

## **Ergosterol analyses of oil palm seedlings and plants infected with Ganoderma**

### **ABSTRACT**

Basal stem rot of oil palm (OP) by *Ganoderma boninense* is of major economic concern and it is the predominant disease of OP in SE Asia. Also, other plantation crops are affected by *Ganoderma*. The early detection of symptoms is crucial for control, although effective methods remain elusive. Ergosterol is the principal sterol of fungi and plays an essential role in the cell membrane and other cellular constituents. The analysis of ergosterol is useful for fungal detection in solid plant substrates. The present report compares ergosterol concentration in sound and decayed OP seedlings and mature plants using HPLC with diode array detection. The disease of OP requires to be considered as a white rot process where fungal biomass will increase from a low to high level as the infection progresses. *G. boninense* biomass was correlated with ergosterol concentration in vitro. Furthermore, the sterol was correlated with internal colonization (a) of inoculated seedlings, (b) of felled and standing OP and (c) to external symptoms of the disease. The compound was not detected in healthy samples. Disease treatments may be made more effective as the amounts of fungal biomass can be estimated and early detection is possible. Ergosterol quantification is a provisional diagnostic method for detection for *G. boninense* infection in OP which can be employed with other methods, enabling early remedial action to be taken. The method is recommended for further research involving basal stem rot of OP.

**Keyword:** *Ganoderma boninense*; Ergosterol; Oil palm; Diagnostic