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**Comparison and Characterization of *Colletotrichum acutatum* the Main Causative Agent of Colletotrichum Leaf Disease (CLD) of Rubber (*Hevea brasiliensis*) with Newly Identified Causative Agent *Colletotrichum siamense***

**Aberathne A.H.M.N.R., Fernando T.H.P.S.\***

*Department of Plant Pathology and Microbiology, Rubber Research Institute, Agalawatta, Sri Lanka*  
*\*sarojinifernando787@gmail.com*

**Abstract**

*Colletotrichum acutatum* has been identified as the major pathogenic species of CLD in rubber. Recently, *C. siamense* was identified as another causative agent of this disease from Sri Lankan rubber plantations. The present study was focused to compare *C. acutatum* and *C. siamense* giving special reference to cultural and reproductive characteristics, fungicide sensitivity and pathogenicity. Comparison of new pathogens with already existing pathogens are required for understanding of new pathogen population. That knowledge will be important to improve management strategies, quarantine regulations and to protect crop avoiding a huge economical loss. *C. siamense* was isolated from symptomatic rubber leaves on to Potato Dextrose Agar (PDA) and *C. acutatum* was collected from department culture collection. Cultural characters were observed after 10 days of incubation. Reproductive characters were compared using slide culture technique. Conidia concentrations were detected using haemocytometer. Growth rates were measured along two perpendicular axis on PDA plates. Fungicide sensitivity was tested with 0.01-500 ppm carbendazim following poisoned food technique. Pathogenicity test was performed using  $5 \times 10^5$  conidia/ml suspension on detached rubber leaves and Disease Index (DI) was calculated. Colonies were circular, smooth and cloudy with raised elevation, opaque nature and entire margin. Both upper and lower surfaces of *C. siamense* were light grey with orange conidiomata on the lower surface. *C. acutatum* produced white to light grey colonies which were initially salmon coloured in lower surface. Conidia in both isolates were aseptate one celled, hyaline, smooth-walled and granular with size of  $14-16 \mu\text{m} \times 4-5 \mu\text{m}$ . *C. siamense* produced cylindrical, both ends rounded spores with  $4 \times 10^5$  conidia/ml concentration while *C. acutatum* produced fusiform conidia with  $2.08 \times 10^7$  conidia/ml upon 7 days of incubation. However, the growth of *C. siamense* in PDA was higher (1.60 cm/day) than the growth of *C. acutatum* (1.48 cm/day). Although *C. siamense* inhibited 100% of its growth even at 0.5 ppm of carbendazim, *C. acutatum* was extremely tolerant to carbendazim and couldn't inhibit the growth even at 500 ppm. In the pathogenicity test, lesions were produced at all inoculation points but the size and type of lesions produced by both isolates were different. *C. acutatum* produced darker anthracnose-like watery lesions with 3.00 DI value and *C. siamense* produced slightly dark watery lesions with DI value of 2.00. According to the characters of both isolates, *C. acutatum* can be identified as a severe pathogen than *C. siamense*.

**Keywords:** Natural rubber, Colletotrichum leaf disease, *Colletotrichum acutatum*, *Colletotrichum siamense*