

Special Issue

Uncovering Roles of Fungal Toxins and Specialized Metabolites in Plant Infection

Message from the Guest Editor

Fungal pathogens—particularly *Fusarium graminearum*, *Ustilago maydis*, and *Magnaporthe oryzae*—are responsible for extensive yield losses in staple crops such as wheat, maize, and rice respectively. Beyond their well-known pathogenic potential, these fungi produce a vast repertoire of specialized metabolites, including mycotoxins, pigments, and low-molecular-weight effectors, which play crucial roles in virulence, host specificity, and environmental adaptation. This Special Issue aims to bring together cutting-edge research on the biochemical, molecular, and ecological dimensions of fungal toxins and specialized metabolites. It will serve as a platform to explore how these compounds shape disease development, plant defense, and agroecosystem health. We welcome original research focusing on:

- Biosynthesis and regulation of fungal toxins and metabolites
- Molecular mechanisms linking secondary metabolism and virulence
- Functional genomics of toxin biosynthetic gene clusters
- Host and environmental factors influencing metabolite production
- Roles of the plant microbiome in modulating fungal metabolite activity
- Innovative strategies to mitigate fungal mycotoxin contamination in crops

Guest Editor

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