ABSTRACT

Studies On Some Enzyme Activities In Relation To Infection Of *Theobroma cacao* Callus With *Phytophthora palmivora*

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Fungi of the genus *Phytophthora* infect pods of the cocoa plant (*Theobroma cacao* L.) causing Black-pod disease. This disease is not localized but occurs everywhere that the crop is grown.

To investigate the responses of selected enzymes and enzyme systems during the process of infection, a solid agar medium was developed to initiate and maintain tissue (callus) cultures of the host. The fungus was isolated and cultured on Carrot-potato-dextrose agar medium.

Changes in the activities of selected Glycosidases, Proteases, Polyphenol oxidases were monitored by enzyme assays. This involved incubation of extracts from control and infected tissues with suitable substrates and the subsequent measurement of the product formed during a specified time interval. Time course measurements on the variation in ethylene production on infection were obtained. The effect of ethylene on the sporulation and growth of fungal cultures as well as the possible biosynthetic pathway by which the fungus synthesizes this metabolite were also investigated.

The results indicate that the methodology described proved adequate for determining the changes occurring in enzyme activities in the interaction between the callus and *P.palmivora*.