

CELL WALL DEGRADING ENZYME PRODUCTION BY
GLOEOSPORIUM MANGIFERAE, THE CAUSE OF MANGO ANTHRACNOSE

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The possibility that the latent infection in unripe mango fruit by Gloeosporium mangiferae is resulted from its inadequate enzyme potential to break-down cell walls was investigated.

The fungus, isolated from an anthracnose lesion of a ripe mango fruit, was grown in liquid culture with cell wall material separated from unripe fruit tissue as the sole carbon source. Culture filtrates had exo-Polygalacturonase (PG) (pH optimum of 5.5) activity during the first 5 days of incubation and thereafter exo-Pectin lyase (PL) (pH optimum 8.5) activity which increased until the 7th day and then declined. Extracts of G. mangiferae-rotted ripe mango fruit exhibited endo-PG exo-PG activity.

Both the culture filtrate and rotted tissue extract had prominent protease activity (pH optimum 7.0). Healthy mango fruits also contained endogenous protease (pH optimum 6.5). Molecular exclusion chromatography revealed the presence of two different proteases in the culture filtrate and four in the rotted tissue extract.

Cellulase activity was also detected in both culture filtrate and rotted tissue extract, the optimum pH being 5.0.

Unripe mango fruit did not have substances inhibitory to fungal pectinase protease and cellulase. The results have no indication of the inadequate enzyme potential of the fungus and confirmed our earlier report¹ that the latency in mango is due to the presence of antifungal compounds in the peel tissue.

This work was supported by the International Foundation for Science, Sweden.

Reference

- Kanakaratne, N.S. and Adikaram, N.K.B. (1986) Proc. Sri Lanka Ass. Adv. Sci. 42 (1): 38

09th Dec. 1987 (Wednesday) 02.45 p.m. - 03.00 p.m.