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BIODIVERSITY OF TOXIGENIC FUNGI IN THE FOOD CHAIN AND THE CO-OCCURRENCE OF MYCOTOXINS.

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Filamentous fungi are ubiquitous in Nature and may be found in any food crop, either in the field or during storage. With the exponential growth of the population, there is a worldwide challenge to reduce food losses. Food contamination by fungi causes great economic costs and several health threats due to the toxicity and pathogenicity of some species. The biodiversity of this community, and the dynamics of the water activity, temperature and availability of carbon sources evolution, during the growing season, as well as in storage, determines the competitiveness of each species against other co-occurring fungal species.

Some of these fungi are capable of producing a wide range of secondary metabolites – mycotoxins, which may accumulate in food chain, be resilient during food processing, and persist in the final food product. Contamination of food products with fungi is frequent, affecting food security and food safety. The ability of the different fungal species to compete under available conditions will influence the cocktail of mycotoxin that may occur.

The study of the fungal biodiversity have been mainly carried out by surveying culturable strains (culture-dependent approaches), but recently metagenomics approaches have been used, enabling the possibility of spotting mycotoxigenic fungal strains, that are not easy to detect and isolate by conventional means.

In this presentation, the biodiversity of fungal species in the food chain will be discussed, under a perspective of the co-occurrence of mycotoxins.

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