

Evaluation on the efficacy of different disruption method of oil palm roots and ganoderma boninense cell wall

ABSTRACT

The cell wall is the outermost layer of cell encountered by pathogens, determining the infection fate. However, the chemical composition involves during host-pathogen interaction has not been fully elucidated. Prior to determining the composition in the cell walls, the walls must be isolated first from the intercellular component. Selected methods for oil palm roots and *G. boninense* cell disruption were evaluated for their suitability for cell wall isolation and presented in this paper. The effect of selected disruption methods on the content of crude proteins and DNA absorbance under 260 and 280 nm wavelengths in the produced cell wall materials was established on the basis of their solubilized materials. The investigated methods were; i) homogenization with sonication; ii) grinding with liquid nitrogen and; iii) lyophilization with homogenization. The cell wall materials with the highest degree of cytoplasmic component released were produced using lyophilization with homogenization. This was confirmed with the highest DNA absorbance at 260/280 nm of 2.25/1.95 for *G. boninense* and 2.47/2.35 for oil palm roots in their solubilized materials. The thus-produced preparation also released 4.5 and 10.1 µg/g of crude proteins for *G. boninense* and oil palm roots respectively. The degree of cell wall purification from intracellular components was validated using Fourier Transform Infrared Spectroscopy (FTIR). Isolated cell wall can be further utilized in cell wall composition analysis.