

## ABSTRACT

Resistance of Hevea to South American leaf blight caused by Microcyclus ulei could be related to hypersensitive collapse of epidermal and sub-epidermal cells around entry points of the pathogen. Conidial germination, germtube penetration and hyphal elongation were similar in all clones tested 12 h after inoculation, but later hyphal development slowed down on resistant leaves on which appressorium formation also occurred earlier.

The degree of resistance of healthy Hevea leaves did not correlate with their total phenol contents. Phenol contents of inoculated resistant and susceptible leaves did not differ significantly from healthy leaves. Hevea leaf IAA oxidase activities were stimulated by 2,4-dichlorophenol and by naturally occurring phenolics: p-coumaric acid, scopoletin and 4-methylumbelliferone while quercetin and kaempferol functioned both as cofactors and competitive inhibitors.

The activities of IAA oxidase, peroxidase, polyphenol oxidase,  $\beta$ -glucosidase and pectinmethyl esterase in healthy as well as diseased Hevea leaves were determined. The possible correlation of their activities with degree of resistance was discussed. Activities of IAA oxidase and peroxidase were higher in preparations from inoculated than in those from healthy leaves. The increases in activities were detected earlier and the relative increases were higher in preparations from inoculated resistant leaves than from inoculated susceptible leaves.  $\beta$ -glucosidase activities were higher in infected leaves, especially susceptible ones, while changes in activities of polyphenol oxidase and pectinmethyl esterase differed slightly between inoculated susceptible and resistant leaves. Lesion development on Hevea leaf disks suspended on solutions of growth substances was more restricted than disks suspended on water. IAA oxidase and peroxidase activities of

inoculated susceptible leaves suspended on IAA solution were also higher than inoculated leaves suspended on water.

Studies on the histology of abscission and changes in pectinmethyl esterase activities indicated that abscission of diseased leaves differed from abscission of debladed, ethylene treated and senescent leaves. The possible cause of abscission of diseased Hevea leaves in comparison to other plant species was discussed.

The results obtained were in accordance with the suggestion that resistance of Hevea to SALB was biochemical rather than morphological in nature.