

**Post-infectional Production of Phytoalexin in
White Yam (*Discorea Rotundata* Linn.)
Innoculated with *Botryodiplodia*
Theobromae Pat.**

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Abstract:

Four phytoalexins were induced D. rotundata in post-infectionally with B. theobromae. Three of the Phytoalexins were isolated and identified with the aid of ultra-violet mass and nuclear magnetic resonance spectral data as 3,2,5 trihydroxydiphenyl 1 , 2 ethane; 3, 5 dihydroxydiphenyl 1,2 ethane; 1,5 dihydroxy-3-methoxydiphenyl 1,2 ethane and an uncharacterised.

Maximum production of the phytoalexins was achieved at 30 hours of incubation. Chloroform: methanol, (96:4 v/v) gave the best separation of the phytoalexins from yam crude extract. Antifungal activities of the phytoalexins against spore germination varied according to fungal species but the pores were more sensitive to 3, 2, 5 trihydroxydiphenyl 1,2 ethane than 3, 5 dihydroxydiphenyl 1,2 ethane and the spores of B. theobromae were least affected.

The ED₅₀ values required to prevent spore germination of the pathogen varied from 45.7 µg/ml to 58.9 µg/ml for 3,2, 5 trihydroxydiphenyl 1,2 ethane and 45.6 µg/ml to 81.3 µg/ml ;3,5 dihydroxydiphenyl 1,2 ethane. The ED₅₀ value of the two phytoalexins to prevent germ tube elongation of the yam rot pathogens was highest for B. theobromae (61.07 µg/ml) and least for A.niger (46.77 µg/ml). The compound 3,2, 5 trihydroxydiphenyl 1 ,2 ethane was found to be active against the four bacterial species tested against it even at the low concentration of 10 µg/ml.

Keywords: Infection/ phytoalexins/ ultra-violet mass/ nuclear magnetic resonance spectral data/ incubation/ chloroform/methanol/ yam crude extract

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