
Phaeophleospora faureae* comb. nov. associated with leaf spots on *Faurea saligna* (Proteaceae), with a key to the species of *Phaeophleospora

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During studies of the fungal pathogens occurring on *Proteaceae* in South Africa, the type specimen of *Stilbospora faureae* was examined. This fungus was found to be a species of *Phaeophleospora*, and is transferred to this genus in the present paper. A key to the species in *Phaeophleospora* is also given.

Key words: pathogen, *Phaeophleospora*, *Proteaceae*, *Stilbospora*

Introduction

Phaeophleospora was considered to be a *nomen dubium* (Sutton, 1977), until Crous *et al.* (1997) resurrected it as an earlier name for the coelomycete genus *Kirramyces* J. Walker, B. Sutton and I. Pascoe. There are currently 11 species in *Phaeophleospora* (Walker *et al.*, 1992; Sutton, 1993; Palm, 1996; Wingfield *et al.*, 1996; Wu *et al.*, 1996; Crous *et al.*, 1997; Crous, 1998; Crous and Palm, 1999) and three of these occur on *Proteaceae* hosts.

Phaeophleospora is associated with leaf spots and is characterised by sub-epidermal, dark-walled pycnidia, which become open and cup-shaped at maturity (Crous *et al.*, 1997). Under conditions of high humidity, these conidiomata exude masses of conidia in a long, brown to black cirrus (Crous *et al.*, 1997). The conidia are brown, euseptate, subcylindrical to obclavate, verruculose to almost smooth, thick walled and one to multiseptate (Crous *et al.*, 1997). Conidia are formed on brown, verruculose, doliiform to cylindrical or ampuliform, pecurrently proliferating conidiogenous cells (Crous *et al.*, 1997). *Phaeophleospora* species are anamorphs of *Mycosphaerella* (Crous, 1998).

During studies of the fungal pathogens of *Proteaceae* in South Africa, the type specimen of *Stilbospora faureae* Syd. and P. Syd., was examined and

found to be representative of a species of *Phaeophleospora*. In the present paper *S. faureae* is disposed to *Phaeophleospora*, as *P. faureae* comb. nov.

Taxonomy

Phaeophleospora faureae (Syd. and P. Syd.) J.E. Taylor and Crous, **comb. nov.** (Figs. 1-10)

≡ *Stilbospora faureae* Syd. and P. Syd., *Annales Mycologici* 10: 443 (1910).

Leaf spots indistinguishable on type specimen. *Mycelium* internal, forming a stroma surrounding the conidiomata, consisting of host cells and branched, septate, hyaline, smooth fungal hyphae (3-5 µm diam.), only occurring in spongy mesophyll cells in the lower surface (Fig. 3). *Conidiomata* pycnidial, hypophyllous, singular and scattered, or aggregated, black, immersed raising host surface and becoming erumpent, adjacent host tissue sometimes paler, exuding a brown to black cirrus of conidia which collapses on the leaf surface when wet, 180-700 µm diam. (Figs. 1-2); in section globose to irregular, unilocular, or appearing multilocular, subepidermal, non-papillate, with an ostiolar pore, (155-)175-220(-255) µm high × (115-)135-225(-330) µm diam. (Fig. 3). *Peridium* consisting of 1-2 layers of pale brown cells arranged in a *textura angularis*, becoming hyaline outwardly and difficult to distinguish from stroma, (6-)8.5-16(-20) µm diam. (Fig. 3). *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* discrete, ampulliform or doliiform to subcylindrical, medium brown, verruculose, with 1-6 irregular, enteroblastic, percurrent proliferations, (6-)7.5-8.5(-10) × (3.5-)4.5-5(-8) µm (Figs. 4-6). *Conidia* solitary, cylindrical, narrowing slightly to a truncate base with a slight marginal frill, straight or curved to flexuous, apex rounded, medium red-brown, verruculose, not prominently guttulate, (1-)3(-5)-septate, (13-)18.5-20.5(-26) × (4-)5-5.5(-6) µm (Figs. 7-10).

Teleomorph: Unknown.

