



Horticultural
Development
Company

New Project

M 48

***Trichoderma green mould –
diagnostic assays for
improved disease
management***

Project Number: M 48

Title: *Trichoderma green mould* – diagnostic assays for improved disease management

Start and end dates: 1 February 2009 to 31 January 2010

Project Leader: Dr Dr Charles Lane, CSL
Dr Helen Grogan, Teagasc

Project Co-ordinator: Mr Richard Gaze

Location: Central Science Laboratory, York
Teagasc, Dublin

Background and project objectives

Trichoderma is comprised of numerous species of which only some cause economic losses to the mushroom industry. Since the mid 1980s *Trichoderma* (green) compost mould and cap spotting has been attributed to primarily *T. harzianum* (Th 2 [*T. aggressivum* f. *europaeum*] and Th4 [*T. aggressivum* f. *aggressivum*] and *T. koningi* leading to between 30-100% losses. The recent project M46 collected samples from around the UK and Ireland and found that Th2 was the dominant cause of the recent *Trichoderma* compost mould epidemic with a similar situation reported in the Netherlands due to Th2 since the spring of 2006. The management and economic impact of this disease would be significantly improved by rapid early detection of the presence of Th2 as opposed to the less damaging Th1.

The identification of these species and strains can only be reliably achieved by molecular techniques (sequencing of the elongation factor gene) following isolating and purifying fungal cultures. Although accurate, this identification is slow (taking 3-6 weeks to complete), requires considerable molecular expertise to resolve strain identifications and is not suited to automation and rapid turnaround of results. Molecular diagnostic techniques were developed in the mid-1990s based on conventional PCR assays from the ITS region. However, this technology has been superseded by real-time PCR assays that are more reliable and suited to cost effective rapid service provision.

This work will develop rapid (12-48h) molecular diagnostic tests to differentiate *Trichoderma aggressivum* (but will not separate strains, Th2 from Th4) from *Trichoderma harzianum* using the ITS region to enable decision-making during outbreaks. The project will work closely in collaboration with Dr Helen Grogan at Teagasc who will provide artificially infected Phase III compost to evaluate these assays further with the aim of providing a rapid screening service for phase III compost.

Further information

Email the HDC office (hdc@hdc.org.uk), quoting your HDC number, alternatively contact the HDC at the address below.

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