

## **Regulation of mycotoxin biosynthesis in *Fusarium*-plant host interactions**

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*Fusarium* fungi are among the most important plant pathogens. They occur worldwide, have a broad range of host species and pose health risk for animals and humans due to contamination of plant material with mycotoxins. Once these secondary metabolites enter the feed and food chains, they are hard to eradicate. Therefore, it is important to minimize their biosynthesis levels while crops are still in the field. Understanding the mechanisms responsible for triggering and regulation of mycotoxin biosynthetic gene clusters plays a critical role. Final mycotoxin concentration is also influenced by the mechanisms deployed by the plant to diminish the damage, which include compartmentation and detoxification to less toxic derivatives. Abiotic stresses such as pH, temperature, osmotic stress and water activity notwithstanding, there are also biotic factors which affect the efficiency of mycotoxin synthesis, and certain plant metabolites are among them. Analysis of the interactions between host plant and pathogen metabolomes is practically infeasible in natural conditions and difficult even in controlled experiments. Synergistic effects of individual metabolites are often observed, and concentrations of metabolites used influence the process as well. Additional factors, such as application time of plant metabolites or culture conditions are also relevant. Thus, using standardized plant extracts may be a good option to evaluate the combined action of plant effectors on fungal metabolism and levels of mycotoxins produced by various *Fusarium* species in specific host-pathogen interaction models.