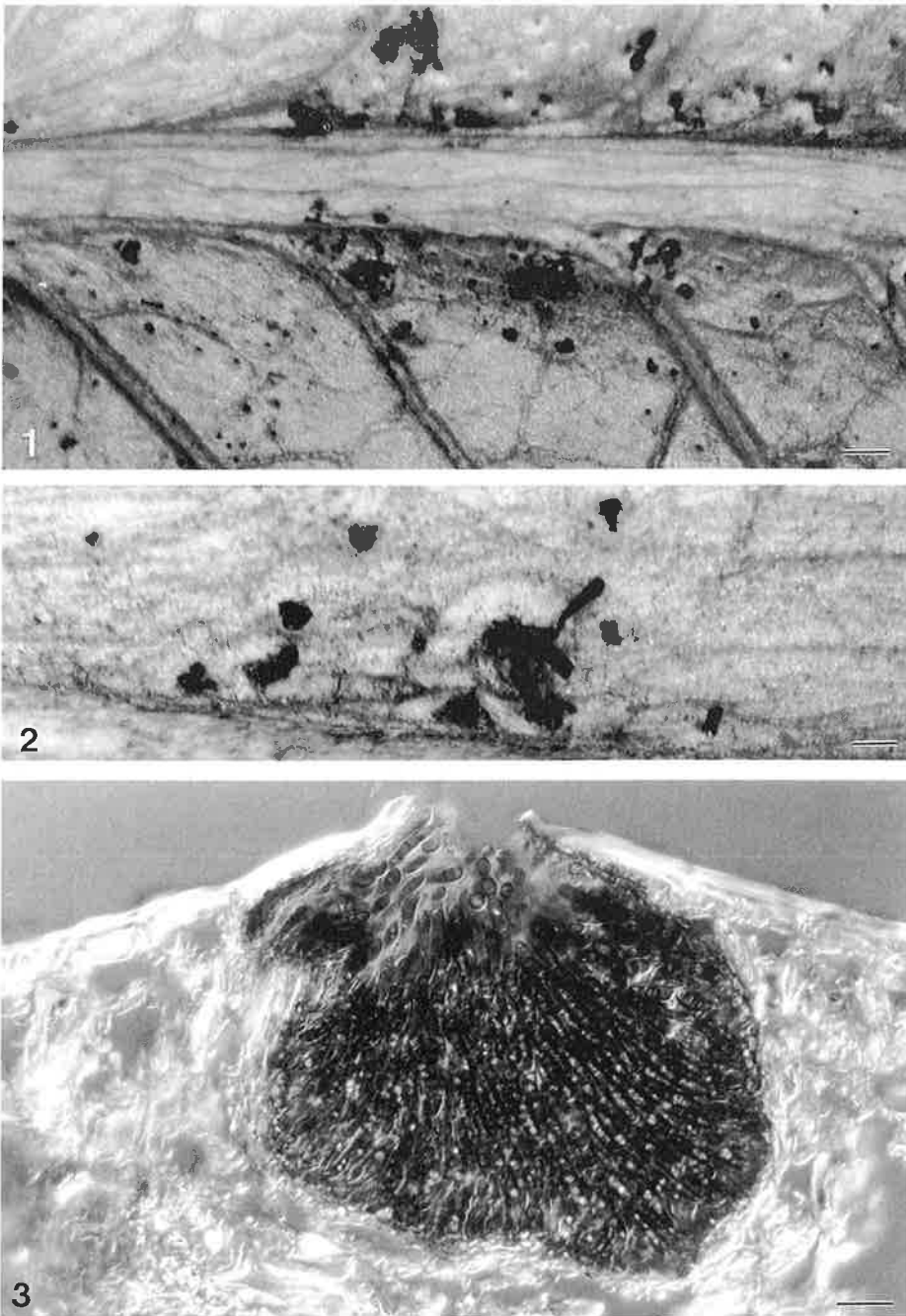
Host: *Faurea saligna* Harv. (*Proteaceae*).

Known distribution: South Africa.

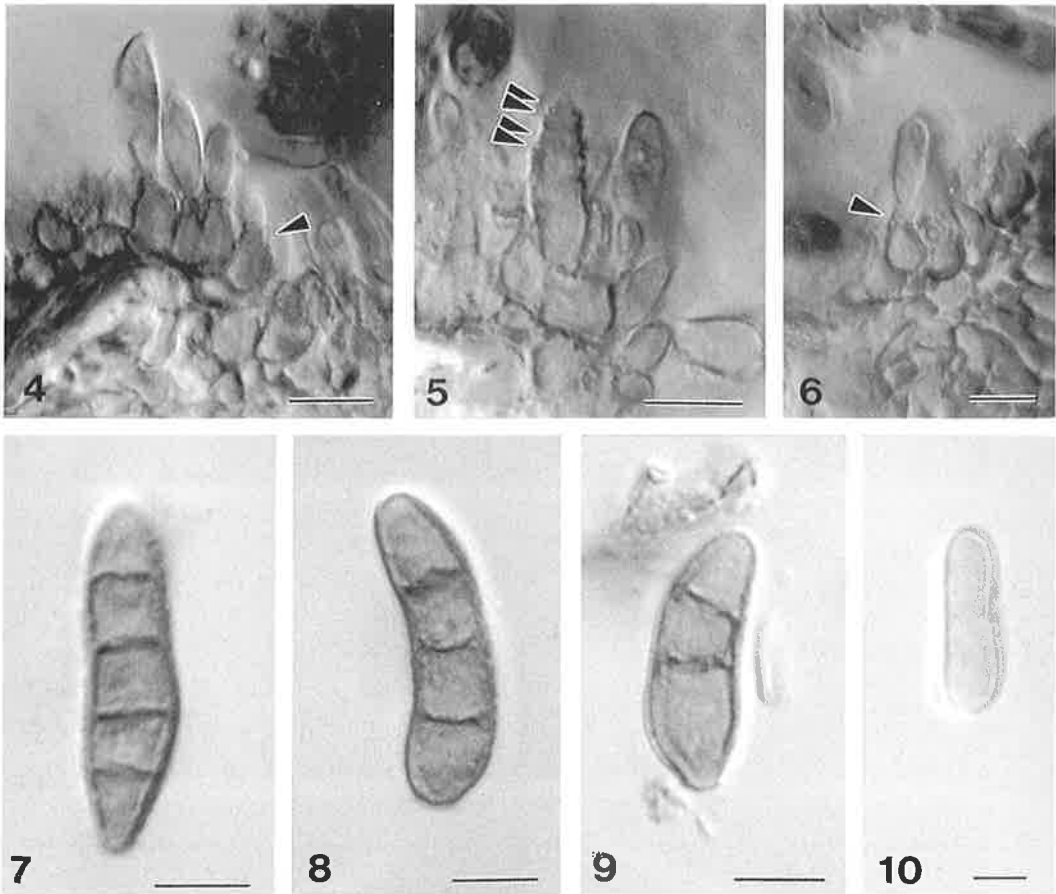
Material examined: SOUTH AFRICA, Mpumalanga, Barberton, on a living leaf of *Faurea saligna*, Sep. 1912, P.A. Van der Byl (PREM 1872, holotype); *ibid.*, 22 Aug. 1912 (PREM 5139); *ibid.*, 25 Oct. 1912 (PREM 5621).

