

SCREENING FOR POTENTIAL ANTIMICROBIAL PROPERTIES FROM
OIL PALM ROOT AGAINST *Candida bombinense*

FINAL REPORT
SCI0026-BID-1/2007

CHONG KHEIM PHIN
KETUA PENYELIDIK



UMS
UNIVERSITI MALAYSIA SABAH

ABSTRACT

The role of phenolics in oil palm root resistance mechanism against *G. boninense* was studied. High Performance Liquid Chromatography (HPLC) injection with standards and LCMS/Q-tof identified the presence of three phenolics; syringic acid, caffeic acid and 4-hydroxybenzoic acid (HBA) in oil palm roots which contributed to the defence mechanism against *G. boninense*. AVROS showed a higher content of all these three phenolics compared to Ekona and Calabar. *In vitro* studies with phenolics incorporated either in 10% Potato Dextrose Agar (PDA), Oil Palm Root Agar (OPRA) or Oil Palm Root Broth (OPRB) revealed that the common concentration of syringic acid, caffeic acid and 4-HBA; ranging between 50-110 $\mu\text{g/g}$ in oil palm root tissues failed to stop further invasion of *G. boninense*. However, addition of chitosan is potent in stimulating the continuous production of these phenolics in living oil palm roots, without addition of chitosan showed a lower accumulation of phenolics and higher disease severity. Higher concentrations of the phenolics, either syringic acid, caffeic acid or 4-HBA such as 90 and 110 μg also potentially inhibited the growth of this pathogen but not killing them. *G. boninense* was also found to be able to degrade all these phenolics to less toxic compounds.

