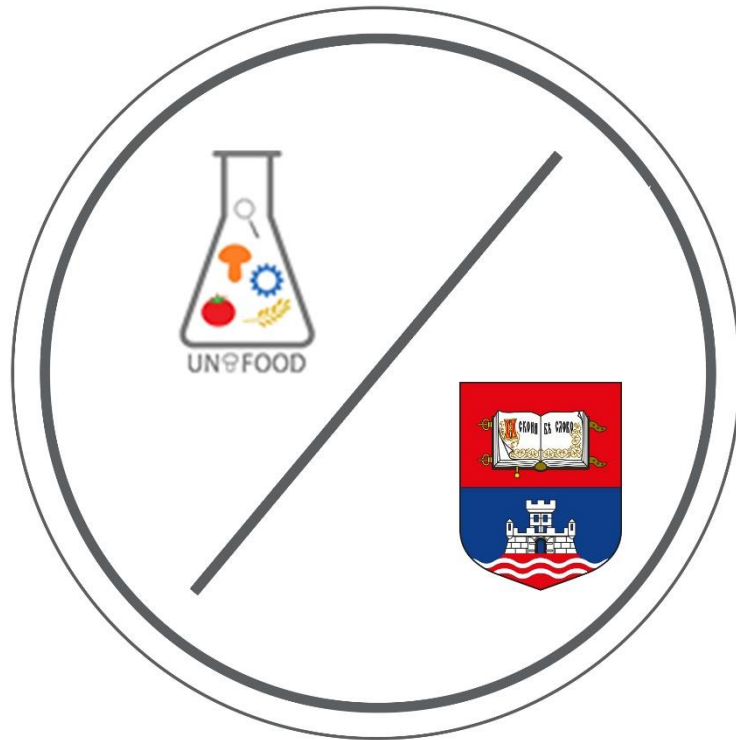


# UNIFOOD CONFERENCE



**University of Belgrade**

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24<sup>th</sup>-25<sup>th</sup> September 2021 University of Belgrade

## 2<sup>nd</sup> International UNIFood Conference



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## The word of welcome

*Dear colleagues,*

We would like to welcome you to the **2<sup>nd</sup> 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 35<sup>th</sup> 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



## DEVELOPMENT OF INNOVATIVE LIPOSOME-RELEASE SYSTEMS FOR ENCAPSULATION OF BIOLOGICALLY ACTIVE SOYBEAN PEPTIDES

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Bioactive peptides constituents of protein hydrolysates show great instability, poor absorption and bitterness when incorporated into food formulations. In addition, in the gastrointestinal system, there has been noted a loss of biological activity before desorption into the bloodstream and a lack of bioactivity at the target site in the body. The latest studies have focused on the field of encapsulation of proteins and peptides and for this purpose liposomes composed of natural phospholipids, molecules of cell membrane factors, are imposed as the most suitable choice. Therefore, the aim of this research is to develop new liposome-release systems suitable for encapsulation of soy protein hydrolysates. Multilamellar liposomes were prepared by forming a uniform thin film of phospholipids, cholesterol and soy protein hydrolysates, and by a sequential hydration process. For the purpose of obtaining unilamellar vesicles, the suspension of multilamellar vesicles was treated with high-intensity ultrasound waves. Unilamellar liposomes were characterized from the standpoint of size distribution, surface charge, degree of encapsulation, stability and retained antioxidant activity. A satisfactory percentage of soy protein hydrolysates encapsulation greater than 40% was achieved for all prepared suspensions, with a significant increase in encapsulation efficiency with increasing peptide mass. All liposome formulations were characterized by a negative zeta-potential value, with an increase in the negative charge above 30 mV in the case of suspensions with 60 and 100 mg of soybean peptides indicating greater stability compared to the suspension with 20 mg. The smallest particle size (191 nm) and more uniform distribution was observed in the suspension with the highest encapsulation efficiency (56%) and stability (-33.1 mV). Retention of antioxidant activity after the encapsulation procedure in liposomes was noted. In the simulated gastrointestinal system, liposome formulations were found to provide sustained release of antioxidant peptides derived from hydrolysates, indicating their potential application in food formulations.

*Keywords: Soy protein hydrolysate, Hydrolysate encapsulation, Liposomal entrapment, Liposome-release system, Gastrointestinal in vitro model*

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