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CORYNESPORA LEAF SPOT DISEASE OF RUBBER (*HEVEA BRASILIENSIS*) — A NEW RECORD

by

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A severe spotting of leaves of rubber (*Hevea brasiliensis* Muell. — Arg.) followed by defoliation was observed for the first time in Sri Lanka in 1985 on clone RRIC 103, in a polybag nursery. Since then this disease has spread to seedling nurseries, susceptible clones in budwood nurseries, immature and mature plantations in all the rubber growing districts in Sri Lanka. At present, approximately 2400 and 1600 ha in the State and private sector, respectively, are affected.

DISEASE SYMPTOMS

The fungus affects the immature as well as mature leaves, the former being more susceptible. The symptoms first appear as greyish brown spots which enlarge into conspicuous circular or irregular lesions of varying sizes and shapes (Fig. 1). Severel spots may coalesce to produce extensive crisp brown areas on the leaf, some of which may become irregular papery lesions giving a scorched appearance (Fig 2).

On mature leaves the characteristic feature of the disease is the browning or blackening of the veins adjacent to the lesions giving a fish bone or railway track-like appearance (Fig. 3). The area round the lesions gradually become chlorotic due to the destruction of the chloroplasts. Even a single lesion on a leaflet could result in defoliation. Greyish black lesions may also be seen on some petioles (Fig. 4) causing defoliation even without lesions on the leaf blade.

Repeated defoliation due to the disease results in the severe retardation of growth, extending the period of immaturity and ultimately causing die-back of shoots and branches or even death of trees (Fig. 5).

CAUSAL ORGANISM

The fungus *Corynespora cassiicola* (Brek. & Curt.) Wei, was easily isolated from infected leaves. The identity of the fungus was confirmed by the Commonwealth Mycological Institute (CMI). The fungus could be grown on several media

such as potato dextrose agar (PDA), lima bean agar (LBA), Czapek Dox agar (CDA) corn meal agar (CMA) and potato sucrose agar (PSA), but grows and sporulates best on PSA. The colour and growth characteristics of the colony depend on the medium used. Conidiophores were mostly simple but occassionally branched. The conidia were solitary and variable in shape. On the average there were about 6–8 segments in conidia collected from fresh lesions but those obtained from dry lesions contained about 10-12 segments. Generally there were between 2–16 segments. The basal part of spores collected from the field was wide at the hilum with a slight rim and the distal end was narrow (Fig. 6). The average length was 35 - 210/^{u}m and breadth 10 – 20/^{u}m. Spores produced in culture were long, cylindical and narrow with a few segments. They were as long as 500/^{u}m (Fig. 7).

ALTERNATE HOSTS

Approximately 57 alternate hosts of the fungus *C. cassiicola* are listed in the CMI mycological paper No. 303. In addition several more alternate hosts are given in the literature. A list of alternate hosts are given in Table 1.

Table 1. *Alternate hosts of* Corynespora cassiicola

Abutilon theopharasti — velvet leaf
Aesenynanthus pulecher
Aesnehynanthus marmoratus
Amorphophallus campanulatus — kidaran
Aphelandra squarrosa — zebra plant
Arachis hypogaea — ground nut
Aspilia africana
Boehmeria nivea — ramie
Bombax ceiba
Bombax malabaricum — red silk cotton tree
Broussonetia papyrifera — paper mulberry
Cacao theobromae — cocoa
Carica papaya — papaw
Coffea arabica — coffee
Calopogonium mucunoides
Capsicum annuum — chilli
Citrullus vulgaris — water melon
Citrus aurantifolia — lime
Ceiba pentandra — kapok
Columnea spp.
Colocasia esulenta — tannias
Coccinia indica

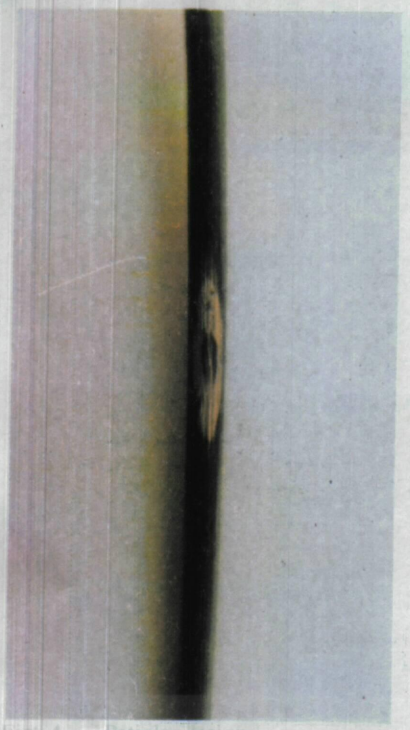

Fig. 4. Petiolar lesion

Fig. 5. Die-back of shoots and death of *Corynespora* infected rubber trees.

