In vivo experiments on the flow of mycotoxins in plants

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Mycotoxins, secondary metabolites produced by some fungal species that naturally contaminate the most important corps, are known for their negative effects on human and animal health. Hence, they deserve an increasingly careful and critical look, also because climate change is gradually expanding the geographical areas interested by the spread of producing species. Despite these compounds have been extensively studied in terms of biosynthesis, detection, health threatening and mechanism of action, the fate of mycotoxins once released into the plant tissues after fungal infection has yet to be elucidated. As well, the uptake and translocation of xenobiotics in plants is an important process when considering the risk associated with mycotoxin contamination of food and feed commodities.

In this perspective, we used *Zea mays* L. as model system to study how mycotoxins such as Zearalenone (ZEN), T-2 and Aflatoxin B1 (AFB1) were distributed in the different organs/tissues when administrated to the plant either via root apparatus or at leaf level. Based on previously published results (Righetti et al., 2019) two types of experiments were set up: i) a 'split root' experiment in which the toxins were added individually to the medium in contact with the root; ii) a dipping experiment in which the leaf, once scarified, was dipped in a toxin containing solution. Plants were incubated for 14 days under controlled conditions in a growth chamber, then an UPLC – HRMS analysis was performed on sampled plant material in order to detect both the toxins and their derivatives.

Preliminary results will be here presented and discussed.