

## Investigation into the Fungal-Fungal Interaction Between *Verticillium fungicola* and *Agaricus bisporus*

P. D. Collopy<sup>1</sup>; R. Amey<sup>2</sup>; M. Challen<sup>3</sup>; P. R. Mills<sup>3</sup>; A. Bailey<sup>1</sup>; G. D. Foster<sup>1</sup>

<sup>1</sup> School of Biological Sciences, University of Bristol, Bristol BS8 1UG, UK

<sup>2</sup> School of Biosciences, University of the West of England, Bristol, BS16 1 QY, UK

<sup>3</sup> Horticulture Research International, Wellesbourne, Warwick CV35 9EF, UK  
gary.foster@bristol.ac.uk

### Plant and animal pathogens section

The cultivated button mushroom, *Agaricus bisporus*, is amenable to number of pathogenic threats including bacteria, viruses, mites, insects and fungi. Currently, the most significant threat to the commercial mushroom industry is the mycoparasite, *Verticillium fungicola*. Infection by *V. fungicola* can drastically reduce the yield and value of mushroom crops. The severity of this disease is dependent on the developmental stage of *A. bisporus* at the time of infection and is manifested in three types of symptoms: spotty cap, stipe blowout and dry bubble. An aim of our research has been to develop molecular tools for *V. fungicola* that will allow us to study the interaction between this pathogen and *A. bisporus*. These tools have included transformation methods, marker gene techniques as well as gene-knockout technologies. This has involved the use of *Agrobacterium* and T-DNA to introduce disruption constructs into *V. fungicola* as part of a molecular investigation into this fungal-fungal interaction. We have developed an efficient transformation system for *V. fungicola* that we have now adapted to give high levels of targeted mutagenesis. This technique has successfully generated targeted mutants of a  $\beta$ -1-6 glucanase homologue from *Trichoderma harzianum* and a Mitogen Activated Protein Kinase homologue (*PMK1*) from *Magnaporthe grisea* identified using degenerate PCR primers. We have also developed T-DNA tagging technology in a mycology context for random mutagenesis in *V. fungicola*.