

## **Development of a TaqMan real-time PCR for sensitive detection of the novel phytoplasma associated with coconut yellow decline in Malaysia.**

### **ABSTRACT**

Coconut yellow decline (CYD) disease in Malaysia has been shown to be associated with two different phytoplasmas, one from the 16SrXIV group and one from a novel taxonomic group. Here we report the development of a real-time PCR assay using a 16S rDNA-based TaqMan primer–probe set, for sensitive, quantitative and rapid detection of the novel strain of CYD phytoplasmas. The TaqMan PCR assay was successfully used on genomic DNA extracts from symptomatic Malayan yellow dwarf (MYD) and Malayan red dwarf (MRD) palms, and the analysis of field-collected coconut samples showed that the real-time PCR was better for phytoplasma detection than conventional nested PCR using primers P1/P7 followed by R16F2n/R16R2. Due to lack of specificity, the designed primer probe set also amplified DNA from a range of other phytoplasma strains, including 16SrII chickpea phyllody, 16SrIV Cape St Paul wilt, 16SrVI brinjal little leaf and 16SrXI napier grass stunt, but not from the 16SrXIV phytoplasma associated with CYD, so it could be used to distinguish between infections caused by the two different CYD phytoplasmas present in Malaysia.

Article

**Keyword:** Phytoplasma; Real-time PCR; Coconut; Malaysia; Diagnosis.