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RESEARCH NOTE

# FIRST REPORT OF *DISCULA PLATANI* ON PLANE TREES IN SOUTH AFRICA

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ABSTRACT

Key words: *Apiognomonia veneta, Discula platani, Platanus*

*Discula platani,* the cause of anthracnose on plane trees *(Platanus hybrida),* is reported for the first time in South Africa. Symptoms are briefly described.

*Uittreksel*

*EERSTE AANMELDING VAN* DISCULA PLATANI *OP PLATAANBOME IN SUID-AFRIKA*

Discula platani, *die oorsaak van antraknose op plataanbome* (Platanus hybrida), *word vir die eerste keer uit Suid-Afrika aangemeld. Simptome word kortliks beskryf.*

During the early spring of 1987 and 1988, severe bud, shoot and leaf blight (Fig. 1 and 2) was observed on *Platanus hybrida* Brot. [= *P. acerifolia* (Aiton) Willd.] in the Transvaal near Pretoria and in the south-western Cape Province near Stellenbosch, Fraschhoek and Cape Town. Leaf blight was the most distinctive symptom, characterized by large irregular marginal lesions and necrotic lesions bordering the veins. The severity of leaf blight on numerous trees examined in the above areas, varied from 20 to 60 % of the total foliage.

Shoots were collected from trees displaying anthracnose symptoms and examined microscopically. Intraepidermal acervuli occurred on twigs but not on leaves. Pure cultures (Fig. 3) of the causal organism were obtained by plating out small pieces of diseased tissue on 2 % malt extract agar (MEA). Conidia (Fig. 4) were also germinated on MEA. Dried material and a single-conidial isolate were deposited in the National Collection of Fungi, Pretoria (PREM 48995 and PPRI 3196, respectively). The fungus was subsequently identified as *Discula platani* (Peck) Sacc. which has not previously been recorded from South Africa. Perithecia of the teleomorph *Apiognomonia veneta* (Sacc. & Speg.) Von Höhnel were not found on any diseased material.

Observations of healthy and diseased *P. hybrida* trees confirmed previous reports (Neely, 1976; Philips & Burdekin, 1982) that bud blight is the first phase followed by twig blight, shoot blight and then leaf blight. According to Neely (1976) the appearance of twig, bud and shoot symptoms on this hybrid are rare. In South Africa, infected buds usually died and failed to flush, whereafter infection spread to twigs. Shoot blight occurred after buds had opened and flushed, but before the new shoot was fully developed.

All symptoms except leaf blight disappeared during the summer months in each year. This observation is consistent with the view of Neely (1976) that anthracnose infection of *Platanus* occurs mainly in early spring. It is further substantiated by the fact that severity of shoot-blight is determined by the mean daily temperature during the 2-wk period immediately following emergence of the first leaves in spring—the optimum temperature for disease development being in the range of 10–13 °C (Neely & Himelick, 1963).

Anthracnose was first recorded on *Platanus occidentalis* L. in Britain in 1815 (Neely, 1976). At that time a pathogen was not implicated but the symptoms were described and attributed to frost. The disease had rendered *P. occidentalis* unsuitable for planting in Britain by 1880 (Neely, 1976) and by the end of the 19th century it had been reported in France, Germany and the USA (Milne & Hudson, 1987).

The nomenclature of the pathogen causing anthracnose of *Platanus* has been the subject of considerable confusion. This was mainly due to a belief that it also caused oak anthracnose (Neely & Himelick, 1965; 1967). In a detailed review of the nomenclature of the so-called sycamore anthracnose fungus, Neely & Himelick (1965) concluded that oak and sycamore anthracnose were caused by different pathogens and stated that the correct name for the *Platanus* pathogen was *Gnomonia platani* Kleb. (anamorph *Gleosporium platani* Oud.). Barr (1978) also accepted that the *Platanus* and *Quercus* anthracnose fungi are morphologically and pathologically distinct and used the name *Apiognomonia veneta* (Sacc. & Speg.) Von Höhnel [anamorph *Discula platani* (Peck) Sacc.] for the *Platanus* pathogen. Neely (1976) and Philips & Burdekin (1982) stated that *A. veneta* had several anamorphic stages but Milne & Hudson (1987) could not substantiate this fact.

Anthracnose caused by *A. veneta* is a severe problem on *P. occidentalis* in North America and is also reported to cause serious damage to the less susceptible *P. hybrida* in Europe (Philips & Burdekin, 1982). No pathogens were reported on *P. hybrida* or *P. occidentalis* in South Africa by Doidge (1950) or Gorter (1977). These trees have, therefore, been planted extensively as street trees in many areas of the country. Prior to the present disease report only powdery mildew caused by *Microsphaera platani* Howe has been recorded on *Platanus* spp. in South Africa (Gorter & Eicker, 1985). In view of the potential damage by *D. platani* and *M. platani,* the planting of *Platanus* spp. for ornamental purposes could soon be threatened in areas of the country where these diseases have been reported and where suitable climatic conditions occur regularly.

