TWO NEW *OIDIUM* SPECIES FROM THE TRANSVAAL

In January 1985 an *Oidium* species was observed on leaves of *Dombeya rotundifolia* (Hochst.) Planch. in the garden of the Botanical Research Institute, Brummeria, Pretoria. The fungus was observed until leaf drop but no teleomorph was produced. The only previous report of an *Oidium* sp. occurring on a *Dombeya* sp. is from Natal in the Camperdown area of Pietermaritzburg, viz. on *D. cymosa* Harv. (Doidge 1950). However, this fungus was not described and, although the fungus on both *Dombeya* species is likely to be the same, this cannot be stated for certain. As no fresh material of the Natal fungus could be obtained it is absolutely necessary to have a detailed description of the Transvaal fungus available for future comparison. The fungus from *D. rotundifolia* is therefore, described here in detail.

A few months later at the same venue an *Oidium* species was observed on *Lannea discolor* (Sond.) Engl. at the end of its growing season. Quite a number of powdery mildew fungi have been observed on Anacardiaceae, the plant family to which *Lannea* spp. belong. Apart from two *Phyllactinia* spp., one *Uncinula* sp., a *Sphaerotheca* sp., two *Erysiphe* spp. and one *Macrosphaera* sp. which have been recorded (Hirata 1966), two *Oidium* spp. have been described, viz. *O. anacardii* Noack (1898) and *O. mangiferae* Berthet (1914).

Identity of our *Oidium* species with *Sphaerotheca macularis* (Wallr. ex Fries) Magnus and *Erysiphe cichoracearum* DC. can be excluded immediately on account of the solitary production of conidia in the *Lannea* fungus, while *Phyllactinia* spp. do not have an *Oidium* stage. Moreover, no imperfect stage has apparently been observed for *Uncinula verniciferae* P. Henn. (Salmon 1905). Identity with *Microsphaera alni* (Wallr.) Winter, *Erysiphe communis* (Wallr.) Link and *Oidium mangiferae* must also be excluded on account of the flexuous or bent foot cells of the conidiophores. This leaves *O. anacardii* which has conidia similar in size and shape to the *Lannea* fungus. However, its description by Noack (1898) does not mention whether the foot cells of the conidiophores are straight or flexuous. In addition the presence or absence and shape of appressoria and fibrosin bodies is also not recorded. This and the apparent absence of *Oidium anacardii* from the African continent, as well as the fact that the *Lannea* fungus occurs on a previously unrecorded host of powdery mildew, makes it desirable to describe this fungus as a new species.

Oidium dombeyae *Gorter & Eicker*, sp. nov.

Mycelium superficiale, albidum, effusum. *Hyphae* hyalinae, subflexuosae, aliquando geniculatae. Cellulae hypharum, 35–45 × 4–5 μm. *Appressoria* non lobata vel moderate lobata. *Conidiophora* cylindracea (70–)90–115(–130) × 7,5–10 μm, plerumque 2-septata. Cellulae basales rectae, comparate longae, (50–)65–90(–110) × 7,5–10 μm; cellulae sequentes breviores, (7,5–)12,5(–17,5) × 7,5–10 μm. *Conidia* ovoidea, solitaria, (22,5–)27,5–30(–35) × (15–)17,5(–20) μm. Corpuscula fibrosina conspicue desunt. Ratio longitudinis /latitudinis conidiorum circa 1,6. Tubi germinationis, apicales vel subapicales, plerumque perbreves, interdum autem longiores, 12,5–125 × 2,5–5,0 μm, saepe in appressorium non lobatum vel modice lobatum (7,5–15 × 5,0–7,5 μm) terminantes.

Habitat in foliis vivis *Dombeyae rotundifoliae* (Hochst.) Planch., Brummeria, Pretoria. Ianuarius 1985, PREM No. 47848.

Mycelium superficial, white, thinly spread. *Hyphae* hyaline, slightly flexuous, sometimes geniculate. Hyphal cells, 35–45 × 4–5 μm. *Appressoria* unlobed or moderately lobed. *Conidiophores* cylindrical, (70–)90–115(–130) × 7,5–10 μm, usually 2-septate. Foot cells straight, comparatively long, (50–)65–90(–110) × 7,5–10 μm, followed by one or more shorter cells (7,5–)12,5(–17,5) × 7,5–10 μm. *Conidia* singly produced, ovoid, (22,5–)27,5–30(–35) × (15–)17,5(–20) μm; length/width ratio ± 1,6. Germ tubes near end of conidia, apical or subapical, usually very short but sometimes longer, 12,5–125 × 5,0–7,5 μm, often ending in an unlobed or moderately lobed appressorium (7,5–15 × 5,0–7,5 μm).

On leaves of *Dombeya rotundifolia* (Hochst.) Planch., Pretoria Botanical Garden, Brummeria. January 1985, PREM No. 47848.