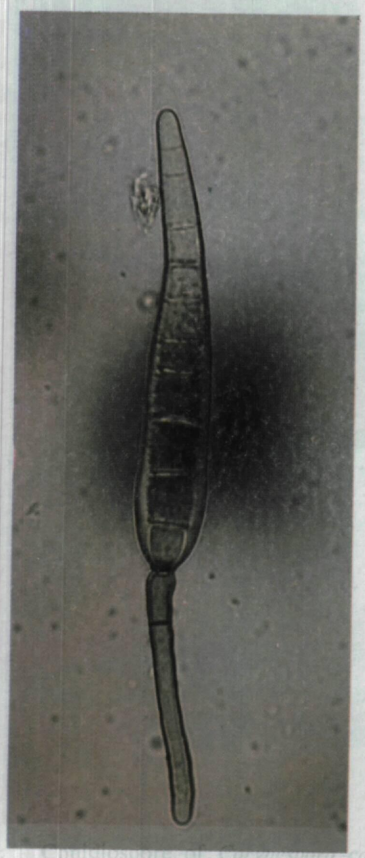

Fig. 6. Conidiospore of *Corynespora cassiicola* collected from field specimens

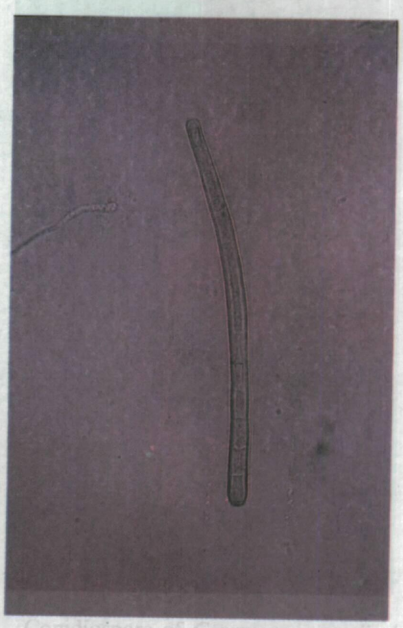

Fig. 7. Conidiospore of *Corynespora cassiicola* produced on artificial medium in the laboratory

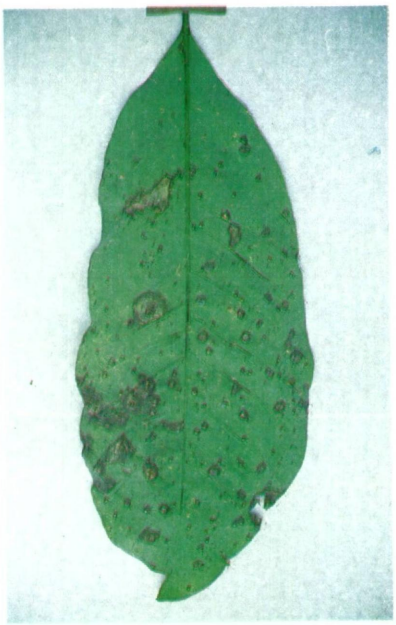

Fig. 1. Symptoms of *Corynespora* infection on young rubber leaves showing circular or iregular greyish brown spots of varying sizes.

Fig. 2. Large lesions showing a scorched appearance with crisp brown and papery areas.

Fig. 3. Characteristic symptom of *Corynespora* leaf spot disease. Discolouration of primary secondary and tertiary veins giving a fish bone or railway track-like appearance.

Corchorus capsularis — jute
Corchorus olitorius — jute
Crotalaria juncea — sunn hemp
Croton sparasiflorus
Cucumis melo — melon
Cucumis sativus — cucumber
Cucurbita pepo var. medullosa — vegetable marrow
Cyamopsis tetragonoloba — cluster bean
Digera arvensis
Dioscorea bulbifera
Dioscorea esculenta — diascorea yam
Dolichos Lab lab — hyacinth bean
Elaeis guineensis — oil palm
Eucalyptus grandis
Eugenia caryophyllus — clove
Ficus benjamina — Java fig
Ficus exasperata — vahl
Glycine max — soybean
Gossypium hirsutum — American upland cotton
Gossypium barbadense — Carribean cotton
Hevea brasiliensis — rubber
Hibiscus esculentus — okra
Hiptage benghalensis — arecanut
Hydrangea macrophylla — hydrangea
Ipomaea carnea — ipomia (ornamental)
Justicia gendarussa
Justicia simplex
Lactuca sativa — lettuce
Lagenaria leucantha — bottle gourd
Lepistemon sp.
Leucas aspera
Ligustrum sinense
Luffa cylindrica
Lupinus albus
Lupinus luteus — yellow lupin
Lycopersicum esculentum — tomato
Lycopersicon pimpinefolium
Manihot glaziovii — ceara rubber
Musa paradisiaca — banana
Nematanthus spp.
Nicotiana tabacum — tobacco
Ocimum basilicum
Ocimum sanctum
Phaseolus mungo — black gram
Phaseolus vulgaris — French bean
Piper betle — betel
Piper nigrum — black pepper
Ponsirus trifoliata — grape fruit
Psophocarpus tetragonolobus — winged bean
Rauvolfia serpentina

Rhododendron obtusum
Ricinus communis — castor
Salvia leucantha
Sesamum indicum — gingelly
Silvia leucantha
Solanum mammosum
Solanum melongena — brinjal
Solanum nigrum
Solanum torvum
Stizolobium deeringianum — Florida velvet bean
Synedrella nodiflora
Syzygium jambolana
Trigonella foenum — graecum
Triumfetta rhomboidea
Urena lobata
Vigna sinensis — cowpea

Corynespora leaf spot (CLS) disease caused by *C. cassiicola* was first reported from India in seedling nurseries (Ramakrishnan & Pillay, 1961). It was observed for the first time in Malaysia in 1960, on iron deficient nursery plants (Newsam, 1961). This disease was reported in Indonesia (Situmorang & Budiman, 1984) and Thailand (P. Kajornchaiyakul, personal communication) in 1980 and 1985, respectively. Isolates from *Hevea* plant material in Brazil and Cameroon were also identified for the first time as *C. cassiicola* (Unpublished, Liyanage, 1986).

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