University of Belgrade - Faculty of Agriculture

1st European Symposium on Phytochemicals in Medicine and Food (1-EuSPMF)

Book of abstracts

Belgrade, Serbia
7-9 September 2022

II_PP8_*In vitro* assessment of the prebiotic potential of selected plant extracts

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In recent years, many preclinical studies have provided evidence that polyphenol compounds and their metabolites exert prebiotic-like effects by selectively stimulating intestinal bacteria growth and/or activity [1]. In this study, we investigated the chemical composition, antioxidant capacity, and prebiotic potential of methanol extracts obtained from *Prunus spinosa* L. (blackthorn) and *Lycium ruthenicum* Murray (black goji) fruits. Polyphenolic profiles were characterized by using HPLC-DAD-ESI-MS and antioxidant capacity was estimated with DPPH•, ABTS•+, and FRAP assays. The influence of plant extracts (0.312-5 mg/L) on the growth of three probiotic lactobacilli, probiotic yeast (*Saccharomyces boulardii*), and two probiotic mixtures was examined. Studied plant extracts were characterized by different phenolic compound patterns. Hydroxycinnamic acid derivatives, quercetin glycosides and anthocyanins were detected in blackthorn extract, while black goji extract was characterized by the presence of hydroxycinnamic acid derivatives and acylated anthocyanins. The blackthorn fruit extract showed higher antiradical and reduction activity than those obtained from black goji fruits. Both extracts have influenced the growth of all tested probiotics in a concentration-dependent manner, especially of yeast, *S. boulardii*. The black goji extract had more stimulatory effects, possibly due to higher anthocyanins content. When the black goji extract was added to the growth medium at the concentration of 5 mg/mL, about 2-fold stimulation of the growth of *S. boulardii* was observed. In conclusion, extracts of the black goji and blackthorn fruits promote the growth of probiotics in *vitro.* Further studies are still needed to assess the prebiotic potential of these plant extracts.

References

1. Alves-Santos, A.M. et al., *Journal of Functional Foods*, 2020, 104169

Acknowledgment

This work was supported by the Ministry of Education, Science and Technological Development, Republic of Serbia through grant numbers 451-03-68/2022-14/200161.