

COCOA SEEDLING DIEBACK

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During the rainy season (June-August) of 1978 a severe incidence of dieback was observed on 1 to 4 month old cocoa (*Theobroma cacao* L.) seedlings of 'Forestero' variety grown in Polyethylene bags at Central Plantation Crops Research Institute, Regional Station, Vittal. In this nursery as much as 45% seedlings were found to have been affected. The disease was more severe on 1 month old cocoa seedlings.

In nature, the infection initiated either from the tip of the stem, from the cotyledonary stalk or from the collar region as dark brown discoloration. It generally started from the tip of the stem and progressed downwards as dark brown to black, watersoaked, linear lesions. The lesions also extended to the leaves through the petiole resulting in wilting and subsequent defoliation of the seedlings.

Defoliation and dieback of the seedlings were the symptoms of advanced stages of the disease.

The infection initiated from the cotyledonary stalk or collar region was also found spreading both upwards and downwards causing wilting, defoliation and ultimately death of the seedlings.

The causal organism was brought into pure culture on potato-dextrose-agar medium. On the basis of the morphological and cultural characters the fungus was identified as *Phytophthora palmivora*. The pathogenicity of the fungus was established on cocoa seedlings by artificial inoculations. The symptoms produced on artificial inoculations were similar to those observed in nature.

Among the *Phytophthora* diseases of cocoa, black pod disease has been recorded from India (Ramakrishnan and Thankappan, 1965), *Phytophthora* infection on cocoa seedlings has been reported from Nigeria (Chant, 1957), Malaysia (Chee, 1969), and Ghana (Asare-Nyako et al., 1972); but from India it is the first report.

Copper fungicides like Bordeaux mixture, cuprous oxide, copper oxychloride and copper hydroxide as well as organic tin compounds like triphenyltin-hydroxide, acetate, and chloride have been reported to be effective in controlling black pod disease of cocoa caused by *P. Palmivora* (Gregory, 1974). These copper fungicides are now in general use to check the disease. A combination of seed dressing and soil drench with Kocide at a concentration of 0.91 kg in 45 l of water has been found to be very effective in controlling pre and post emergence seedling deaths caused by *P. Palmivora* (Asare-Nyako et al., 1972). However, very little work has been done on *Phytophthora* infection of cocoa seedling and therefore, it needs further investigations before suggesting control measures for the disease.

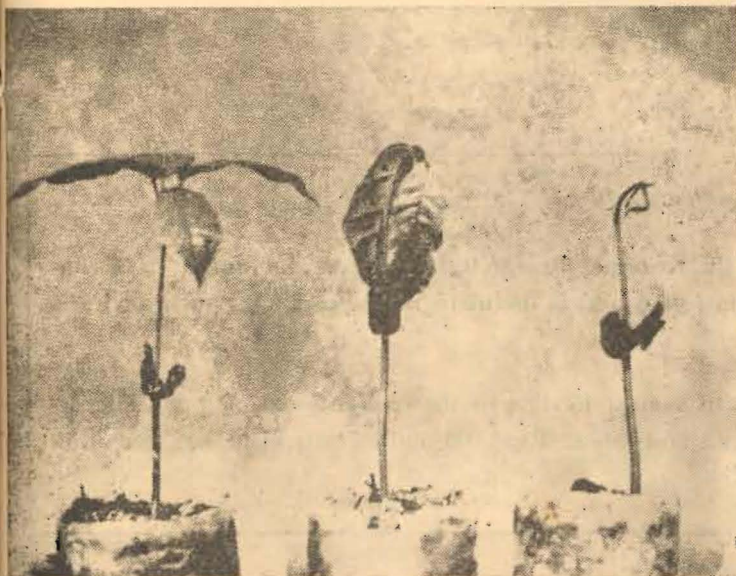


Fig. 1. Healthy (left) and infected cocoa seedlings

(Fig. 1). The infection continued to increase until the whole stem turned dark brown to black and shrunken resulting in the death of the seedlings.

The author is grateful to Shri K. Shama Bhat, Agronomist, Central Plantation Crops Research Institute, Regional Station, Vittal for his interest and encouragement in the work. Technical help of Mrs Nandini C. Mohan is duly acknowledged.

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Contribution No. 172, Central Plantation Crops Research Institute, Regional Station, Vittal 574 243, India.

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