HONOURS PROJECT

Project Title: Discovery and development of new herbicides

Supervisor(s): Prof. Josh Mylne

Project

Whether we like it or not, herbicides are vital for modern, large-scale agriculture. The overuse of key herbicides has encouraged herbicide-resistant weeds to proliferate. This, coupled with decades of complacency in the research arena, means the hunt is on for new actives. There are hundreds of commercial herbicides falling into about a dozen groups based on their mode-of-action, but weeds have become resistant to most of them. To make things worse, over the last 40 years, only one new mode-of-action herbicide has reached market. So it's not enough to find new herbicides; they have to be a new mode-of-action. Our lab has screened antimalarial and human drug libraries to reveal key plant proteins that could be the targets for new mode-of-action herbicides. We make these plant proteins in bacteria, use protein crystallography, structural biology, computer aided design and genomics to make new herbicides.

Funding: We are funded to work on herbicides by nationally competitive grants from the Australian Research Council and we are shareholders in an ag-tech startup based on our work called DemAgTech Pty Ltd which is based in Perth. The lab is fully equipped, and we have secured 2023 access to the beamline at the Australian Synchrotron for protein crystallography.

References:

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