## ABSTRACT

Studies on pathogenic variability of Crinipellis perniciosa (Stahel) Singer in Trinidad.

Henry Andrew Langole Laker

Variability among isolates of Crinipellis perniciosa (Stahel) Singer from several locations in Trinidad were assessed in ten experiments. In vitro studies showed significant differences in growth rates and mycelial density of the isolates. Positive interactions were observed whenever isolates were grown in pairs on a plate. Starch gel electrophoresis of the mycelia showed the presence of peroxidase and laccase in the cultures. The isolates exhibited varying degrees of sensitivity to a range of chemicals but could not be differentiated in any of the in vitro trials.

The isolates could not be distinguished based on either the morphological and histopathological changes they induced on a differential set of seedlings and clonal plants, or on their reactions to two fungicides in vivo. The morphological changes induced on SCA 6 progeny and the highly resistant reaction of clonal SCA 6 in this study indicated absence of pathotype A of C. perniciosa. It is concluded that the C. perniciosa population in Trinidad consists of pathotype B.

Increased production of inhibitors of basidiospore germination and germ tube growth were recorded following inoculation of cocoa seedlings with C. perniciosa.

Among 15 chemicals screened, Moncut, a systemic fungicide, was outstanding. It inhibited basidiospore germination and mycelial growth at concentrations of less than five ppm and significantly reduced the percentages of inoculated seedlings which became infected.

It was demonstrated that C. perniciosa has a life cycle with three phases which is typical of other Basidiomycetes. During the first phase, the parasitic, homokaryotic, hyphae induce the hypertrophy and hyperplasia associated with the disease. In the second phase initiated by plasmogamy, the heterokaryotic, dikaryotic hyphae multiply within diseased tissues. The third phase is a transient diploid stage initiated by karyogamy. Production of chlamydospores probably as a resting stage of the fungus was noted during the second phase.