

BACTERIAL DISEASE OF AVOCADO

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Progress Report

INTRODUCTION

In 1980, a bacterial canker of avocado (*Persea americana* Mill.) was observed for the first time in the North Eastern Transvaal. A definite spread of the disease is evident and some orchards show an infection of up to 30%. The disease occurs only on the cultivar Mass and is characterised by localized lesions (Fig. 1) which occur on the trunk. As the disease progresses, lesions also appear on the extremities of the main side branches and develop proximally.

Young lesions appear as dark spots surrounded by water-soaked areas. These spots become sunken and suited and older cankers show a typical white exúdate around the lesions which later becomes powdery. The old lesions appear as big open cavities in the wood due to the inhibition of cambium formation. Underneath the typical watery pocket brown discolouration of the vascular tissue is evident. Symptoms occur on very young, as well as on older trees. The overall effect is poor growth, browning of vascular tissues, dropping of leaves and a decrease in yield.

Methods

One year-old trees of the Mass cultivar were aseptically inoculated with several bacterial isolates from various diseased trees using 1 ml syringes. After twenty days in a 25°C greenhouse, symptoms similar to those observed in the field started to appear on the trees.

The severity of the symptoms increased with time. After two months browning of the vascular system was observed (Fig. 2).

Five different bacterial strains, two of them belonging to the *Pseudomonas* group were isolated from the inoculated trees. Pure cultures from the five different strains were reinoculated on one year-old Mass trees. After two months, browning of the vascular system was observed on the trees. At present a study is undertaken to determine whether the bacterial isolates play a primary or secondary role in the disease syndrome and to establish whether there is any association between them. The causal organism(s) will be identified. Further studies will include a definite proof of Koch's postulates, serology, physiological and EM investigations as well as an attempt to establish effective control measures.

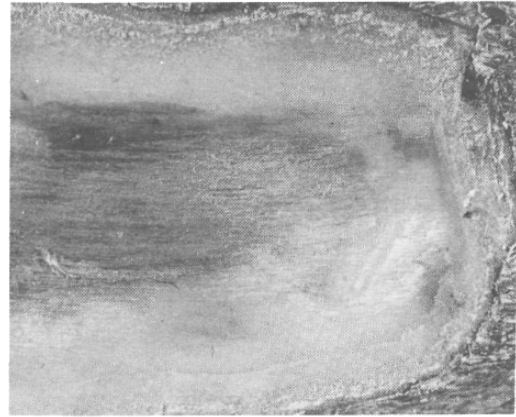
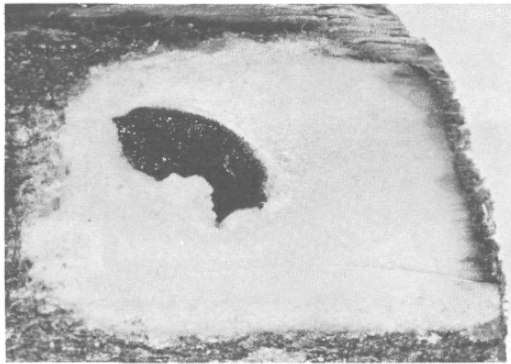
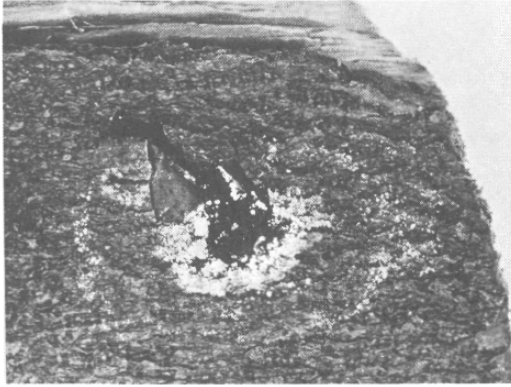


FIG. 1: Bacterial canker on the main branch of a six year old Hass tree (a) Localised lesion on the surface; (b) Typical watery pocket; (c) Browning of the vascular system