

## SOOTY BLOTCH OF AVOCADOS

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### OPSOMMING

*Roetvlek moet onderskei word van swartroetskimmel (Capnodium spp.). Roetvlek, anders as swartroetskimmel, het geen assosiasie met insekte nie. Die oorsaak van roetvlek word toegeskryf aan Stomiopeltis citri Bitanc. Die swam groei oppervlakkig op die vrugte en takke maar veroorsaak geen direkte skade aan die plant nie. Roetvlek is egter van aansienlike ekonomiese belang omdat dit die markwaarde van die vrugte benadeel.*

### SUMMARY

*Sooty Blotch must not be confused with Sooty Mould (Capnodium spp.). Sooty Blotch has no relationship with insects as is the case with Sooty Mould. The cause of Sooty Blotch is Stomiopeltis citri Bitanc. The fungus grows superficially on fruits and twigs, but causes no direct damage to the plant. Sooty Blotch is of considerable economic importance as it spoils the fruit for export.*

### INTRODUCTION

Sooty Blotch of avocados is not a new disease but it assumes greater economic importance since more than 50% of the crop is now being exported. The disease spoils the sales appeal of the fruit but does not cause rotting or break down of plant tissues. It occurs throughout the avocado growing areas, but blackening of twigs and fruit is more abundant in the Nelspruit area. No control measures are yet applied. Sooty Blotch is often confused with Sooty Mould (*Capnodium* spp.), which is nearly always associated with insects. Sooty Mould grows on honeydew excreted by various insects. It forms a thick crustaceous black fungus growth on any surface where the honeydew is excreted. Sooty Blotch has no relationship with insects.

### THE DISEASE

Sooty Blotch symptoms start from germinating ascospores or mycelium fragments. The mycelium branch out and form a smoky blotch on the plant surface. The blotch becomes darker and the mycelial mat becomes thicker with time. In the initial stages of infection the plant tissues have a blotchy appearance but eventually all affected areas become charcoal black.

When flower clusters and young shoots emerge in late winter or spring, the new growth forms a clear contrast with the black older twigs of the previous season. The symptoms spread during the summer months and the black colour becomes more intense the longer the fruits remain on the tree. Leaves are slow in showing Sooty Blotch symptoms but after the second season a smoky colour develops along the base of the leaf and the edges.

Pseudothecia occur abundantly during the summer months on all affected areas. These fruiting bodies are easily picked up with a needle.

The fungus penetrates the wax layer of the plant but it never penetrates the cuticle or the epidermal cells. Haustoria were not observed.

### The causal fungus

There is considerable doubt and confusion about the causal organism. Doidge (1930) mentioned *Leptothyrium pomi* as a possible cause and van der Plank (1933) gives *Gloeodes pomi* as the cause of Sooty Blotch on citrus fruits. According to Doidge, Bottomley, van der Plank and Pauer (1953) the cause of Sooty Blotch is given as *?Stomiopeltis citri* Bitanc. Specimens of infected avocado twigs with Pseudothecia were submitted to CMI, Kew for conformation. Dr A Sivanesan of the Identification Services, CMI, reported by letter dated 1979-11-01 as follows: "In morphology the fungus agrees with *Stomiopeltis citri* Bitanc. However, Doidge et al. (1953) in 'A Revised List of Plant Diseases occurring in South Africa' report it as *?Stomiopeltis citri*".

The Pseudothecia contain double walled asci and paraphyses. The ascospores are two-celled with the anterior cell wider, but sometimes shorter than the posterior cell. The spores germinate readily on PDA and produce an olive green colony that grows very slowly. The fungus grows slightly better at 20°C than at 25°C. No spores or fruit bodies were found on artificial medium.

