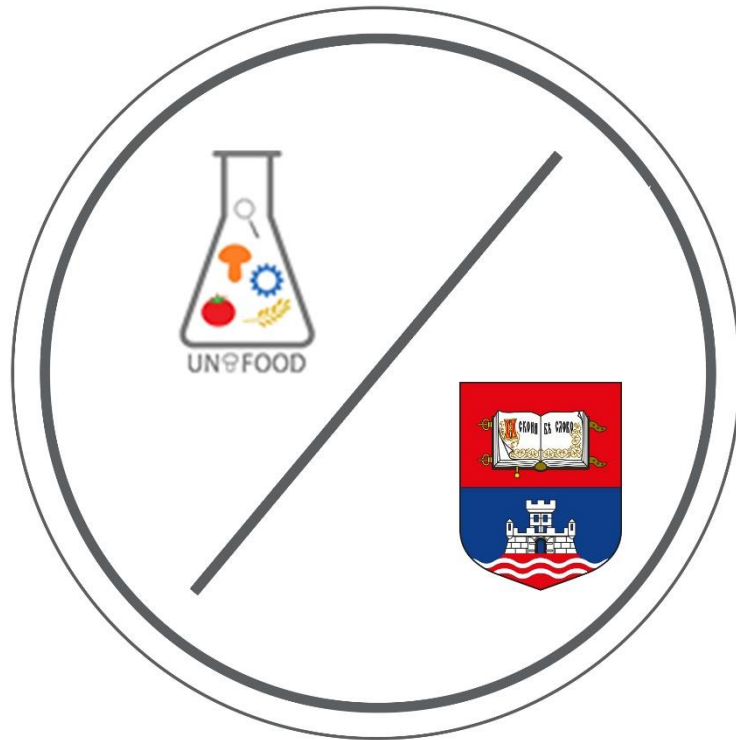


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24th-25th September 2021 University of Belgrade

2nd International UNIFood Conference



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The word of welcome

Dear colleagues,

We would like to welcome you to the **2nd UNIFood International Conference –UNIFood2021**. We hope that this gathering will engage not only academics, but also the stakeholders from all the relevant industries and business sectors, serving as a meeting point and a platform for proliferation of new ideas and development of new partnerships.

The first UNIFood conference, organized as national, was established 2018. year as one of the events in honor of the **210th Anniversary** celebration of the **University of Belgrade** that ranked at Shanghai list on 35th place for the 2017 year in subject *Food Science and Technology*. The University of Belgrade has been recognized as a leading international scientific institution by LERU when it was selected to be a member of CE7, an informal network of seven Central and Eastern European universities collaborating with LERU on key research and education challenges. Furthermore, University of Belgrade joined European University Alliance Circle U. Following the European Commission's launch of the European Universities initiative, a group of research-intensive universities has entered into a Memorandum of Understanding with the intention of establishing a new university alliance: Aarhus University, Humboldt University of Berlin, King's College London, UC Louvain, University of Belgrade, University of Oslo and Université de Paris.

We are pleased that you have decided to take part in this mutual conversation, where many will present their recent work, through poster sessions, oral communications or simply by asking questions. One of the goals of this Conference is cooperation between academia and food industry. Food scientists, technologists, researchers, nutritionists, engineers and entrepreneurs will exchange their knowledge about the latest advances in all aspects of food production, processing, sustainability, safety and security, nutrition and health, hi-tech equipment, ethics and knowledge transfer supporting environment. At this meeting, over 200 participants from 23 countries will take part.

Belgrade, one of the oldest city in the Europe, always young, at the confluence of the Sava and Danube rivers, will be your host. At the confluence of new ideas and experiences we again wish you a warm welcome.

Sincerely,

Prof. Dr Mirjana Pešić

*President of the Scientific Committee
of UNIFood2021*

Prof. Dr Ivanka Popović

Rector of the University of Belgrade



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UNIFood Conference

Poster presentation within sections
FOOD PRODUCTION, PROCESSING,
SUSTAINABILITY, ADDED-VALUE FOOD



EFFECT OF SOYBEAN/PROSO MILLET INTERCROPPING COMBINED WITH BIO-FERTILIZER ON ACCUMULATION OF ESSENTIAL ELEMENTS IN GRAIN

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Intercropping, as sustainable agricultural practice effectively uses environmental resources, affecting the nutritive quality of crops by modifying the concentration of macro- and micro-elements in grain. In order to improve the availability of nutrients from the soil, bio-fertilizers could also be used successfully in elements management. A field experiment was conducted with soybean (*var.* Selena) and proso millet (*var.* Biserka) to examine the integrated influence of intercropping and bio-fertilizer on Ca, Mg, S, Fe and Zn accumulation in grain. Mono-crops (T₁ - soybean, T₂ - millet), as well as tree planting patterns of intercrop, including alternating rows of soybean and proso millet (T₃), alternating strips of two rows of soybean and two rows of millet (T₄) and alternating strips of two rows of soybean and four rows of millet (T₅), were set up in 2018 and 2020. The same combinations, as subplots, were treated with bio-fertilizer Coveron (C) (containing mycorrhizal fungi, *Trichoderma* and plant growth-promoting rhizobacteria). After harvest, grains were dried and milled and preparation of samples was performed using wet digestion procedure with HClO₄ + HNO₃. The concentration of Ca, Mg and S were determined by ICP-OES, while Fe and Zn concentration was measured on ICP-MS. Results showed that Coveron reduced S concentration in soybean grain, while the status of other elements mainly remained unchanged. In terms of intercropping, soybean from T₅ combination had a significantly higher level of Fe in comparison to T₁ and T₃, and higher but not significantly than T₄, emphasizing alternating strips as more effective for accumulation of this element in grain. Combination T₃ + C provided the highest accumulation of Ca, while T₅ + C significantly raised Fe concentration. In terms of proso millet, bio-fertilizer expressed a greater impact on Ca, Fe and Zn by increasing their concentration. On the other side, all intercrop combinations expressed a positive impact on Fe concentration and simultaneously reduced Zn concentration. When mutual influence is considered, T₄ + C significantly increased Ca and Fe values, while T₂ + C increased Zn value, pointing positive effect of integrated and sustainable agricultural practices on an accumulation of essential elements in a grain of proso millet. In conclusion, different intercrop combinations combined with bio-fertilizer could be successfully used to improve the nutritional quality of soybean and millet grains in terms of sustainable food production, but further investigations are required to highlight other aspects of potentially enhanced nutritional quality.

Keywords: Nutritional quality, Sustainability, Macro-elements, Micro-elements