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

PoFMy Abstracts – invited lecturers
Arh Hig Rada Toksikol 2022;73:A24-A32

Multimycotoxin analysis – the sky is the limit

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Over the past decades, the sensitivity and robustness of LC-MS/MS instruments has continuously improved. Whereas it was not feasible to obtain accurate results down to the µg/kg range without any sample clean-up and analyte enrichment initially, the latest generation of instruments now tolerate the injection of diluted crude extracts. This is a pre-requisite for multi-analyte methods covering different compound classes with a wide range of physicochemical properties, as any type of clean-up may lead to the loss of certain compounds. In addition, dedicated data acquisition modes such as scheduled MRM (multiple reaction monitoring) mode enable one to acquire large analyte lists, e.g. for pesticide residue analysis, where methods covering some 200 compounds have become fairly routine. We have developed a method covering 1000 (mostly) fungal metabolites based on a single extraction and subsequent analysis of the diluted extract. The aim of this presentation is to discuss the obstacles that have to be overcome in the development and validation of such a method. As considers the latter, most of the guidelines available on proper method validation have been designed for assays targeting only one or very few analytes and following these guidelines without any modification is impractical in case of multi-analyte analysis. Finally, the option of extending the method to other contaminant classes will be given.

KEY WORDS: clean-up procedures; LC-MS/MS; method development; MRM; mycotoxins

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Ten years after the "aflatoxin crisis" in Serbia: where are we now?

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Ten years ago, in late 2012, the public in the Republic of Serbia was informed through different media about aflatoxins (AFS). The first information was related to the presence of AFS in maize, while soon after that contamination of milk with aflatoxin M1 (AFM1) additionally increased confusion among producers and consumers. Public concern grew rapidly following opposing information in various media. On the other hand, scientists agreed that the Republic of Serbia was faced at the time with a big challenge due to the appearance of one of the most toxic natural contaminants in the food chain, AFS. They highlighted extreme drought conditions, recorded during the summer months in 2012, as the factor with the strongest influence on the high prevalence of AFS in maize, and consequently, contamination of maize-derived products, milk, and dairy products. During that period, AFS's appearance attracted the attention of the public and politicians, and Serbia was faced with an "AFS crisis" followed by a protest of agricultural workers, appointment of a new Minister of Agriculture, several changes in regulations related to the maximum level of AFM1 and aflatoxin B1, confusion between consumers, and decrease in the purchase of milk and dairy products. Furthermore, the "AFS crisis" resulted in a significant economic loss (about a hundred million dollars), as Serbia is a leader in maize production, and among the top ten maize exporting countries in the world. Unfortunately, the weather conditions marked by increasing temperatures and lack of precipitation were dominant during the maize growing seasons in Serbia that followed. AFS contamination of maize and consequently of milk was again detected in 2013, 2015, 2017, and 2021. The presence of AFS in Serbia, in five of the ten most recent years, represents great concern regarding human exposure to AFS, due to the fact that milk and maize are one of the main foodstuffs in the human diet in Serbia, especially in children. Climate change predictions for this part of Europe indicate that the warming trend, favourable for *Aspergillus* species and AFS synthesis will continue in the future. Therefore, there is a great need for Serbia to enhance its control strategy, which should be based on continuous monitoring, increasing investments, as well as multidisciplinary integration and education of all participants in the food chain, with the main aim of minimizing the presence of AFS in the food chain.

KEY WORDS: carcinogenic mycotoxin; climate changes; maize; milk; weather conditions

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