

# Unraveling the complexity of *Colletotrichum* species causing anthracnose in chili in Australia and SE Asia

Paul WJ Taylor<sup>1\*</sup>, Dilani De Silva<sup>1</sup>, Peter K Ades<sup>2</sup>, Pedro W Crous<sup>3</sup>,

<sup>1</sup>Faculty of Veterinary and Agricultural Sciences, The University of Melbourne, Parkville, Victoria 3010, Australia

<sup>2</sup>Faculty of Science, The University of Melbourne, Parkville, Victoria 3010, Australia

<sup>3</sup>CBS-KNAW Fungal Biodiversity Centre, Uppsalalaan 8, 3584 CT Utrecht, The Netherlands

\*Corresponding author: [paulwjt@unimelb.edu.au](mailto:paulwjt@unimelb.edu.au)

## ABSTRACT:

*Colletotrichum* is one of the most frequently reported groups of pathogenic fungi causing anthracnose disease in crop plants throughout the world. Chili anthracnose is a major fungal disease of chili fruit in SE Asia and Australia, causing significant yield loss, as well as reducing the marketability of the fruit. Understanding the taxonomy and pathogenicity of species is of great significance to the Australian chili industry where there are serious biosecurity implications from incursion by new exotic pathogens entering from SE Asia. Recent advances in *Colletotrichum* taxonomy based on multi gene phylogeny have redefined the taxonomy of this important group of pathogens. A recent phylogenetic study of the pathogens in Australia based on sequence comparison of seven fungal genes delineated four *Colletotrichum* species including *C. siamense*, *C. simmondsii*, *C. queenslandicum*, *C. truncatum* and a new species, *C. cairnsense* sp. nov. The *C. queenslandicum*, *C. simmondsii* and *C. siamense* pathogens had previously only been associated with anthracnose of papaya and avocado in Australia. A further seven *Colletotrichum* species have been identified causing anthracnose of chili in SE Asia including the dominant *C. scovillei* which has yet to be detected in Australia. A qPCR-based diagnostic test is being developed that will enable detection of small levels of infection in fruit and seed by the *C. scovillei* anthracnose pathogen.