



toxins



Special Issue Reprint

Novel Approaches in Mycotoxins Research

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Mycotoxins—harmful compounds produced by fungi—pose serious threats to food safety and public health. This Special Issue compiles research addressing their detection, toxic effects, and mitigation. Studies have revealed that *Fusarium verticillioides* resists fumonisins through ceramide synthase overexpression (FUM18), and a new HPLC-FLD method now allows precise OTA measurement in mouse brain and intestine tissues. In the past, Mycotoxin contamination in hops used for brewing was widespread, though controlled storage limited some risks. Since then, machine learning models have emerged as promising tools for rapid detection, albeit with reproducibility challenges. Protective agents like quercetin, fermented whey, and plant polyphenols (e.g., catechin, epicatechin) have also demonstrated the ability to counteract mycotoxin toxicity, and research has shown that mycotoxins' stability in food varies over time and that co-ingestion factors like milk can alter absorption. The combined toxicity of mycotoxins with compounds like acrylamide may increase neurological risks, highlighting the need for deeper investigation. Despite progress, significant gaps remain in assessing human exposure, developing validated biomarkers, and using advanced human-relevant models, emphasizing the need for interdisciplinary efforts to improve risk assessment and mitigation.



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