

KP872



ASEAN PLANT QUARANTINE CENTRE AND TRAINING INSTITUTE

TRACHYSPHAERA FRUCTIGENA TABOR AND BUNTING



Pod rot caused by *Trachysphaera fructigena*. Note the white encrusted mass of spores on the pod surface

Common names

- On cocoa: Mealy pod, "pourriture farineuse des cabosses"
- On coffee: Fruit spot, powdery rot, mealy pod

Host range

A facultative parasite of Avocado pear (*Persea gratissima*), banana (*Musa* sp.), cocoa (*Theobroma cacao* L.) and coffee (*Coffea* sp.) (9).

Geographical distribution

On cocoa: The disease is said to have limited distribution and has only been recorded in West and Central Africa (Cameroon S.E, Zaire, Ghana, Ivory Coast, Nigeria, Sierra Leone) (5, 10).

On coffee: The disease has been recorded in Ghana, Ivory Coast and Zaire in Liberican coffee and *Coffea exelsa*.

The fungus

Trachysphaera fructigena, a member of the Pythiaceae, belongs to a genus closely allied to *Phytophthora*. It produces chlamydospores, oospores and spherical echinulate sporangia measuring about 35µm (Fig. 1a). The sporangia, also known as conidia, have been found to survive longest at high humidities particularly at 100% (9).

Symptoms

On cocoa, mealy pod first appears as a brown spot on the fruit at the site of infection, soon the spot will grow and become covered with an initially white and later light rose coloured mealy crust (3, 8). The vegetative parts of cocoa trees are not attacked. This disease also spreads to the seeds and may considerably affect their quality (3). On nearly mature fruits, however, invasion by *T. fructigena* may not reach or extend beyond the testa of the seed (10).

The symptoms of mealy pod are very similar to those of black pod (*Phytophthora palmivora*). These two diseases can be distinguished because *T. fructigena* attacks nearly mature pods, produces sporangia promptly and more abundantly whereas *P. palmivora* attacks pods of all ages and produces less sporangia. Furthermore, the brown spot lesion caused by *P. palmivora* is clearly defined in contrast to the diffused brown lesion due to *T. fructigena* (Fig. 1b).

On coffee, the fungus causes spots on cherries at all ages but more as they mature; the fruit becomes brown, shrunken and dry and often remains attached (11). The fruit surface gets covered with a thick powdery rosy white encrustation of spores (4, 12). It also attacks youngest shoot of Liberica (12) and causes dark, purplish brown rot of the foliage that is eventually covered by a thick layer of spores.

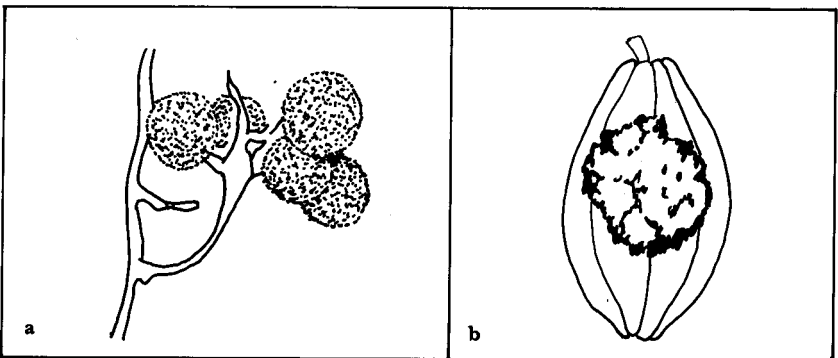


Fig. 1a. Spherical echinulate conidia of *Trachysphaera fructigena*. b. Mealy pod disease with diffused lesion.

Economic importance

Cocoa: In Ghana, pod losses from *T. fructigena* attacks are negligible due to the low occurrence of the mealy pod disease.

Coffee: This was noted to be one of the most importance diseases attacking coffee in the 1920s in Gold Coast, causing fruit losses of 30 to 50% (12). This disease is most severe during the wet season.

Spread

Trachysphaera fructigena is essentially a wound parasite (5) though there are conflicting opinions as to whether it can attack undamaged pods (10). *Trachysphaera* infections are frequently associated with the larger wounds made by rodents but not with small punctures due to capsids (1,2). The spread of mealy pod is dependent on the availability of grossly damaged pods.

Trachysphaera fructigena is not dispersed by air movement since its conidia survive poorly at relative humidity below 85% or at 35 °C. It is unlikely that a large proportion of the conidia would germinate or live long under field conditions (9).

Potential within ASEAN

Trachysphaera fructigena has not been detected in the ASEAN. With its climatic conditions similar to West and Central Africa, it is prudent to safeguard its introduction to the ASEAN countries where cocoa and coffee are two important economic crops, the former particularly in Malaysia and the latter in Thailand, Indonesia and the Philippines.

Means of entry

The movement of human traffic together with infected cocoa planting materials from the African countries where *T. fructigena* is present can be the mode of entry for the fungus to this Region. Stringent quarantine measures and screening techniques are to be enforced to ensure that this fungus is kept at bay.

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