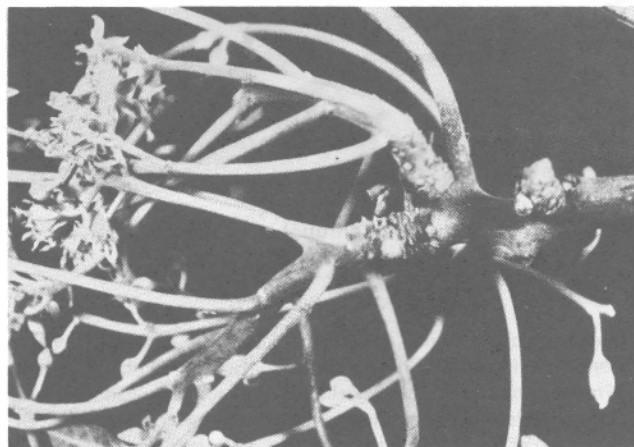


FIG. 1: The black fungus growth can clearly be seen on the previous year's growth. Note the difference between the old and new growth

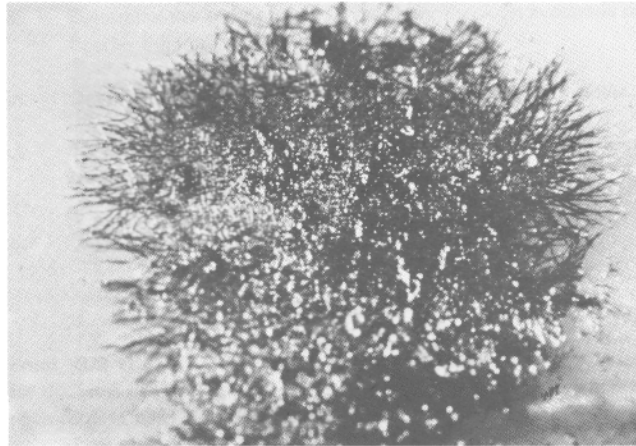


FIG. 2: A young Sooty Blotch colony on an avocado twig.



FIG. 3: Pseudothecia form abundantly on the Smoky Black lesions

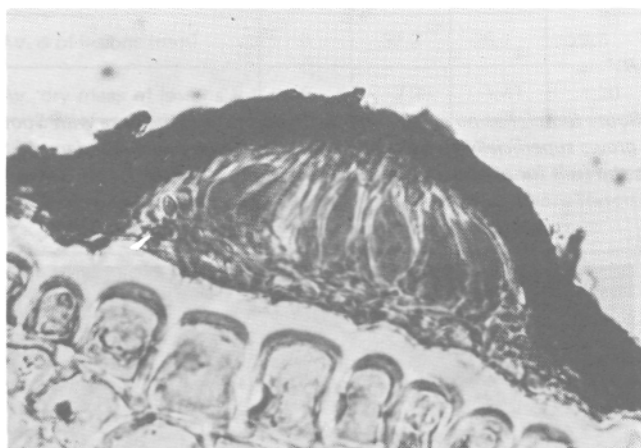


FIG. 4: A cross section through a pseudothecium showing maturing asci and paraphyses

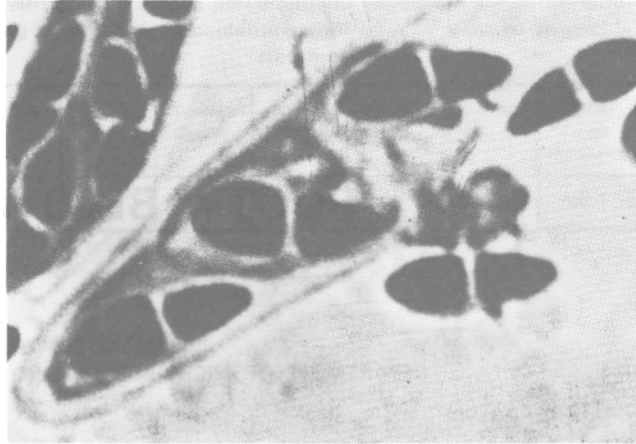


FIG. 5: An ascus releasing two-celled ascospores

### Control

No control measures exist but trials are underway to evaluate several fungicides. Copper oxychloride seems to inhibit mycelial growth but more information will be available next season.

### LITERATURE CITED

- DOIDGE, EM. 1930. Sooty Mould and Sooty Blotch. *Farming in S.A.*, April 1930 p.4.  
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VAN DER PLANK, JE. 1933. Sooty Blotch on Citrus. *Farming in S.A.*, May 1933 p.195.