci (*Malva spp.*) that are located in the Bolu Region of Turkey were investigated spectrophotometrically for total phenolic content and antioxidant capacity. Methanolic plant extracts were assessed for in vitro antioxidant activity by DPPH and CUPRAC assays. The cytotoxicity of plant extracts (100 to 1000 μg/mL) on MCT-7 cell lines were determined by MTT assay. The strongest antioxidant activities were shown for *Rumex spp.1* and *Rumex spp.2* with total phenolic contents of 26.71 and 16.17 mg Gallic acid equivalent/g dry weight (dw), respectively. *Rumex spp.1* exhibited the highest total antioxidant capacity with 110.51 mg Trolox equivalent/g. Phenolic compound analysis done by Ultra-Fast Liquid Chromatography (UFLC) showed that both of the plants contain rutin, gallic acid, chlorogenic acid at most. The strongest cytotoxic activity was shown for *Rumex spp.1* at highest concentration (1000 μg/mL) of these extracts with 56% cell viability.

Keywords: antioxidant activity; cytotoxicity; anticancer; phenolic compounds; natural products