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## MORPHOLOGICAL ANALYSES OF PSEUDOIDIUM ANACARDII (NOACK U. BRAUN & R. T. A. COOK) NOACK INFECTING BRAZILIAN CASHEW PLANTS

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*Pseudoidium anacardii* has emerged as a serious threat to cashew crops in Brazil, where a considerable decrease in production has been implicated to this fungus. This work describes the morphology of the infection process of Brazilian cashew cultivars in order to establish differences related to the severity of the disease and their relation to the cultivar. Symptomatic and asymptomatic plants of six different cashew cultivars had their leaves or flowers collected and processed for scanning electron microscopy. Scanning electron microscopy (SEM) of the infected flowers demonstrated the occurrence of a massive aggregate of erect conidiophores arising side by side or inserted among the sepals and petals hairs (Fig. 1). These patterns were found on all cultivars, except 'BRS 253'. Conidia are obvoid-ellipsoid, apex rounded, averaging 20 to 45  $\mu\text{m}$ , length (Figs 1 and 2). Mycelium was covering the whole leaf surfaces, exhibiting branches with 3–4  $\mu\text{m}$  width (Fig. 2). Newer hyphae superimpose themselves over older ones, forming elbow-like structures, frequently seen along the infected surface (Fig. 2). Appressoria were well developed, multilobed, opposite in pairs or single, vigorously penetrating the epiderm of the leaf (Fig. 2F, G, I). Asymptomatic leaves (under naked eye) of cultivar 'BRS 189' were fully covered by mycelium and conidiophores with the fungus well established. This finding is an important information for early detection of disease epidemic, especially in monitoring disease progress. Cultivars 'CCP 76' and 'BRS 189' presented infected flowers and leaves, while, other genotypes had only inflorescences attacked. Monitoring of orchards can be made previously to the establishment of symptoms,

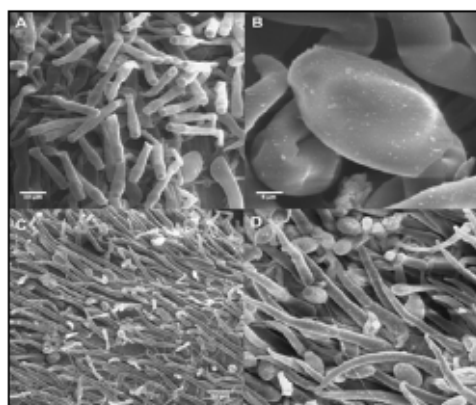


Fig. 1. SEM images of naturally infected flowers of cultivars 'CCP 9' and 'CCP 76'. (A) Conidiophores, cultivar 'CCP 9', 500 $\times$ ; (B) Conidium, cultivar 'CCP 9', 2000 $\times$ ; (C) Conidiophores and hairy-trichomes, cultivar 'CCP 76', 200 $\times$  (D) Process of conidiogenesis among hairs, cultivar 'CCP 76', 500 $\times$

simply by a microscopic investigation of leaves. We suggest that anatomy of the plant organs, variable upon the cashew cultivar, may be involved in the plant mechanisms of defence and these informations can be usefully employed in a Cashew Breeding programme.

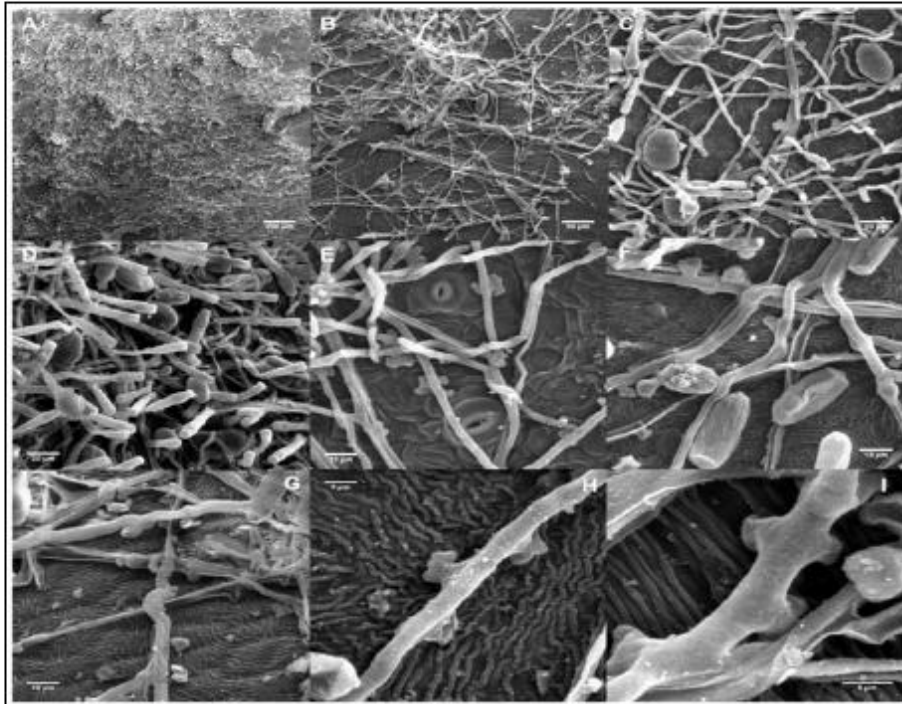


Fig. 2. SEM images of naturally infected leaves of cultivar 'CCP 76'. (A, B, C) Mycelium covering the leaf surface, 50 $\times$ , 200 $\times$  and 500 $\times$ ; (D) Conidiophores, 500 $\times$ ; (E) Hyphae and appressoria, 1000 $\times$ ; (F, G) Appressoria penetration, 1000 $\times$ . (H, I) Detail of appressoria, 2000 $\times$  and 3000 $\times$