

BIOLOGICAL CHARACTERISTICS OF FOUR RACES OF *MICROCYCLUS ULEI*

Field isolates of *Microcyclus ulei* (P.Henn) V. Arx. which causes South American Leaf Blight (SALB) disease in *Hevea* are known to occur in two morphological forms (Holliday, 1970). The rate of conidial production has been observed to differ greatly amongst cultures obtained from different *Hevea* clones (Chee, 1978). Hashim and Almeida (1987) related variation in cultural characteristics to race. This paper examines biological differences in morphology of colonies and conidia, growth and sporulation of cultures and spore germination of isolates of four races.

Eight pure isolates were examined. Potato sucrose agar (PSA) supplemented with Panvit, a commercial mixture of mineral salts, vitamins and amino acids (1.5 ml l^{-1}) and a commercial brand of dogfood, Bonzo, (13 g l^{-1}) formed the growth medium (Junqueira *et al.*, 1984). A liquid medium that lacked agar and Bonzo was also used. Approximately 2 mm^2 stroma from 10 day old cultures was used as inoculum. Incubations, both in dark and in light (2600 lux), was at $24 \pm 1^\circ\text{C}$. Each experiment was replicated three times and repeated at least once.

The stroma preincubated in light for 12 days on solid medium was crushed against the side of the test tube or flasks in which it was grown, on 0.5 ml of sterile distilled water, and spread all over the surface of the medium and kept in the dark either for 14 days (for spore counts and microscopy) or for 10 days (for germination tests) and exposed to light (2600 lux) 90 min day^{-1} for two days. Conidia were harvested in known

volume of distilled water and their concentration determined. Conidia were examined under the light microscope and spore size was measured. Percentage germination of conidia in water was assessed from a drop of standardised ($1 \times 10^5 \text{ spores ml}^{-1}$) spore suspension on a microscope slide, incubated in a humid chamber under subdued light for 6 h. At least 600 spores per isolate were examined. A conidium was considered to have germinated when the growth of germ tube was at least equal to the width of the spore.

Mycelial mass of the colonies on PSA plates after five weeks incubation was carefully removed from agar and shaken in two ml of water to dislodge conidia to assess spore concentration. The suspension with the fungal stroma was then filtered through a preweighed filter paper, air-dried for 48 h. and re-weighed. Mycelial growth (weight) in liquid medium was determined after 17 weeks incubation.

There was no significant differences in the width of conidia between the isolates but the length showed significant differences (Table 1). Isolates IAN 873-3 and Fx 2261-3 (race 4) had less than 15 per cent one-celled conidia. About a third of two-celled conidia had the typical twist, sometimes very pronounced. Conidia of all the other isolates were indistinguishable from each other in having ≥ 24 per cent of one-celled spore types, while two-celled conidia had rarely any twist. Distal cells tended to be cylindrical with rounded ends in conidia of isolates Fx 2804-10 and Fx 567-1 (race 2). In the other isolates, two-celled conidia had slightly tapering distal cells. Single-celled