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I_PP9_Screening of the phenolic composition and *in vitro* biological activities of the fruit of *Lycium ruthenicum* Murray

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Lycium ruthenicum Murray (Solanaceae), also known as black goji or black wolfberry, has been used for centuries in traditional medicine and nutrition in Asian countries [1]. In recent years, black goji berries have been gaining attention as one of the most valuable sources of anthocyanins with many health-promoting effects [2]. Therefore, this study aimed to investigate the phytochemical composition and *in vitro* biological properties of black goji berry cultivated in southeastern Serbia. The total phenolics, flavonoids, anthocyanins, and tannins content were determined spectrophotometrically. HPLC-DAD-ESI-MS analysis was used to identify the phenolic compounds. Methanol extract from black goji berry was screened for *in vitro* antioxidant (DPPH$^{\cdot}$, ABTS$^{\cdot+}$, FRAP, CUPRAC, and *β*-carotene bleaching methods), antimicrobial, and hypoglycemic (*α*-amylase, *α*-glucosidase) potential. Phytochemical screening of the extract confirmed the dominant presence of anthocyanins and hydroxycinnamic acid derivatives, with petunidin 3-*p*-cumaroylrutinoside-5 glucoside as the main phenolic compound [3]. The total phenolic content was 18.13 ± 0.15 mg gallic acid equivalents/g freeze-dried sample. A high correlation is found between the total phenolic content and the antioxidant activities using different *in vitro* antioxidant assays. The antimicrobial activity of the black goji berry extract against eight laboratory control strains was not pronounced (MIC > 2 mg/ml). The IC_{50} values were 6.55 ± 0.38 mg/mL and 7.37 ± 0.02 mg/ml for *α*-amylase, and *α*-glucosidase inhibition activity, respectively. Overall, obtained results suggest that the black goji berry cultivated in Serbia should be considered a valuable source of bioactive compounds for further use in the food, nutraceutical, and cosmetic industries.

References

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