Phaeophleospora faureae represents a typical species of *Phaeophleospora* and it has been compared to all of the other species described in this genus (Walker *et al.*, 1992; Sutton, 1993; Palm, 1996; Wingfield *et al.*, 1996; Wu *et al.*, 1996; Crous *et al.*, 1997; Crous, 1998; Crous and Palm, 1999). It does not correspond to any previously described species.

Phaeophleospora congestum (Syd.) Crous and M.E. Palm, most closely resembles *P. faureae* in the dimensions of its conidia ((12-22(-25) × 3-4(-4.5)



Figs. 1-3. *Phaeophleospora faureae* (from holotype PREM 1872). **1, 2.** Conidiomata on leaf surface. Note brown to black cirri. **3.** Vertical section through a conidioma. Bars: 1 = 400 μm , 2 = 100 μm , 3 = 20 μm .



Figs. 4-10. *Phaeophleospora faureae* (from holotype PREM 1872). 4-6. Conidiogenous cells. Note the annellations (arrowed). 7-10. Conidia. Bars: 4-6 = 10 μ m, 7-10 = 5 μ m.

μ m) and conidiogenous cells (5-10 \times 3-6 μ m), and in the number of percurrent proliferations (1-5). The conidia of *P. congestum* however, are predominantly 1-septate, while those of *P. faureae* are predominantly 3-septate. Another species associated with a *Proteaceae* host, *P. abyssinicae* (Ciccar.) Crous and M.E. Palm, also has predominantly 3-septate conidia, which overlap in dimensions, (17-)22-32(-38) \times (2.5-)3-3.5 μ m, with those of *P. faureae*. The conidia however, are pale brown and conidiogenous cells are smaller (2.5-3.5 \times 2-3 μ m). *Phaeophleospora delegatensis* (R.F. Park and Keane) Crous also has overlapping conidial dimensions (21-51 \times 3-5 μ m), but the conidia are hyaline to olivaceous and smooth.

Another feature, which differentiates *P. faureae* from other species of *Phaeophleospora*, is the extensive stroma, consisting of hyaline hyphae and

hosts cells, in which the conidiomata are embedded.

Key to Phaeophleospora species

- 1. Conidia predominantly 1-septate2
- 1. Conidia predominantly multiseptate4

- 2. Conidia hyaline to olivaceous, 21-51 × 3-5 µm, 1-septate.....*P. delegatensis*
- 2. Conidia brown, 1(-3)-septate.....3

- 3. Conidia up to 25 µm long, medium brown *P. congestum*
- 3. Conidia more than 25 µm long, pale brown.....*P. eucalypti*

- 4. Conidia up to 3-septate.....5
- 4. Conidia more than 3-septate.....7

- 5. Conidia medium brown, up to 42 µm long *P. hebes*
- 5. Conidia pale brown6

- 6. Conidia (17-)22-32(-38) µm long*P. abyssinicae*
- 6. Conidia (30-)50-65(-70) µm long *P. destructans*

- 7. Conidia up to 7-septate.....8
- 7. Conidia more than 7-septate.....*P. eugeniae*

- 8. Conidia up to 4 µm wide, mainly 3-4-septate*P. phormii*
- 8. Conidia more than 4 µm wide9

- 9. Conidia up to 26 µm long, (1-)3(-5)-septate *P. faureae*
- 9. Conidia greater than 26 µm long.....10

- 10. Conidia up to 4-septate..... *P. lilaniae*
- 10. Conidia predominantly more than 4-septate11

- 11. Conidia up to 50 µm long, up to 7 µm wide*P. protearum*
- 11. Conidia up to 65 µm long, up to 5 µm wide*P. epiccooides*

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