

Cylindrocladium scoparium in relation to leaf rot disease of coconut

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Leaf rot disease of coconut is a major disease, found super-imposed on over 60 per cent of root/wilt affected palms in Kerala (6). The early symptoms of the disease are usually manifested in spindle leaves as necrotic lesions, spots etc. which develop into extensive rotting of tender tissues, under favourable conditions (3, 7). Fungal etiology of the disease has been established and species composition of the leaf rot complex elucidated (8). During isolations of fungi from

leaf rot, a hyphomycetous fungus identified as *Cylindrocladium scoparium* Morgan, was cultured *in vitro* from infected tissues. Pathogenic association of *C. scoparium* with certain plant diseases assumes serious concern (1, 2, 4). Hence, identification of the fungus and its relation with leaf rot, based on pathogenicity tests are presented.

Coconut spindles infected with leaf rot were selected. The tissue areas with lesions/spots were

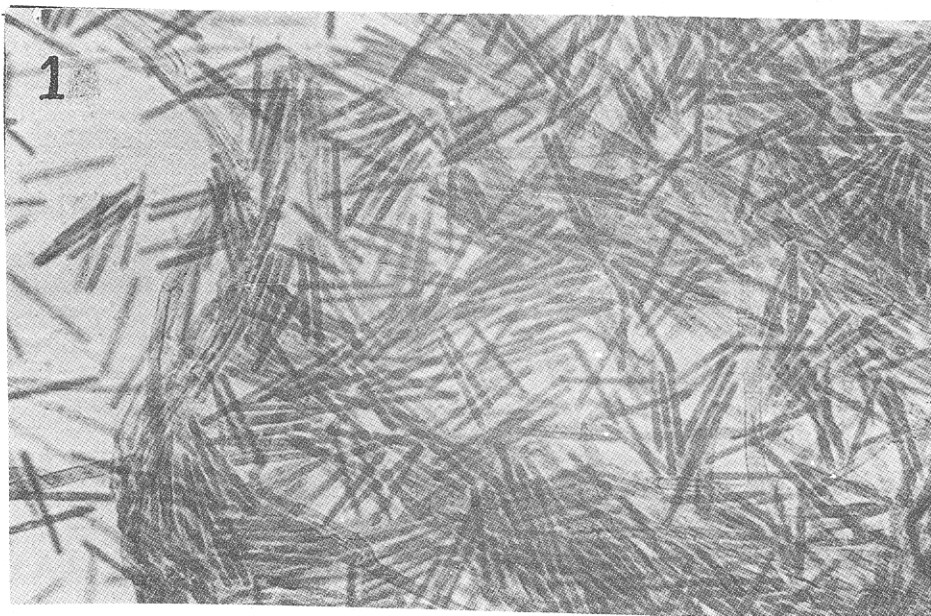


Fig. 1 : Photomicrograph of conidia of *Cylindrocladium scoparium* ($\times 100$).

selectively excised and cut into small pieces of approximately 0.5 cm size, and fungal isolations carried out (8). *Cylindrocladium* grown from certain leaf pieces was transferred and purified after sub-culturing. The fungus was identified as *Cylindrocladium scoparium* Morgan (IMI 350499). Cultures appeared white, cottony and developed a shade of brown. Abundant sclerotial bodies developed in the central portion of cultures; conidiophores measured up to 0.5 mm in length and 7.5 µm width near the base, and dichotomously branched near the apex. The conidia were cylindrical with rounded ends (50-58 × 5-6 µm), hyaline, smooth, straight with distinctly a single transverse septum in the middle (Fig. 1). Thick spore suspension was prepared from seven-day old culture of the fungus. The unopened coconut spindle from root/wilt affected palms, but free from leaf rot, were excised and leaflet pieces/leaflets were inoculated by *in vitro* inoculation techniques as described earlier (9). Suitable controls were maintained for comparison.

