A B S T R A C T

The cytology of the fungus was investigated with specific reference to the transition from the monokaryophase to the dikaryophase and the relationship of this transition to the death of host tissues. It was observed that the intercellular parasitic mycelium was monokaryotic and colonised only the parenchymatous ground tissue of the living host. The saprophytic mycelium was dikaryotic and spread through all the tissues of the host both intercellularly and intracellularly. The dikaryophase was thus found in dead host tissues only. Transition of the fungus from the monokaryophase to the dikaryophase occurred only after death of the host tissues. Death in the host was apparently the result of a direct interaction between host cells and the closely associated parasitic hyphae.

In its response to infection by the pathogen, the host exhibited symptoms of hyperplasia of the cortex and vascular tissues, (the latter being due to increased activity of the vascular cambium,) hypertrophy of cortical and phloem cells, anomalous meristematic activity around heavily attacked and dying host cells and bud proliferation at the cotyledonary node.

Attempts to isolate indoleacetic acid from healthy and diseased cacao tissues by standard extraction and chromatographic techniques, failed. Attempts to induce in healthy seedlings, symptoms associated with the diseased condition by application of a crude ethanol extract and varying concentrations of indoleacetic acid and kinetin, also failed.

The results are discussed and a hypothesis of the diseased situation is presented.