

MYCOTOXINS IMPACT IN FOOD, HUMAN AND ANIMAL HEALTH WITH SPECIAL REFERENCE TO AFLATOXINS, FUMONISINS, OCHRATOXINS, ZEARALENONE, AND DEOXYNIVALENOL: A 13- YEAR REVIEW (2010-2023)

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ABSTRACT

This study aimed to review fungal mycotoxins in foods, their impacts, and their significance in human and animal health from 2010 to 2023. The study was conducted using electronic databases including Elsevier (Science Direct), Web of Science, Google Scholar, and PubMed to ensure sufficient and satisfactory coverage were searched from inception to December 31, 2023. The results from this review showed that mycotoxins, including Aflatoxin (AFs), Ochratoxins (OTA), Fumonisins (FMNs), Zearalenone (ZEN), and Deoxynivalenol (DON), can exhibit a wide range of toxic effects on both humans and animals. AFs, particularly AFB₁, pose hepatotoxic, immunotoxic, and carcinogenic risks, leading to both acute and chronic health complications. OTA specifically targets the kidneys and induces nephrotoxic, mutagenic, carcinogenic, and teratogenic effects, while its genotoxicity remains a subject of debate. FMNs are linked to liver cancer and developmental issues in humans. DON inhibits protein synthesis, resulting in immunosuppression effects, as well as gastrointestinal, and dermatological complications. Furthermore, this review explored mycotoxin control strategies. It is therefore recommended that policies be designed to build awareness programs about the health risks associated with mycotoxins in food and animal feed.

Keywords: Mycotoxins; Review, Food; Human and animal health, Aflatoxins, Fumonisins, Ochratoxins, Zearalenone, Deoxynivalenol.