Fungicide dynamics

Centre for Crop and Disease Management

GRDC GRAINS RESEARCH & DEVELOPMENT CORPORATION

Curtin University

Project description

There is a significant gap in knowledge surrounding the fate of fungicides once applied to plant systems, and very little is known about the lifespan of fungicides inside crops.

Our researchers will explore what fungicides are transformed into once they enter the plant system, and how environmental conditions and different plant species can affect this process. The project will explore metabolites formed by biotransformation and unravel knowledge on their biological activity, their actions as fungicides and their contribution towards fungicide resistance development.

Information on the *in planta* behaviour of fungicides is highly limited and in need of further study. Exploring the lifecycle of fungicides that enter plant systems will expand our knowledge of fungicide dynamics to improve fungicide efficacy for growers.

Research aims

To discover fungicide metabolites within plant tissue and establish which contribute to crop protection.

To accurately measure and quantify the level of fungicide and fungicide metabolites within the plant tissue.

To see how biotic and abiotic conditions might compromise crop protection.

Equipment and resources

Fungicides are small organic molecules that are best monitored by liquid chromatography followed by mass spectrometry (LC-MS). As plants contain many molecules, some of similar mass, breaking the molecule inside the same machine and seeing the resulting fragment masses can be used to confidently identify specific molecules. The CCDM recently invested in a new type of mass spectrometer (an OrbiTrap Exploris 120) ideally suited to analysing small molecules in complex extracts.

Our team

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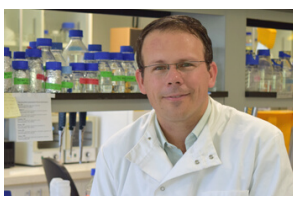

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