



Abstracts of the international symposium Power of Fungi and Mycotoxins in the Midst of Climate Change (PoFMy), held on 16-17 September 2022 at the University North, Koprivnica, Croatia.

PoFMy is the fifth Symposium about fungi and mycotoxins that was organised in Croatia. The first two were national symposia with international participation, both organised as one-day meetings in Zagreb in 2004 and 2008, at the initiative of Stjepan Pepeljnjak (Faculty of Pharmacy and Biochemistry, University of Zagreb). The third (Primošten, 2011) and fourth (Šibenik, 2015) PoFMy was organised by the Croatian Microbiological Society. Finally, the fifth PoFMy expanded the “mycelial network” and joint forces from the Croatian Microbiological Society, Croatian Society of Toxicology, Institute for Medical Research and Occupational Health (Zagreb), and University North (Koprivnica) organised the meeting. As the COVID pandemic forced us all to use online tools, PoFMY, like many other symposia these days, was organised in hybrid form.

The Organising Committee comprised: Bojan Šarkanj as president, Dubravka Rašić as secretary, and members Ivana Dodlek Šarkanj, Daniela Jakšić, Marija Kovač Tomas, and Manuela Zadravec. The International Program Committee members were: Maja Šegvić Klarić as president, Daniela Jakšić, Jovana Kos (Serbia), Tihomir Kovač, Maja Peraica, Dubravka Rašić, Massimo Reverberi (Italy), Alberto Rittieni (Italy), Gianfranco Romanazzi (Italy), Michael Sulyok (Austria), Bojan Šarkanj, Valentina Španić, Manulea Zadravec, and Slaven Zlajić as members, and honorary members Stjepan Pepeljnjak and Bogdan Cvjetković.

Reports from the second and third Symposium were published in a thematic issue of the *Archives*, and this time we bring you abstracts of the 5th PoFMy, including 14 invited lectures, 8 oral presentations, and 9 poster presentations.

Maja Šegvić Klarić and Dubravka Rašić

Moniliformin in maize: is there a non-contaminated sample?

Bojana Radić, Elizabet Janić Hajnal, Radmila Radović, and Jovana Kos

Institute of Food Technology in Novi Sad, University of Novi Sad, Novi Sad, Republic of Serbia

Emerging *Fusarium* mycotoxins are gaining increasing scientific interest due to their frequent contamination of food and feed, although toxicity and toxicokinetics data are limited. Moniliformin (MON) is an emerging mycotoxin produced by many *Fusarium* species (mainly *F. subglutinans*, *F. avenaceum*, *F. temperatum*, *F. proliferatum*, and *F. verticillioides*). In addition, one *Penicillium* species (*P. melanoconidium*) is also able to produce MON. It is characterized by worldwide distribution and has mainly been detected in cereals, such as maize, wheat, barley and oats, as well as in their derived products. The potential health hazards of MON are cardiotoxicity, haematotoxicity, and respiratory distress, but legal maximum levels have not been regulated for it in food and feed. However, in 2018, the European Food Safety Authority (EFSA) published a scientific opinion on the risks to human and animal health related to the presence of MON in food and feed, but the lack of relevant toxicity data prevented a risk assessment. Therefore, the main aim of this study was based on one of the EFSA recommendations, which is to collect more occurrence data on MON in food and feed. Given that maize is an important crop in the Republic of Serbia due to its agricultural and economic contributions, and that the literature data indicates that the highest frequency and concentrations of MON were detected in maize compared to other crops, maize was chosen as the matrix. The analysis of samples collected from the main maize production areas in the Republic of Serbia during the decade showed that it was difficult to find a sample without MON. Furthermore, the results showed that the detected concentration levels of MON in maize samples were influenced by different weather conditions observed during the investigated years. Based on the above stated, it can be concluded that MON is a dominant, non-regulated emerging mycotoxin in maize from the Republic of Serbia. On the other hand, there are limited data from neighbouring countries related to the occurrence of MON in maize collected from different years. Therefore, for a better estimate of the agronomic and weather conditions suitable for MON production, more data on its occurrence in maize grown in European countries is needed. Additional studies are also needed in order to obtain more information on its toxicity and thus enable a comprehensive risk assessment for humans and animals and the justification for the introduction of MON into the Regulation.

KEY WORDS: emerging mycotoxins; feed contamination; *Fusarium* species; Republic of Serbia; weather conditions.

Acknowledgement: This paper is a result of the research funded by the Ministry of Education, Science and Technological Development of the Republic of Serbia (451-03-68/2022-14/200222).

Chronic dietary exposure assessment to ergot alkaloids in Croatian adults

Martina Jurković, Danijela Stražanac, Sanja Miloš, and Dražen Knežević

Croatian Agency for Agriculture and Food, Osijek, Croatia

Ergot alkaloids (EAs) are mycotoxins produced by several species of fungi in the genus *Claviceps*. It commonly affects cereals such as rye, wheat, triticale, barley, millets, and oats. The toxicity of EAs is well known and has been characterised. A group tolerable daily intake (TDI) of 0.6 µg/kg bw per day was derived for the sum of the EAs. The food samples from monitoring program collected between 2015 and 2019 were available for chronic dietary exposure assessment. The analytical results included the concentrations sum of 12 main EAs: ergometrine, ergometrinine, ergosine, ergosinine, ergocornine, ergocorninine, ergotamine, ergotaminine, ergocristine, ergocristinine, ergocryptine (α - and β -isomers), and ergocryptinine (α - and β -isomers). Samples were divided into food groups according to the EFSA FoodEx classification. For each food group, results were taken only for samples for which there was data in the food consumption database. Data on consumption were obtained from the National Survey on Food Consumption of the Adult Population in Croatia, conducted in 2011-2012, on a representative sample of 2002 respondents. From total number of respondents who participated in the study, 1,996 consumers with reported consumption of cereal grain products were taken into account for the purpose of exposure assessment to EAs. For adults, the mean lower bound (LB) exposure to EAs was 0.0059 µg/kg bw per day, mean middle bound (MB) exposure was 0.0131 µg/kg bw per day, and the mean upper bound (UB) exposure was 0.0203 µg/kg bw per day. The LB P95 exposure to EAs was 0.013 µg/kg bw per day, MB P95 exposure was 0.027 µg/kg bw per day, and UB P95 exposure to EAs was 0.041 µg/kg bw per day. Overall, the „Grains and grain-based products“ food category is the only contributor to the MB mean chronic dietary exposure to EAs. The main subcategories contributed of given food category were „Bread and rolls“ with 75.4 % and „Grain milling products“ with 18.1 % followed by „Breakfast cereals“ (4.1 %) and „Grains for human consumption“ (2.5 %). Neither the average chronic dietary exposure nor the chronic dietary exposure to the sum of EAs at the 95th percentile exceeded the established TDI value in the LB, MB, and UB approach.

KEY WORDS: *Claviceps* genus; food safety; monitoring; mycotoxins; TDI