11th INTERNATIONAL Medicinal Mushroom Conference IMMC11

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МИНИСТАРСТВО ПРОСВЕТЕ, НАУКЕ И ТЕХНОЛОШКОГ РАЗВОЈА

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MESSAGE FROM THE ORGANIZERS

Dear Colleagues, distinguished Guests, Ladies and Gentlemen!

It is a great honour and pleasure to host you in Belgrade for the 11h International Medicinal Mushroom Conference.

Here in Belgrade, in the first IMMC in the third decade of its' existence, we are proud to remind ourselves on the shared vision, strong belief and simultaneous efforts of the three global pioneers in our scientific field, late Prof. Takashi Mizuno, Prof. Shu-Ting Chang and Prof. Soloman Wasser at the turn of a century, which resulted in what we can now proudly call the largest and highest quality international scientific gathering in the Medicinal Mushrooms domain and which we consider our joint heritage.

In science, we receive new data and new results each day, constantly pushing our achievements towards the scientific community. This target remained unchanged for the whole, now more than two decades long history of our IMMC scientific gathering and all the activities of the International Society for medicinal mushrooms.

Here, in Belgrade, we hope to be able to create a floor for scientists from different continents, from different countries, and from different generations to meet, bring their knowledge and data on new scientific discoveries, and exchange on their methods and experience.

I would like to share with you our most relevant impressions on the preparatory process of the IMMC11. It was everything but easy, however, the stakes were high an NO was not an option.

As you all know we were in a position that we had to postpone this conference for a year. Still, IMMC11 Belgrade in September 2022, has been organized against many odds. From the beginning we struggled with the consequences of the COVID-19 global threat to the whole world, creating new future and changing our way of life. While being aware of very different and sometimes rigorous quarantine measures, we could not previse extreme flight transportation costs increase, especially from China, all of you clearly aware of the immense importance of China, its' researchers and businesspeople to our science and industrial production. We couldn't predict the currently ongoing war in Europe, energy crisis and global protracted financial crisis which, among other, created strikes at airports.

These were some of the reasons for the Organizing Committee to introduce hybrid conference for the IMMC11, with the intent to enable as many as possible colleagues and professionals to join and exploit benefits of this world class event in our scientific field.

Despite described serious obstacles, we felt that we are to invest as much energy as needed to retain the continuity of the IMMC congress, our society heritage and high quality and spirit of our gatherings. That's why we are immensely grateful to all of you who managed to join the congress and be here, in Belgrade, with us, to share your science, meet each other, exchange experience, and create new ideas and projects.

During many previous congresses culture of poster presentations was not promoted enough, hence, invested energy and work of authors might not be visible enough, so our approach has been to put more emphasis on this important aspect, refresh it and made sort of a restart.

We created and switched to electronic posters mode, visible throughout the conference. Six sessions with short oral communications in late afternoon hours are open for live presentation of authors, briefly presenting summary of their results for the audience and for discussions. (). Our expectations are that these sessions will create positive dynamics and intensify cooperation between the participants, and also contribute to future cooperation and projects.
In these times of hardship, the least we can do, is to sincerely thank our colleagues and partners, representatives of companies from medicinal mushrooms science, production, and industry, for their benevolent and substantial support that enabled IMMC11 to be organized on truly appropriate level.

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Here, on the IMMC11, besides scientific exchange, another important goal is to create opportunity for the broader international scientific community to converse in formal and informal settings, meet old friends and establish the new liaisons, as a legacy for the future, as well as to plan new scientific contacts and collaborations. The special emphasis on the IMMC11 is put on the young scientists – to be able to meet large number of renown international experts in our field.

Organized in Europe after five years, this conference has true importance for Serbian, regional and European scientists. It is our hope that this Conference, organized in Belgrade end September 2022, will inject a new energy, and become a strong push for the Europe scientific community of medicinal mushrooms.

Now the world center of medicinal mushrooms is here in Belgrade!

We would like to use this opportunity to welcome all of you and to extend my best wishes for a successful and enjoyable stay in Belgrade and in Serbia.

Welcome!

Miomir Niksić

PROF. DR. MIOMIR NIKSIC
IMMC11 Organizing Committee, President
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USE OF MUSHROOMS (PLEUROTUS OSTERATUS) TO INHIBIT ENZYMATIC BROWNING OF POTATOES

SHORT ORAL PRES 05

LECTURE 02

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Enzymatic browning of potatoes and juice from it may be due to the action of the enzymes phenolase, phenol oxidase, polyphenol oxidase, catecholase, cresolase and tyrosinase. The common structural unit of these enzymes is the copper-copper active site. There are several ways to eliminate enzymatic browning – dehydration, freezing, heat treatment, as well as packaging products in a controlled environment, glazing tissues (especially frozen ones) with sugar syrup or covering with an edible film to limit oxygen access, sulfitation.

The darkening of the tuber surface is slowed down by sodium bisulfite. When it is split, sulfur dioxide is released, which reduces the activity of polyphenol oxidase and forms colorless or barely colored compounds with dyes. The disadvantage of this method is the harmful effects on the body of sulfur dioxide. The purpose of the work is to use the properties of mushrooms Pl. Osteratus to prevent darkening of fresh potato juice. Chitosan is a promising reagent that forms complexes with natural substrates and thereby reduces the access of enzymes to them. Mushrooms contain chitin and/or orchitosan as structural cell wall polysaccharides, so this approach has potential for application.

The positive effect of the chitosan coating on the control of the browning of mushrooms by inhibiting the activity of enzymes has been proven. Chitosan coating maintains the quality of harvested fruits and vegetables (Liand Yu 2000; Su et al. 2001) and slows down the browning of lychee and longan fruit (Jiang and Li 2001). In addition, chitosan, a high molecular weight cationic polysaccharide obtained by deacetylation of chitin, has been shown to be a dietary fiber analogue with many health benefits and thus safe compared to sulfites (Van Der Lubben et al. 2001). In addition to chitosan, an important factor in stopping browning is the peroxidase activity of mushrooms Pl. Osteratus. The reaction of enzymatic browning is due to the oxidation of the amino acid tyrosine by atmospheric oxygen and proceeds due to the catalytic action of the tyrosinase enzyme. In the process of oxidation from tyrosine, the red pigment galachrome is formed, which then turns into a dark pigment related to natural melanin.

Peroxidase always delays the oxidation of tyrosine by tyrosinase. The above facts prove the feasibility of using mushrooms Pl. Osteratus to prevent enzymatic browning of potato juice. To compare the effectiveness of preventing enzymatic darkening by the proposed method, the light transmission coefficient of the samples was measured on a KFK-2 photocolorimeter at a wavelength of 670 nm. A control sample of potato juice without the use of browning inhibitors has a light transmission coefficient of 1.65-1.70, which is about 3 times higher than in samples using mushrooms Pl. Osteratus.

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