

Random amplified polymorphic DNA (RAPD) and random amplified microsatellite (RAMS) of *Ganoderma* from infected oil palm and coconut stumps in Malaysia

ABSTRACT

Random amplified polymorphic DNA (RAPD) and random amplified microsatellite (RAMS) analyses were used to determine the genetic relatedness within and between *Ganoderma boninense* isolates from infected oil palm and *Ganoderma* sp. from coconut stumps from different locations in Malaysia. RAPD analysis using four random primers (5'ACCTGGACAC3', 5'CAGCGACAAG3', 5'AGAGGGCAC3' and 5'TGACGGCGGT3') showed variations of banding patterns within and between the isolates from oil palm and coconut stumps, indicating that they were genetically heterogeneous. There was no specific banding pattern that could differentiate between *G. boninense* isolates from infected oil palm and *Ganoderma* sp. from coconut stumps. RAMS analysis using four microsatellite primers, 5'BDB(ACA)5, 5'DD(CCA)5, 5'DHB(CGA)5 and 5'YHY(GT)5G, also showed variable banding patterns among the isolates from infected oil palm and coconut stumps. However, five common bands i.e. two bands (900 bp and 1200 bp) produced by primer (CGA)5, one band (1400 bp) by primer (ACA)5 and two bands (350 bp and 380 bp) by primer (CCA)5 were shown by all the *G. boninense* isolates from infected oil palm and *Ganoderma* sp. from coconut stumps. Dendrograms from cluster analysis based on UPGMA of RAPD and RAMS data showed that *G. boninense* isolates from infected oil palm and *Ganoderma* sp. from coconut stumps did not cluster separately into two distinct clusters, but were clustered together, which indicated that both groups of *Ganoderma* are closely related. The finding that the *Ganoderma* isolates from coconut stumps are closely related to *G. boninense* isolates from infected oil palm would have an important bearing in the formulation of disease control measures and replanting procedures, especially in areas where the previous crop was coconut.

Keyword: *Ganoderma*; Oil palm; Coconut; RAPD; RAMS