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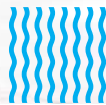
**BLACK SEA ASSOCIATION
OF FOOD SCIENCE AND
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13th - 14th December, 2023

Hotel Mona Plaza / Belgrade, Serbia

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The effect of biopriming of pea seeds (*Pisum sativum* L.) with extracts of *Schizophyllum commune* Fr. 1815 on the antioxidant activity of the plant under stress conditions (drought)

Jovana Mišković¹, Milena Rašeta², Gordana Tamindžić³, Nenad Krsmanović¹, Maja Karaman¹,

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Biopriming (BP) of seeds ensures increased resistance of seeds and young plants to stress, by integrating beneficial microorganisms and their products. In addition, research on filamentous fungi revealed their enormous potential in biotechnological processes and demonstrated their ability to increase plant resistance to stressful conditions.

Aim:

The aim was to examine the influence of BP of pea seeds with polysaccharides (PSH) isolated from submerged cultures of *Schizophyllum commune* originating from Serbia (SRB) and Italy (IT), on the antioxidant activity of the plant under drought.

Methodology:

The antioxidant activity of the methanolic extracts of the aerial parts, after the BP of the seeds with fungi exopolysaccharides (EPSH) and intrapolysaccharides (IPSH), was tested using the DPPH, ABTS and FRAP test. The content of total phenols and flavonoids was also determined.

Results

Neutralization of ABTS radical was 1.5 times higher after treatment with IPSH SRB (36.99 ± 2.69 mg eq. T/g. d.m.) compared to control (24.47 ± 3.63 mg eq. T/y. d.m.), while the neutralization of DPPH radical was 2.2 times stronger after BP with EPSH SRB ($IC_{50} = 69.81 \pm 6.70$ μ g/mL) than the control ($IC_{50} = 155.28 \pm 0.81$ μ g/ mL). The strongest reduction potential was shown by pea extracts after BP with IPSH SRB (25.96 ± 0.23 mg eq. AA/g d.m.) and ITA (23.06 ± 1.12 mg eq. AA/ g d.m.). IPSH SRB also influenced the increase in phenols in AP (28.56 ± 1.22 mg eq. GA/g d.m.) compared to the control (18.82 ± 0.68 mg eq. GA/g d.m.), while the highest content of flavonoids was recorded after treatment with IPSH ITA (2.09 ± 0.34 mg eq. K/g d.m.).

Conclusion

BP with PSH from *S. commune* improved the drought tolerance of pea, while the SRB strain showed a stronger effect, indicating their enormous potential as antioxidants.

Keywords: *S. commune* Fr., *Pisum sativum* L., biopriming, antioxidant activity

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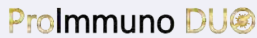
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