The results of pathogenicity tests are presented in Table 1. In the leaflet pieces, the symptom appeared in the form of water soaked lesions at points of inoculation after 48 h and the intensity depended on the surface of lamina inoculated. The inoculations on the lower surface of leaflet

pieces resulted in cent per cent infection both with and without pinprick injury as against lesser lesions on the upper surface. The disease development was also generally faster on the lower surface. The infected lamina became olive green to greyish brown and later turned to brown. Profuse mycelial growth with abundant conidia were produced especially on the lower surface of the leaflet pieces. In inoculated whole leaflets, water soaked lesions appeared along the margins in intermittent areas. The individual spots were circular with clear or diffused margins. The lesions coalesced leading to rooting of lamina (Fig. 2). The symptoms developed in 86.67 per cent of inoculated leaflets and the fungus was reisolated from 85.71 per cent of the leaf bits from the inoculated leaflets. The control leaflet pieces/leaflets were free from symptoms.

Leaf spot of coconut caused by *C. pteridis* in Barazil has been reported (5). *C. scoparium* has been reported to cause leaf spot and blights on Acacia (1), Rhododendron, Azalea (4), and die-back/crown canker of myrtle (2). *C. scoparium* as a pathogen of coconut in relation to leaf rot complex has been brought out and this forms the first report.

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Table 1 : Development of symptoms in leaflet pieces/leaflets of coconut spindle on inoculations of *Cylindrocladium scoparium* and reisolations

Inoculation categories	No. of samples inoculated	No. of samples developed symptom (%)	No. of leaf bits inoculated onto medium	No. of leaf bits developed fungus (%)
A. Leaflet pieces				
1. Without pinprick injury				
a) Upper surface	10	3 (30)	20	7 (35)
b) Lower surface	10	10 (100)	20	16 (80)
2. With pinprick injury				
a) Upper surface	10	8 (80)	20	15 (75)
b) Lower surface	10	10 (100)	20	18 (90)
B. Leaflets	30	26 (86.67)	105	90 (85.71)

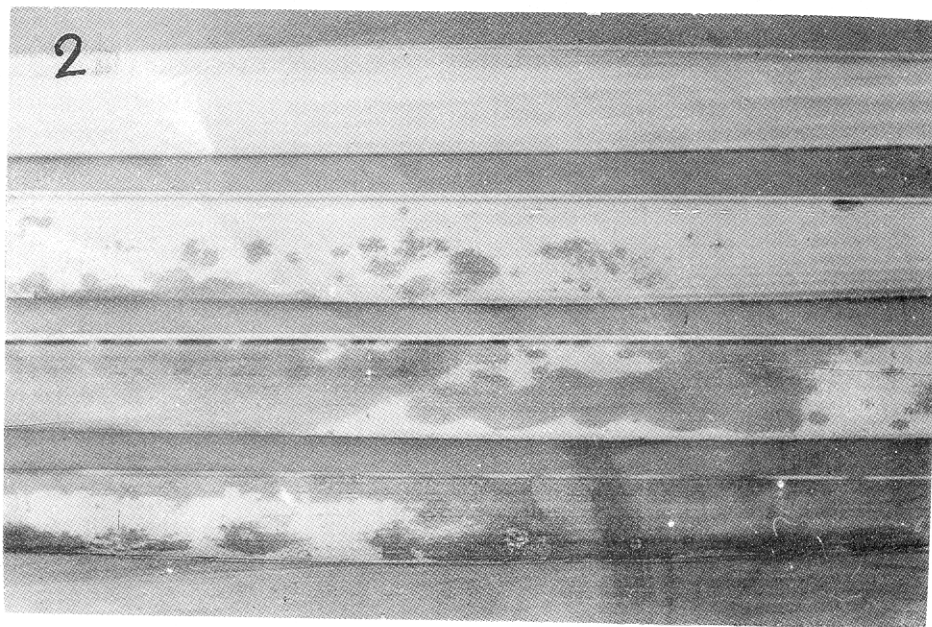


Fig. 2 : Symptoms in detached whole leaflets, spray inoculated (uppermost leaflet healthy).

International Mycological Institute, England for identification of the fungus.

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