

Comparative study of lignin in roots of different oil palm progenies in relation to Ganoderma basal stem rot disease

ABSTRACT

Basal stem rot (BSR) disease caused by *Ganoderma boninense* Pat., a serious constraint to oil palm (*Elaeis guineensis* Jacq.) in South-east Asia, namely Malaysia and Indonesia, is also becoming a threat in Africa and Latin America. Currently, no complete management is available although *Ganoderma* tolerant oil palm is likely to have a crucial role in the management of the disease in the future. In this study, oil palm progenies exhibiting different reactions to *Ganoderma* BSR were investigated. Lignin in their roots was detected by phloroglucinol-HCl. The intensity of burgundy red colour developed after staining varied among progenies, indicating differences in lignin content but this was a subjective qualitative approach. A quantitative approach following the modified Klason method was then used. Uninoculated progenies TK 714 and TK 716 were significantly different in lignin content at six to seven months but 10 months later, lignin contents of all uninoculated progenies were similar, while that of inoculated plants exhibited some small but significant differences. Nevertheless, the accumulation of lignin did not correlate well with susceptibility or tolerance to BSR and consequently, lignin content may not be a reliable trait to characterise oil palm progenies for *Ganoderma* tolerance or susceptibility in screening tests.

Keyword: Oil palm, basal stem rot; *Ganoderma boninense*; Lignin; Oil palm progenies