



The BCCCA/The University of Wales, Aberystwyth

A Rapid Diagnostic Test to Identify Black Pod Pathogens

A new method to identify the pathogen causing a Black Pod infection from pod husk samples

Black Pod or *Phytophthora* pod rot is a serious and widespread disease of cocoa caused by fungi of the genus *Phytophthora*. The most common of these is *Phytophthora palmivora* which occurs in most cocoa growing regions of the world but very similar symptoms are also caused by a number of related species. One of these species, *P. megakarya*, is more virulent and appears to be spreading in a westerly



direction from Cameroon and has by now reached many of the cocoa growing regions of Ghana. This has led to increased yield losses and action is urgently required to monitor the spread of *P. megakarya* with a view to the rapid deployment of control measures to restrict or impede further spread of the pathogen.

It is very difficult to distinguish infections caused by the two pathogens, *P. palmivora* and *P. megakarya* by the naked eye and it is usually necessary to isolate the fungus into pure culture before identification can be confirmed. Not only are such procedures time consuming but they also require the services of a trained microbiologist on site.

The diagnostic assay developed at the University of Wales, Aberystwyth is based on the polymerase chain reaction (PCR) which assesses genetic rather than morphological differences between the two species. The technique can be used to identify the pathogen directly from small samples of fresh material or even dried husk samples. Thus, the analysis can be carried out locally or posted to a laboratory where PCR facilities are available. The technique is rapid and identification can be made within 24 hours from a large number of samples. The diagnostic test is also cost effective at approximately £1 per sample (subject to a minimum charge of £10 for a set of 12 samples). This represents the cost of materials and labour involved. The development of this procedure was carried out with a grant from BCCCA.

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