

**A study on *Corynespora cassiicola*
the causative agent of
Corynespora leaf fall of
*Hevea brasiliensis***

**Watudura Priyanthi Kumudumala Silva,
B.Sc(Sri Lanka), M.Sc(Sri Lanka), M.Phil.(Sydney)**

**A thesis submitted to the
Faculty of Science
of the University of Colombo
for the
Degree of Doctor of Philosophy
2000**

499961

Abstract

The plant pathogenic fungus *Corynespora cassiicola* causes a severe leaf spot disease on more than 70 host plant species including *Hevea brasiliensis*. The demonstration of high morphological variability among isolates of this fungus implies the existence of different races or strains. Variability of 42 isolates of *C. cassiicola* collected from diverse locations and hosts in Sri Lanka was assessed using morphological, pathological, biochemical and molecular genetical studies.

ITS-rDNA region of all the isolates of *C. cassiicola* exhibited an identical size. Furthermore restriction endonuclease revealed that all of the detected DNA fragments were identical in size. However, RAPD-PCR generated from 8 oligonucleotide decamer primers revealed significant polymorphism between isolates collected from different host plants.

A significant variation in morphology and virulence existed among isolates of *C. cassiicola*. However, there was no correlation between RAPD groups and the virulence of isolates.

Pectic enzymes of the *C. cassiicola* isolates collected from different host plant species showed a similar pattern of secretion and had similar molecular weights. Although papaya isolate S produced a higher amount of pectic enzymes and also toxins than the rubber isolates, it was not virulent on rubber.

Thus it seems likely that there are other factors involved in the determination of pathogenicity of isolates.

Scopoletin (7-hydroxy-6-methoxy coumarin) which inhibited the conidial germination of *C. cassiicola* was isolated from uninfected mature leaves of *H. brasiliensis*. Scopoletin was not detected in uninfected immature rubber leaves but on infection with *C. cassiicola*, the immature leaves also produced scopoletin. It can be concluded that scopoletin is an antifungal compound produced by rubber leaves when under stress.