



## Powdery Mildew Capability Building Workshop

University of Southern Queensland, Centre for Crop Health  
Toowoomba, 14-18 November 2022

Despite their importance in agriculture and horticulture, powdery mildews (Ascomycota, Erysiphaceae) are still a largely understudied group in Australia. These plant pathogens are increasingly intercepted by the Department of Agriculture, Fisheries and Forestry (DAFF) during national border surveillance, border inspections and the Northern Australia Quarantine Strategy. In addition, there is a need for surveillance and diagnostic expertise in state department and industry programs to recognise, collect and identify powdery mildew fungi that impact Australian agriculture.

The Workshop will focus on surveillance and morphological and molecular identification of powdery mildews to integrate surveillance and diagnostics skills and provide an extended, up-to-date catalogue of the Australian powdery mildew species based on new specimens identified with molecular tools and microscopy. The Workshop will consist of lectures, seminars, laboratory practicals, and a field survey.

The identification work will be based on the following recent papers:

- Kiss L, Vaghefi N, Bransgrove K, Deamaley JD, Takamatsu S, Tan YP, Marston C, Liu SY, Jin DN, Adorada DL, Bailey J, Cabrera de Álvarez MG, Daly A, Dirchwolf PM, Jones L, Nguyen TD, Edwards J, Ho W, Kelly L, Mintoff SJL, Morrison J, Németh MZ, Perkins S, Shivas RG, Smith R, Stuart K, Southwell R, Turaganivalu U, Váczy KZ, Van Blommestein A, Wright D, Young A, Braun U (2020) Australia: a continent without native powdery mildews? The first comprehensive catalogue indicates recent introductions and multiple host range expansion events, and leads to the re-discovery of *Salmonomyces* as a new lineage of the Erysiphales. *Frontiers in Microbiology* 11: 1571. <https://doi.org/10.3389/fmicb.2020.01571>
- Vaghefi N, Kusch S, Németh MZ, Seress D, Braun U, Takamatsu S, Panstruga R, Kiss L (2022) Beyond nuclear ribosomal DNA sequences: Evolution, taxonomy, and closest known saprobic relatives of powdery mildew fungi (Erysiphaceae) inferred from their first comprehensive genome-scale phylogenetic analyses. *Frontiers in Microbiology* 13: 903024. <https://www.frontiersin.org/articles/10.3389/fmicb.2022.903024/full>

Participants are encouraged to collect powdery mildew specimens before coming to the workshop; extract DNA from their samples (protocol and buffers to be provided by the workshop organisers upon request); mail DNA samples to the organisers, to be sequenced before the workshop; bring their samples preserved as herbarium specimens to the workshop; and perform the identification work based on both morphology and DNA sequence analyses during the Workshop. (The Geneious software will be provided during the workshop.) Specimens will be deposited in a Plant Pathology Herbarium and DNA sequences in NCBI GenBank.

If interested, please send an email Prof Levente Kiss at USQ ([Levente.Kiss@usq.edu.au](mailto:Levente.Kiss@usq.edu.au)) or Dr Aaron Maxwell at DAFF ([aaron.maxwell@awe.gov.au](mailto:aaron.maxwell@awe.gov.au)) no later than COB Wednesday, 7<sup>th</sup> September 2022.

Information for potential participants:

- DAFF professionals will be fully funded to attend the Workshop.
- Other participants will have to pay for their travel and accommodation, and places are limited.
- If interested in contributing to this project with powdery mildew specimens and/or DNA species barcodes determined in your specimens, without attending the Workshop, please send an email to Levente or Aaron by COB 7<sup>th</sup> September 2022. Contributors shall become co-authors of the research paper that may result from the Workshop.

