

INVESTIGATION OF DEFENCE MECHANISMS IN RELATION TO STEM-END ROT DISEASE OF MANGO

J.W. DAMUNUPOLA AND N.K.B. ADIKARAM

Department of Botany, Faculty of Science, University of Peradeniya

Mango stem-end rot (SER) disease is caused by a number of fungi including *Lasiodiplodia theobromae* (Synonym *Botryodiplodia theobromae*), *Dothiorella dominicana*, *D. mangiferae*, *Cytosphaera mangiferae*, *Phomopsis mangiferae*, *Pestalotiopsis mangiferae* and *Natrassia mangiferae*. This disease is more of a problem when anthracnose levels are reduced by climatic factors or preharvest control. Unripe mango fruits are resistant to SER where as ripe fruits are prone to attack. A study was carried out to isolate the SER causing pathogens from local cultivars and the response of different mango cultivars to SER pathogens. The host pH variation during infection of selected cultivars and the sensitivity of SER pathogen to host antifungal activity was also investigated.

Naturally infected mangoes were used to isolate the stem-end rot pathogens and their morphological characters were observed. For cultivar evaluation, fruits were inoculated with *L. theobromae* and diseased area was measured 3, 5, 7, 9 and 11 days after inoculation. Fruits from two cultivars {Karathacolombon (KC) and Kohu}, were inoculated with *L. theobromae* and the tissue pH variation during SER development was determined using a flat pH electrode. Data was analysed using Statistical Analysis System soft ware (SAS). Peel tissues were obtained from healthy and diseased fruits of cultivar "KC", to detect the antifungal activity, TLC bioassay was carried out using *Cladosporium cladosporioides* and *L. theobromae* as test fungi.

L. theobromae, *Dothiorella* and *Pestalotiopsis* were isolated from stem-end rots collected during the study, of them *L. theobromae* was frequently isolated from all the cultivars, whereas *Dothiorella* was isolated only from cultivar "KC". On inoculation *L. theobromae* or *Dothiorella* alone would develop typical SER symptoms. Artificially inoculated fruits with *L. theobromae* and *Dothiorella* sp. produced similar symptoms. It was observed that cv. "KC" was more susceptible to SER than other cultivars tested. In cv. "KC" and "Kohu" the peel tissue pH was high in unripe fruit but decreased progressively during SER development. Bioassay of peel extracts with *Cladosporium* sp. showed the presence of preformed antifungal activity however, no inhibition zones were visible when the TLC plate was sprayed with *L. theobromae* spores. This indicates that *L. theobromae* is not sensitive to preformed antifungal compounds present in mango peel. This clearly supports the fact that certain pathogens still manage to invade plants, though plants contain preformed defences.