

ABSTRACT

A Study Of Coconut Budrot Disease In Jamaica

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A study was carried out to investigate the organisms associated with the various coconut cultivars grown in Jamaica, their role in budrot disease, the susceptibility of the various cultivars to the disease, the effectiveness of six chemical formulations in inhibiting growth of the associated pathogenic organisms *in vitro* and their ability to arrest or prevent budrot disease development in 'Maypan' coconut seedlings.

Field observations at three sites, Caenwood Portland, Orange River St. Mary and Plantain Garden, St. Thomas, showed that all the coconut cultivars grown at each site, were affected by budrot disease. At Caenwood and Orange River the 'Malayan Dwarf' cultivar appeared to be more susceptible than the other 10 hybrids with the 'Malayan Dwarf' coconut as one parent. The hybrids showed variation in their level of susceptibility to the disease but were all less susceptible to the disease than the pure 'Malayan Dwarf' cultivar. At Plantain Garden, the 'Indian Green Dwarf' coconuts seemed more susceptible

to budrot than the 'Ceylon King'. At all three sites, increased incidence of diseased palms were observed during February and April of both 1987 and 1988.

Examination of and isolation from 52 budrot diseased coconut palms showed that 19 fungal species and one bacterium, Enterobacter sp. Smith, were frequently associated with the internal lesion of the crown. Two of these fungi, Phytophthora palmivora Butler and Phytophthora katsurae Ko and Chang, formerly P. castaneae Katsura & Uchida, (Ko and Chang, 1979), were associated also with disease symptoms in the petiole of budrot infected palms and the fruits of both budrot symptomatic and non-symptomatic coconut palms. Thielaviopsis paradoxa Dade also was associated frequently with the diseased crowns and fruits.

In vitro studies revealed two culturally different forms of P. palmivora but no outstandingly different forms of P. katsurae isolates from diseased coconut tissues.

In vivo studies with detached coconut button nuts proved that P. palmivora, P. katsurae and T. paradoxa were the organisms most pathogenic to coconut tissues. However, two different pathovars of P. palmivora were observed in pathogenicity studies using mature, detached cocoa pods. Greenhouse studies showed that the Phytophthora spp. and T. paradoxa, when wound-inoculated

into 'Maypan' seedlings, successfully caused full-blown budrot disease development. No disease symptoms developed in inoculated, unwounded seedlings. Those seedlings wound inoculated with Enterobacter sp. rarely developed full-blown budrot disease symptoms.

The inhibition of mycelial growth and spore germination in vitro and the prevention of budrot disease development in vivo were achieved most effectively by Ridomil MZ 58 WP and Benlate 50 WP at 1000 ppm active ingredient for P. palmivora and T. paradoxa, respectively.