Oidium lanneae *Gorter & Eicker*, sp. nov.

Mycelium amphigenum, griseo-albidum, effusum vel densum. *Hyphae* plus minusvae rectae, aliquando flexuosae vel geniculatae, rectangulariter ramificatae saepe prope septum. Cellulae hypharum (37,5–)50–60(–70) × 5,0–6,2 μm. *Appressoria* moderate lobata vel multilobata, aliquando binatim opposita. *Conidiophora* numerosa, brevia, (1–)3(–4)-cellularia (30–)50–75(–110) × (7,5–)8,7–11,2 μm, saepe ab basi ad apicem leviter dilatescentia. Cellulae basales geniculatae, flexuosae vel curvatae, raro rectae, (25–)35–55(–90) × 7,5–10 μm. *Conidia* solitaria, ellipsoidea vel oblonga, utrinque obtuse rotundata, (25–)30–35(–40) × (13,7–)15–17,5(–20) μm. Ratio longitudinis/latitudinis conidiorum circa 2. Corpuscula fibrosina conspicue desunt. Tubi germinationis prope apicem orientes, interdum apicales, circa recti, 50–75 × 3–4 μm, saepe in appressorium non lobatum vel modice lobatum 5,0–7,5 μm latum terminantes. Aliquando tubi perbreves remanentes ac in appressorium multilobatum terminantes.

Habitat in foliis vivis *Lanneae discoloris* (Sond.) Engl., Brummeria, Pretoria. Maius 1985, PREM Nos. 47877, 47974.

Mycelium amphigenous, greyish white, effuse to dense. *Hyphae* more or less straight, occasionally flexuous or geniculate, branching at right angles often near a septum. Hyphal cells (37,5–)50–60(–70) × 5–6,2 μm. *Appressoria* moderately lobed or multilobed, sometimes opposite in pairs. *Conidiophores* numerous, short, (1–)3(–4)-celled, (30–)50–75(–110) × (7,5–)8,7–11,2 μm, often slightly widening from base to top. Foot cells geniculate, flexuous or bent, seldom straight, (25–)35–55(–90) × 7,5–10 μm. *Conidia* singly produced, ellipsoid to oblong, obtusely rounded at both ends, (25–)30–35(–40) × (13,7)15–17,5(–20) μm; length/width ratio ± 2. No well developed fibrosin bodies are present. Germ tubes originate near end of conidia, usually apically, nearly straight, 50–75 × 3–4 μm, often ending in an unlobed or moderately lobed appressorium, 5,0–7,5 μm wide; tubes sometimes remain very short, ending in a multilobed appressorium.

On leaves of *Lannea discolor* (Sond.) Engl., Pretoria Botanical Garden, Brummeria. May 1985. PREM Nos. 47877,47974.

Although referring and describing imperfect forms of ectophytic powdery mildews to the form genus *Oidium* does not find favour with some mycologists it is a necessary procedure in tropical and subtropical regions of the world where the teleomorph of many mildew fungi is seldom produced (Doidge 1915; Hansford 1946) and where powdery mildews in most cases can only be identified on the basis of anamorphic characters (Clare 1964; Boesewinkel 1977; Hammett 1977).

ACKNOWLEDGEMENTS

Financial support from the Department of Agriculture and Water Supply and the University of Pretoria is gratefully acknowledged.

REFERENCES

BERTHET, J. A. 1914. Molestia da mangueira. *Boletim de agricultura. São Paulo* 15: 818–819.

BOESEWINKEL, H. J. 1977. Identification of Erysiphaceae by conidial characters. *Revue de mycologie* 41: 493–507.

CLARE, B. G. 1964. Erysiphaceae of south-eastern Queensland. *Papers from the Department of Botany, University of Queensland* 4, 10–11: 111–114.

DOIDGE, ETHEL M. 1915. Some notes on the South African Erysiphaceae. *Transactions of the Royal Society of South Africa* 5: 237–245.

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

HAMMETT, K. R. W. 1977. Taxonomy of Erysiphaceae in New Zealand. *New Zealand Journal of Botany* 15: 687–711.

HANSFORD, C. G. 1946. The foliicolous ascomycetes, their parasites and associated fungi. *Mycological Papers* 15: 1–240.

HIRATA, K. 1966. *Host range and geographical distribution of the powdery mildews*. Mimeographed edn. Faculty of Agriculture, Niigata University, Niigata.

NOACK, F. 1898. Congumelos parasitas das plantas di pomar, horta e jardim. *Boletim do Instituto agronomico do Estado de São Paulo* 9: 75–88.

SALMON, E.S. 1905. The Erysiphaceae of Japan, II. *Annales mycologici* 3: 241–256.

G. J. M. A. GORTER* AND A. EICKER*

* Botany Department, University of Pretoria, Pretoria 0002.