Grower Summary

M 059

Mushrooms: Transfer of mushroom pathogen cultures from liquid nitrogen storage at Warwick University to Fera

Final 2012

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Before using all pesticides check the approval status and conditions of use.

Read the label before use: use pesticides safely.

Further information

If you would like a copy of the full report, please email the HDC office (hdc@hdc.ahdb.org.uk), quoting your HDC number, alternatively contact the HDC at the address below.

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Project Number:	M 059
Project Title:	Mushrooms: Transfer of mushroom pathogen cultures from liquid nitrogen storage at Warwick University to Fera
Project Leader:	Professor Ralph Noble
Contractor:	East Malling Research
Industry Representative:	Jim Rothwell; Little Hall Farm Mushrooms Ltd
Report:	Final Report 2012
Publication Date:	07 February 2013
Previous report/(s):	None
Start Date:	01 August 2012
End Date:	31 December 2012
Project Cost:	£6,557

Headline

- Of 40 fungal mushroom pathogen isolates retrieved from liquid nitrogen storage, 33 were successfully recultured and stored in water agar at Fera.
- Of 40 bacterial isolates (mushroom pathogens and initiation stimulators), all were successfully recultured and stored by -80ºC cryopreservation and by freeze drying (lyophilisation).

Background and expected deliverables

The liquid nitrogen supply of the mushroom pathogen culture collection at the University of Warwick was turned off in the summer of 2012. This aim of this work was to retrieve the most significant cultures and deposit them into low temperature storage systems at Fera, and check their viability and purity.

Summary of the project and main conclusions

Bacterial and fungal isolates were retrieved from storage in liquid nitrogen and cultured on agar plates. Of 40 fungal pathogen isolates retrieved from liquid nitrogen storage, 33 were successfully recultured and stored in water agar at Fera. The successfully retrieved cultures consisted of 18 *Verticillium fungicola* (or *V. malthousei*) isolates, nine *Trichoderma* species isolates, three *Gliocladium* isolates, two *Penicillium* isolates, one *Corticum* isolate and one *Cladobotryum* isolate. Of 40 bacterial isolates (mushroom pathogens and initiation stimulators), all were successfully recultured and stored by -80˚C cryopreservation and by freeze drying (lyophilisation). All of the bacterial isolates were originally labelled as *Pseudomonas* species, consisting of 21 un-named *Pseudomonas* species isolates, 7 *P. tolaasii*, 4 *P. agarici*, 4 *P. putidia*, 2 *P.* Reactans, 1 *P. syringae* and 1 *P. fragi* isolate.

Benefits to industry

Retrieval and storage of the bacterial and fungal pathogen cultures will be of value in future mushroom pathology research projects. The historical cultures will enable comparison with, for example, appearance of new fungicide resistant and/or virulent strains of pathogens in the mushroom industry. The retrieved cultures have named locations and dates of collection. Bacteria include strains of blotch and drippy gill pathogens and mushroom initiation stimulators (*Pseudomonas* spp.). Fungi include strains of green mold (*Trichoderma* spp), dry bubble (*Verticillium fungicola*), cobweb (*Cladobotryum* spp.) and compost smoky mould (*Penicillium* spp.).