



Early Career Researcher Katharina Belt: Travel Grant – Australasian Plant Pathology Society Conference: ‘Strong Foundations, Innovative Solutions’

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1. Executive Summary

Australia is one of few countries where biosecurity has played a major role in helping to keep agriculture and the environment free from some of the world's most severe pests. My work focuses on the use of native beneficial soil and endophytic microbes that are capable of producing bioactive compounds against plant pathogens that are threatening Australian agriculture. In particular I am focusing on necrotrophic fungal pathogens that kill host plants and can cause severe disease and yield loss to crop plants like canola.

The Australasian Plant Pathology Society (APPS) has a successful history of promoting plant health and plant pathology. Receiving an ABPSF Early Career Researcher Travel Grant enabled me to attend the 50th anniversary APPS conference in Melbourne this year and give me the opportunity to present my work and meet the society. I was selected to give an oral presentation in the biocontrol workshop prior to the start of the conference, as well as in the biocontrol session at the main APPS conference. The conference brought together researchers, industry partners as well as biosecurity officers and students from different disciplines which allowed me to network and establish collaborations for the future. APPS was a very well organized conference. I was glad to see that many PhD students and early career scientist got the opportunity to present their work in an oral presentation as well.

I attended plenary talks and concurrent sessions, and discussed and engaged with research fellows in the coffee and lunch breaks. I attended the poster sessions and learned about current research projects related to plant health, biosecurity and plant pathology on a national but also global scale. I made many new contacts and received productive feedback and advice about my work which was well received by the society.

I feel like diagnostic and management of plant disease in the future will be regulated by prediction and modelling tools and as more data of more seasons will become available, these tools will improve as well. New solutions for pest and disease management were a big part of the conference as we are losing effectiveness of currently used methods.

Biocontrol offers a valuable addition to the toolbox of pest and disease management. Many currently used pesticides getting less effective as pathogens are gaining resistance over time. I think it would be important to not repeat the mistakes of the past and focus on the use of "multiple modes of action", meaning combining different biocontrol solutions or using a biocontrol together with an effective chemical pesticide. This way use of chemicals could be reduced while at the same time overuse of one pesticide would be prevented.

2. Introduction

Biocontrol in agriculture is of big interest globally as it offers alternative pest solutions to synthetic based chemical pesticides. My work on beneficial soil microbes and their potential to produce bioactive compounds can help promote plant health and development as well as increase plant fitness and defence response. This can contribute towards a reduction in the use of chemically synthesized pesticides and help to ensure biosecurity in agriculture in Australia and globally in the future. By identifying new compounds with new mode of actions against crop fungal pathogens, particularly those with a broad host range and/or where no resistant cultivars exist in Australian germplasm, it is crucial to investigate in new solutions. Biocontrol has great potential as efficient sequencing tools nowadays and the availability of genome sequence information make it possible to predict specialized antimicrobial production. I am working with a unique collection of soil microbes isolated from a biodiverse hotspot in Western Australia. These microbes potentially produce a unique set of compounds, including antifungals. I am aiming to identify new compounds suitable to use as biopesticides.

With support from the APBSF Travel grant, during APPS, I attended a workshop on biocontrol and new tools to improve pest control and plant health in the future. I gave an oral presentation and engaged in discussions during tea and lunch breaks. At the main APPS conference I attended plenary and concurrent sessions that were focused on biocontrol and biosecurity but also plant microbiome interaction and diagnostics. I met researchers and industry partners from different disciplines and extended my network. I engaged with students during the poster sessions and discussed new ways of monitoring plant health on a global scale. I was selected to present an oral presentation in the biocontrol session on the last day of the conference which was well received.

3. Learnings

APPS offered a great selection of plenary and concurrent session presentations. Attendance at APPS enabled me to meet leading researchers in plant health and plant pathology and gave me the opportunity to present my own work in one of the concurrent sessions. I updated my knowledge about new and alternative tools to manage and diagnose plant disease in order to keep Australia free of pests in the future. Plant biosecurity and plant health was a topic of interest at the conference and was covered in many talks and poster presentations. Through the APBSF Travel grant I was able to establish new contacts and present myself as an early career scientist to the community.

4. Attachments Tweets/posts





Katharina Belt @BeltKatharina · Nov 25

Great meeting and networking at welcome reception #APPS2019



1 5

You Retweeted



Louise Thatcher @ThatcherLouise · Nov 25

Thanks everyone for contributing to our biocontrol workshop #APPS2019
Great networking and discussions @lab_katz



6 19



Belinda Fabian @BeaCurious · Nov 28

.@BeltKatharina presenting work on Actinobacteria as biocontrol agents for necrotrophic fungal pathogens #APPS2019



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