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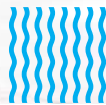
**BLACK SEA ASSOCIATION
OF FOOD SCIENCE AND
TECHNOLOGY CONGRESS**

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ABSTRACT BOOK

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The effect of biopriming of pea seeds (*Pisum sativum* L.) with extracts of *Schizophyllum commune* Fr. 1815 on the enzymatic antioxidant activity of seedling

Jovana Mišković¹, Milena Rašeta², Vesna Šolaja², Gordana Tamindžić³, Nenad Krsmanović¹, Maja Karaman¹

1 University of Novi Sad, Faculty of Sciences, Department of Biology and Ecology, ProFungi Laboratory,

Trg D. Obradovića 2, 21000 Novi Sad, Serbia *2*University of Novi Sad, Faculty of Sciences, Department of Chemistry, Biochemistry and Environmental Protection, ProFungi Laboratory, Trg D. Obradovića 2-3, 21000 Novi Sad, Serbia *3* Institute of Field and Vegetable Crops, National Institute of the Republic of Serbia, Maksima Gorkog 30, 21000 Novi Sad, Serbia

Biopriming (BP) represents a new seed treatment technique that integrates biological and physiological aspects, ensuring increased resistance of the seed and young plant. Today, in BP, many species of fungi are used intensively, including *Trichoderma*, but the effect of filamentous fungi has not been described yet.

Aim

The aim of this study was to examine the role of seed BP with polysaccharides (PSH) isolated from submerged cultures of two different strains of fungal species *Schizophyllum commune*, originating from Serbia (SRB) and Italy (IT), in the fight against oxidative stress in seedlings under optimal conditions.

Methodology

Fresh extracts of pea were prepared in phosphate buffer pH 7.5, after seed BP with fungal exopolysaccharides (EPSH) and intrapolysaccharides (IPSH). *In vitro* enzymatic antioxidant activity of the following enzymes was determined: pyrogallol peroxidase (pPx), ascorbate peroxidase (aPx), guaiacol peroxidase (gPx) and catalase (CAT).

Results

The strongest positive effect was observed with EPSH isolated from both strains, especially the SRB strain, which significantly increased the antioxidant activity of pPx (37.28 nmol min⁻¹ mg⁻²) and gPx (0.50 nmol min⁻¹ mg⁻²). This represents a 177-fold increase in activity compared to the control of pPx (0.21 nmol min⁻¹ mg⁻²). However, the EPSH extract from SRB did not affect the increase in aPx and CAT activity in the plant, most likely due to its significant influence on the previous two analyzed enzymes. On the other hand, EPSH isolated from the IT strain had a significant effect on increasing aPx (26.30 nmol min⁻¹ mg⁻²) and CAT (3.52 nmol min⁻¹ mg⁻²) activity.

Conclusion

The results show that BP with PSH from *S. commune* has a positive effect on reducing the level of oxidative stress in pea and emphasize the complexity of the various mechanisms of PSH. They also highlight the enormous potential of PSH derived from filamentous fungi as antioxidants.

Keywords: *S. commune* Fr., *Pisum sativum* L., biopriming, peroxidase, catalase

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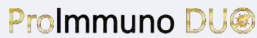
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MANAGEMENT COORDINATOR



Dr Petra Markovića 12, 11080 Zemun-Beograd

T +381 11 31 60 625, 21 96 530, 37 31 536

M +381 60 31 60 546

M +381 60 31 60 536

e-mail: office@ariaone-cc.com



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