Westfälische Wilhelms-Universität Münster

Gesellschaft für Mykotoxinforschung e. V.
Society for Mycotoxin Research

42nd Mycotoxin Workshop

May 31st – June 02nd, 2021

Online conference

Conference Proceedings

Institute of Food Chemistry

Scientific and Organizing Committee

Prof. Dr. Dr. habil. Manfred Gareis
Lehrstuhl für Lebensmittelsicherheit, Ludwig-Maximilians-Universität München

Prof. Dr. Madeleine Ploetz
Institut für Lebensmittelqualität und – sicherheit, Stiftung Tierärztliche Hochschule Hannover

Dr. Benedikt Cramer
Institute of Food Chemistry, Westfälische Wilhelms-Universität Münster

Prof. Dr. Hans-Ulrich Humpf
Institute of Food Chemistry, Westfälische Wilhelms-Universität Münster

Dr. Svetlana Kalinina
Institute of Food Chemistry, Westfälische Wilhelms-Universität Münster

The 42nd Mycotoxin Workshop 2021 would not have been possible without the support of our dedicated staff as well as the working groups of Prof. Dr. Hans-Ulrich Humpf and Prof. Dr. Melanie Esselen.

Short Analytics: Poster-style presentations on analytical developments
Chair: B. Cramer

14:30 - 16:00

Occurrence of mycotoxins in winter cereal varieties
Robert Kosicki, Magdalena Twarużek, Bartosz Rudzki, Paweł Dopierała, Jan Grajewski

Multi-mycotoxin occurrence in dairy cattle and poultry feeds from Machakos town, Kenya
David Chebutia Kemboi, Phillis Emelda Ochieng, Gunther Antonissen, Siska Croubels, Sheila Okoth, Johannes Faas, Barbara Doupovec, Erastus K. Kang'ethe, Marie-Loise Scippo, Johanna Lindahl, James K. Gathumbi

Mycotoxin survey in feed materials and feeding stuffs in Poland in years 2015-2020
Magdalena Twarużek, Paweł Skrzydlewski, Robert Kosicki, Jan Grajewski

Multiple mycotoxin contamination in rice and wheat samples collected from rural Pakistan
Lei Xia, Hifza Rasheed, Michael Routledge, U Ling Liew, Ka Lau, Yunyun Gong

Aflatoxin M1 in cheese marketed in Serbia
Sandra Jakšić, Nenad Popov, Milica Živkov Baloš, Dragana Ljubojević Pelić, Ljilja Torović

Aflatoxin M1 in Europe between 1990-2018
Andreia Vaz, Filipa Mourão, Patrício Costa, Paula Rodrigues, Armando Venâncio

Mycotoxins and bacterial pathogens in organic cereal-based infant foods
Christina Rehagel, Ömer Akineden, Ewald Usleber

Development of an LC-MS/MS method to monitor mycotoxin-mixtures in infant feces
Magdaléna Krausová, Dominik Braun, Lukas Wisgrill, Benedikt Warth

Screening determination of ochratoxin A in spices available on the Czech market using EIA method coupled with immunoaffinity columns
Darina Pickova, Jakub Toman, Veronika Frkova, Vladimir Ostry, Frantisek Malir

Prevalence of mycotoxigenic fungi and mycotoxins in figs
Jurgita Jovaišienė, Violeta Baliukonienė, Bronius Bakutis, Inesa Arvasaitė, Gediminas Gerulis, Gintarė Vaičiulienė, Rimvydas Falkauskas

Dietary supplements based on *Epilobium parviflorum* as a source of mycotoxins?
Iwona Ałtyn, Magdalena Twarużek

Prevalence of secondary metabolites from lichenized fungi in the indoor environment
Michael Sulyok, Gianni Rossini, David Lark, Rudolf Krska

Three Fit for Purpose Sample Preparation Methods for the Determination of Aflatoxin M1 in Milk and Infant Formula with the QSight® LC-MS/MS
Derek Joseph Mattern, Aristide Ganci, Phillipe Boniteau, Jingcun Wu, Tyrally Ordinario, Feng Qin

Determination of Twelve Mycotoxins in Foods by Stable Isotope Dilution LC-MS/MS
Aristide Ganci[1], Derek J. Mattern[2], Phillipe Boniteau[3], Jingcun Wu[4], Tyrally Ordinario[4], Feng Qin[4]

Aflatoxin M1 in cheese marketed in Serbia

Sandra Jakšić[1]*, Nenad Popov[1], Milica Živkov Baloš[1], Dragana Ljubojević Pelić[1], Ljilja Torović[2,3]

[1]Scientific Veterinary Institute „Novi Sad“, Rumenački put 20, 21000 Novi Sad, Serbia
[2]University of Novi Sad, Faculty of Medicine, Department of Pharmacy, Hajduk Veljkova 3, 21000 Novi Sad, Serbia
[3]Institute of Public Health of Vojvodina, Futoška 121, 21000 Novi Sad, Serbia
*corresponding author: sandra@niv.ns.ac.rs

Aflatoxin M1 (AFM1) is a toxic and carcinogenic metabolite of aflatoxin B1. In addition to milk, the presence of this toxin has been proven in dairy products, since milk processing cannot destroy it. The concentration of AFM1 in cheese can be several times higher than in milk from which cheese was made. Since maximum allowed content of AFM1 in milk for cheese production in Serbia is 0.25 µg/kg, this study was conducted in order to explore the incidence of AFM1 in cheese marketed in Serbia.

A total of 60 samples (36 samples originating from Serbia and 24 imported from eight European countries) were sampled from October 2019 until June 2020 from the supermarkets in Novi Sad (Vojvodina, Serbia). The samples differed in consistency, origin, process of production and maturation. Analysis of AFM1 content in 55 samples of cow's milk, 3 goat's milk and 2 sheep's milk was performed by enzyme linked immunosorbent assay method (Veratox®Aflatoxin M1, Noack, USA), followed by confirmation with high-performance liquid chromatography after immunoaffinity purification (AlfaStar™M1R, RomerLabs, Austria), pre-column derivatisation with trifluoroacetic acid, and fluorescence detection.

AFM1 was detected in 70.0% of total cheese samples (above 25 ng/kg), including 65.2% of soft and 73.0% of semi-hard/hard cheeses. An analysis of cheese originating from Serbia revealed 77.8% of positive samples. In more detail, out of 20 samples of semi-hard cheese, 80.0% contained AFM1 in concentrations from 46 to 591 ng/kg, whereas 75.0% of soft cheese samples were contaminated with 54 to 237 ng/kg of toxin. Analysis of imported cheese showed a lower frequency of positive samples, as well as lower concentrations of AFM1, than in domestic cheeses. Namely, in 58.3% of imported cheese samples AFM1 concentrations ranged from 26 to 81 ng/kg.

The overall mean AFM1 level in analysed samples was 99±116 ng/kg, with two of domestic semi-hard cheeses (3.3%) showing concentrations above the maximum permitted level of 250 ng/kg established in some EU countries, and even 450 ng/kg specified as maximum level for hard cheese.

From the findings of present study, it can be concluded that high percentage of cheese samples contaminated with AFM1 strongly suggest the need for intensive monitoring.

This work was supported by a grant from the Provincial government Autonomous Province of Vojvodina, Republic of Serbia, Provincial Secretariat for Higher Education and Scientific Research, Project number 142-451-2468/2019-03.