

The potential of papaya leaf extract in controlling *Ganoderma boninense*

ABSTRACT

Basal Stem Rot (BSR) disease causes significant losses to the oil palm industry. Numerous controls have been applied in managing the disease but no conclusive result was reported. This study investigated the antifungal potential of papaya leaf extracts against *Ganoderma boninense*, the causal pathogen of BSR. Among the five different solvents tested in extraction of compounds from papaya leaf, methanol and acetone gave the highest yield. In vitro antifungal activity of the methanol and acetone extracts were evaluated against *G. boninense* using agar dilution at four concentrations: 5 mg mL⁻¹, 15 mg mL⁻¹, 30 mg mL⁻¹ and 45 mg mL⁻¹. The results indicated a positive correlation between the concentration of leaf extracts and the inhibition of *G. boninense*. ED₅₀ of methanol and acetone crude extracts were determined to be 32.016 mg mL⁻¹ and 65.268 mg mL⁻¹, respectively. The extracts were later semi-purified using solid phase extraction (SPE) and the nine bioactive compounds were identified: decanoic acid, 2-methyl-, Z,Z-10-12-Hexadecadien-1-ol acetate, dinonanoin monocaprylin, 2-chloroethyl oleate, phenol,4-(1-phenylethyl)-, phenol,2,4-bis(1-phenylethyl)-, phenol-2-(1-phenylethyl)-, ethyl iso-allocholate and 1-monolinoleoylglycerol trimethylsilyl ether. The findings suggest that papaya leaf extracts have the ability to inhibit the growth of *G. boninense*, where a higher concentration of the extract exhibits better inhibition effects.