

ABSTRACTS OF LECTURES & POSTERS

THE
World
Mycotoxin
Forum[®]
14TH
CONFERENCE

WMFmeetsBelgium

9-11 October 2023
ANTWERP BELGIUM

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Key to the abstracts of lectures and posters:

- the abstracts of lectures and posters are grouped separately;
- the lectures are grouped according to the daily programme; and
- the posters are grouped according to theme and then in an alphabetical order according to the presenting/corresponding author.

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About The World Mycotoxin Forum®

The main objectives of The World Mycotoxin Forum® are.....

- to provide a unique platform for the food and feed industry, regulatory authorities and science
- to exchange information and experiences on the various aspects of mycotoxins
- to review current knowledge related to mycotoxins in food and feed
- to discuss strategies for prevention and control of mycotoxin contamination ensuring the safety and security of the food and feed supply, and protecting human and animal health to promote solutions for the control of mycotoxin contamination along conventional and organic supply chains.

.....for a sustainable, safe, and inclusive food future!

WELCOME TO ANTWERP

The World Mycotoxin Forum® is the leading international meeting series on mycotoxins dedicated to assembling the world's best minds across the spectrum of integrated strategies ensuring the safety and security of the food and feed supply chain. The World Mycotoxin Forum® brings together a holistic conference programme covering the latest issues in mycotoxin management and is targeted at everyone working in the mycotoxin space – researchers, food and feed industry, laboratories, policy makers, and enforcement agencies from around the world.

The 14th conference of the World Mycotoxin Forum® – **WMFmeetsBelgium** – will offer an excellent way to network, share ideas, and formulate recommendations and conclusions on how to close knowledge gaps. It will include:

- presentations and discussions in plenary meetings and parallel sessions
- poster sessions
- workshops
- WMF Young Scientists Forum
- company pitches, case studies, and industry updates covering a wide range of topics
- a concurrent instrument/manufacturers exhibition providing information on equipment, products, and services.

The aim of this year's conference is to elaborate further on key strategic issues looking forward, amid the current challenges. High-quality speakers, ample time for discussions, and every opportunity to establish rewarding contacts are values the World Mycotoxin Forum® wants to uphold. You are invited to take part in the discussions with participants from different disciplines and meet business relations in your area.

We wish you an active and fruitful meeting!

General conference chairs
Rudolf Krska
Chris Elliott

Local conference chairs
Sarah De Saeger
Marthe De Boevre

About the venue

WMFmeetsBelgium will be held in 'A Room with a ZOO', a state-of-the-art conference centre located in the heart of Antwerp. 'A Room with a ZOO' is part of the Antwerp ZOO Society. Profits of congresses and events immediately support efforts on cherishing nature through animal welfare, education and awareness building. Your participation in WMFmeetsBelgium in 'A Room with a ZOO' contributes directly to nature conservation. In 'A Room with a ZOO', your engagement cherishes nature.

About Antwerp

Antwerp is an important cultural and trading centre, and home to more than 170 different nationalities. With more than 500,000 residents, Antwerp is Belgium's second most populous city. As the city with one of the most exciting restaurant scenes, train station and ZOO in the world, Antwerp holds many more trump cards, such as Rubens, Plantin, diamonds, chocolate, fashion, museums, and Belgian beers.

quantified. In 2021 and 2022, 14 silage maize fields in Arizona were selected, and soil was sampled both prior to application of a biocontrol product and following harvest. Biocontrol products (AF36 Prevail or Afla-Guard) were applied prior to tasselling of the maize crop at the labelled rate. At harvest, multiple subsamples of chopped maize silage and soil were collected from each field. Samples were dried, homogenized, and plated on agar media for isolation of *A. flavus*. Frequencies of applied biocontrol strains from the soil and crop were determined using DNA-based methods. Crop aflatoxin concentrations were measured using a commercial kit that has been validated for maize silage. Approximately monthly following harvest, representative sub-samples from multiple locations and depths of silage piles were sampled, and composite samples were analysed using the methods described above. At harvest, biocontrol strains made up 98% (AF36) and 25% (Afla-Guard) of the *A. flavus* population in soil and 88% (AF36) and 57% (Afla-Guard) in the crop. Whereas a single isolate of Afla-Guard was recovered from untreated fields, AF36 made up an average of 32% and 16% of *A. flavus* in soil and on the crop, respectively, in fields that did not receive an AF36 application. Relatively high frequencies of AF36 in non-treated fields may be due to widespread application of AF36 in Arizona in multiple crops over several decades. Few propagules of *A. flavus* were recovered from samples post-ensiling, and all isolates were biocontrol strain genotypes. Aflatoxin concentrations in the pre- and post-ensiled crop from all treated fields were below 10 ppb, demonstrating the effectiveness of biocontrol products for mitigating aflatoxin contamination in maize silage.

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USE OF FUNGAL LACCASES FOR AFLATOXIN REDUCTION IN MAIZE SUB-PRODUCTS

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Fungal contamination is a phytosanitary problem of concern in maize and by-products. *Aspergillus* section *Flavi* strains can generate important problems due to contamination with aflatoxins (AFs). During the bioethanol production from maize, AFs levels can increase up to three times in the final co-product (DDGS or WDGS), intended for animal feed. Mosto is the milled maize grains with the addition of water and amylase enzymes that enter the fermentation stage. One strategy to reduce the mycotoxin contamination levels is the use of microorganisms or enzymes able to metabolize, destroy or inactivate those compounds. Laccases are enzymes with biocatalytic capacity and wide biotechnological application, including food industry. Particularly, laccases from fungi that cause white rot have been proposed for mycotoxin biotransformation. In the present work, the effectiveness of different fungal laccases in reducing AFs levels (AFB1, AFG1, AFB2 and AFG2) was evaluated under an *in vitro* assay. Laccase production by Phylum Basidiomycota strains was evaluated and 9 of them were selected to carry out *in vitro* decontamination tests. A concentration of 1 µg/ml of AFB1 and AFG1, and 0.25 µg/ml of AFB2 and AFG2 were used at concentrations of 5, 10, 15 and 20 U/ml of laccases contained in enzyme extracts, in addition to vanillic acid as redox mediator (1 and 10 mM). The strain *Trametes* sp. B7-IMICO-RC was able to degrade the 4 AFs at high levels under all the evaluated conditions. The highest degradation percentage was reached in presence of 1 mM vanillic acid and 20 U/mL laccase (88, 99, 87 and 70%, for AFB1, AFG1, AFB2 and AFG2, respectively). An additional *in vitro* degradation assay of AFs was carried out using mosto as the substrate. The degradation percentages observed under these same conditions were 26% for AFB1 and AFG2, and 54% for AFG1. Currently, studies are being carried out in order to determine the degradation products toxicity. These results would contribute to the development of an eco-friendly strategy to reduce mycotoxin contamination, ensuring food safety.

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BENTONITE MITIGATES THE NEGATIVE EFFECTS OF DIETARY AFLATOXIN B1 ON GROWTH PERFORMANCE, GUT MORPHOLOGY, AND IMMUNITY OF BROILERS

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The use of clay minerals has been widely recognized as one of the most effective methods to mitigate the negative effects of dietary aflatoxins in broilers, due to their reported capability of binding aflatoxins. Commercial products, however, may contain different clay minerals (e.g., bentonite, sepiolite, and zeolite), leading to different binding capacities and affinity for aflatoxins. Therefore, it is crucial to validate commercial products via the same broiler model. This aflatoxin B1 (AFB1) challenged study was