

COMPARISON OF PHENOLICS CONTENT AND *IN VITRO* BIOLOGICAL ACTIVITIES OF PARSLEY AND BEAR'S GARLIC LEAVES EXTRACTS

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Introduction

Epidemiological evidence shows that the population of Mediterranean countries, where the daily consumption of significant quantities of culinary herbs and spices is common, has lower incidences of chronic diseases and higher life expectancy than those adapted to western lifestyle.

Parsley (*Petroselinum crispum* (Mill.) Nym) and bear's garlic (*Allium ursinum* L.) have been widely used in diet as a source of micronutrients and to enhance the taste of foods. In addition to the well-known diuretic effect of parsley and hypolipidemic effect of bear's garlic, ascribed to essential oil and flavonoids, and sulfur compounds (methiin and alliin), respectively, they are also used in traditional medicine as antioxidant, antimicrobial and antidiabetic agents.

In the present study, dry hydroethanolic extracts of *P. crispum* (PC) and *A. ursinum* (AU) leaves were compared in terms of total phenolics content, antioxidant and enzyme inhibition activity.

Material and methods

The total phenolics content (TPC) was measured by the Folin–Ciocalteu method, while the antioxidant capacity was determined by the radical scavenging (ABTS) and reducing power (FRAP) assays. Spectrophotometrically *in vitro* assays were performed to evaluate α -amylase and α -glucosidase inhibition activity.

Results

Quantitative analysis revealed that PC had higher TPC than AU (28.51 ± 1.10 vs. 19.85 ± 0.66 mg GAE/g of extract), which was in accordance with exhibited better antioxidant activity of PC compared to AU (132.21 ± 3.28 vs. 75.40 ± 4.84 μ mol TE/mg of extract for ABTS; 2.63 ± 0.18 vs. 1.95 ± 0.08 μ mol TE/mg of extract for FRAP). The extracts showed concentration-dependent inhibition of α -amylase, with IC₅₀ values 19.83 ± 1.41 mg/mL for PC and 10.07 ± 0.12 mg/mL for AU, while they didn't show valuable α -glucosidase inhibition activity. Acarbose, positive control, with IC₅₀ 4.65 ± 0.33 μ g/mL, was much stronger than extracts in α -amylase assay.

Conclusion

These findings support the traditional use of parsley and bear's garlic as beneficial antioxidants and mild hypoglycemics, and as spices they could be considered integral for implementation of diabetes dietotherapy.

Keywords: *Petroselinum crispum*, *Allium ursinum*, phenolics, antioxidant, α -amylase

Acknowledgements: Ministry of Education, Science and Technological Development of Republic of Serbia, contract number 451-03-9/2021-14/200003