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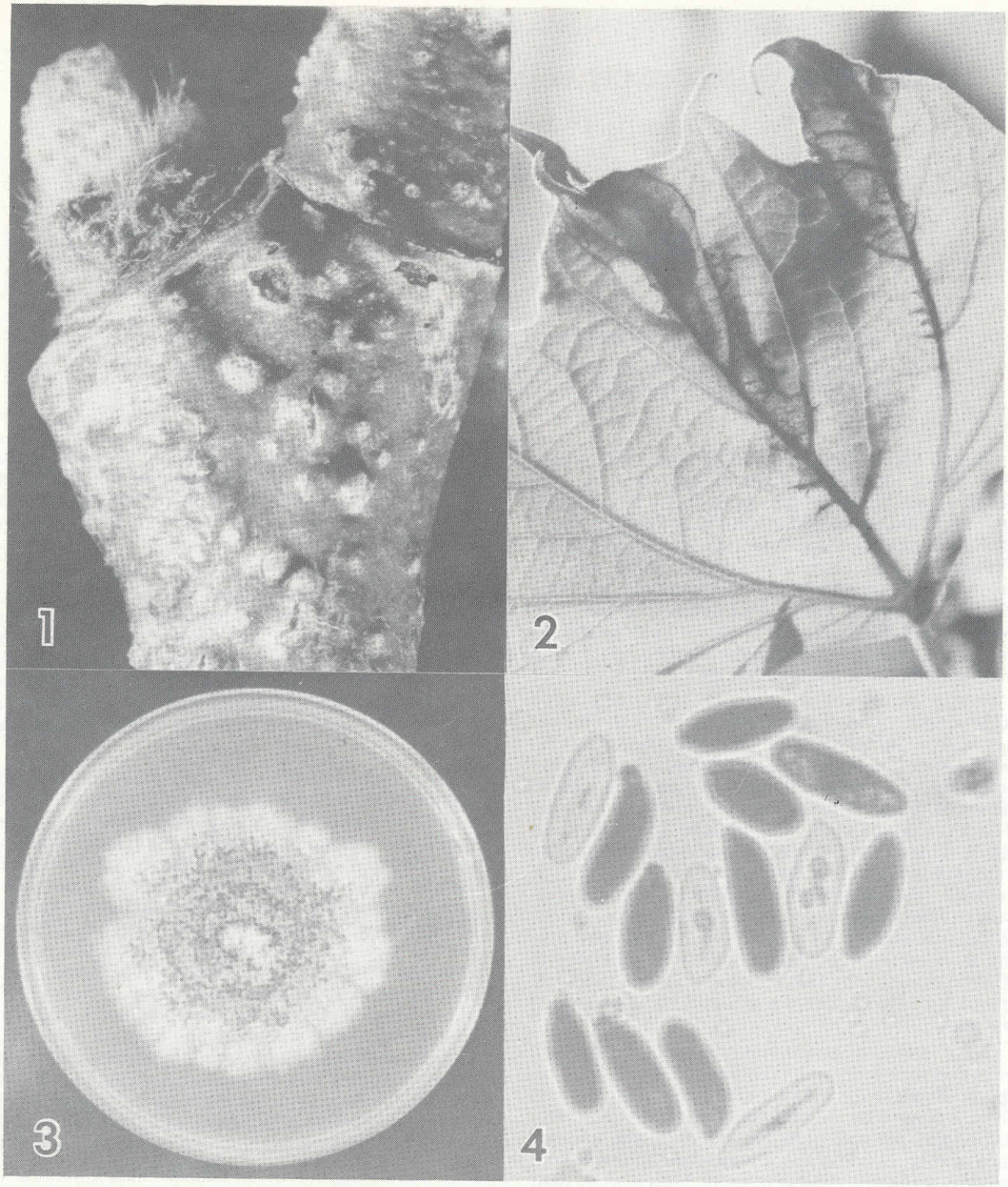


FIG. 1 Bud blight of *Platanus hybrida* with intraepidermal acervuli of *Discula platani* on twig

FIG. 2 Leaf blight of *Platanus hybrida* with necrotic lesions bordering the veins

FIG. 3 Culture of *Discula platani* on 2 % malt extract agar

FIG. 4 Conidia of *Discula platani*

## REFERENCES


BARR, M. E. 1978. The Diaporthales in North America. *Mycologia Memoir* 7, J. Cramer Publication, Lehre, Germany.

DOIDGE, E. M. 1950. The South African fungi and lichens to the end of 1945. *Bothalia* 5:1–1094.

GORTER, G. J. M. A. 1977. Index of plant pathogens and the diseases they cause in cultivated plants in South Africa. Republic of South Africa. Department of Agricultural Technical Services, Science Bulletin No. 398.

GORTER, G. J. M. A. & EICKER, A. 1985. New South African records of Erysiphaceae from the Transvaal. II. *South African Journal of Botany* 51: 339–343.

MILNE, K. L. & HUDSON, H. J. 1987. Artificial infection of leaves of the London Plane by ascospores and conidia of *Apiognomonia veneta*. *Transactions of the British Mycological Society* 88: 399–401.

NEELY, D. 1976. Sycamore anthracnose. *Journal of Arboriculture* 2: 153–157.

NEELY, D. & HIMELICK, E. B. 1963. Temperature and sycamore anthracnose severity. *Plant Disease Reporter* 47: 171–175.

NEELY, D. & HIMELICK, E. B. 1965. Nomenclature of the sycamore anthracnose fungus. *Mycologia* 57: 834–837.

NEELY, D. & HIMELICK, E. B. 1967. Characteristics and nomenclature of oak anthracnose fungi. *Phytopathology* 57: 1230–1236.

PHILIPS, D. H. & BURDEKIN, D. A. 1982. Diseases of forest and ornamental trees. Macmillan Press Ltd, London.