ABSTRACT

Two important leaf spot diseases occurring on coconuts in Jamaica are described. Both diseases had been attributed by others to Pestalotiopsis palmarum, but the role of this fungus is shown to be entirely secondary. Drechslera incurvata is shown to cause the leaf spot affecting seedlings of Malayan Dwarf coconut; this disease is investigated in detail in commercial nurseries and fields, sand culture experiments and the laboratory.

The Malayan Dwarf (M.D.) variety of coconut is particularly susceptible to Drechslera leaf spot. The Panama Tall variety and its hybrid with M.D. (= Maypan) are moderately susceptible, while the Jamaica Tall variety is highly resistant.

Ingress of D. incurvata occurs mainly at stomata on the lower surface of leaves, and less frequently by direct penetration of the cuticle over the vertical walls of epidermal cells on the lower surface. "Infection cushions" of intracellular hyphae develop in the guard and subsidiary cells of stomata, or hyphae aggregate in other epidermal and hypodermal cells, prior to further invasion of leaf tissue.

Severity of Drechslera leaf spot is strongly influenced by precipitation, distance between palms and nutritional status of the palms. Free water, provided mainly by dew deposits, is essential for spore germination and infection. In sand culture studies, severe

infections occurred in seedlings that were closely spaced and lighter infections in seedlings that were widely spaced; this is attributed mainly to the short-distance dispersal of D. incurvata spores. Nitrogen application predisposes seedlings to leaf spot attack, by stimulating sporulation and by increasing the sizes of lesions, thus raising the inoculum potential of individual palms. Potash application reduces the N/K ratio in leaves, strongly suppresses sporulation and restricts lesion size, thus controlling leaf spot severity.

Of five fungicides tested, Polyram-Combi at 5.0 g/l and Daconil at 10.0 g/l, applied every 2 weeks produced satisfactory control of Drechslera leaf spot. Kocide 101 at 5.0 g/l also controlled leaf spot but was seriously phytotoxic; this phytotoxic effect on coconut appears to be a general property of the copper ingredient in all copper-containing fungicides.

The other leaf spot disease investigated, named coconut leaf scurf, affects palms of bearing age, particular the Jamaica Tall coconut. In this preliminary study, the disease is shown to be associated with an unidentified fungus of epigenous growth habit. Ingress, through stomata, is effected by infection hyphae produced by infection cushions developing over the stomata. Young infection cushions are produced 1 - 2 mm behind the radially advancing edge of the brown mycelial fan on the lower surface of the leaves. The mycelium forms sclerotium-like bodies, and hyphae become stromatic within the leaf; these stromata

develop cavities which suggest a reproductive stage, but reproductive propagules unequivocally those of the scurf-causing fungus and which are capable of initiating infection, could not be demonstrated.