**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.**


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)
μm) and conidiogenous cells (5-10 × 3-6 μm), 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) × (2.5-)3-3.5 μm, with those of *P. faureae*. The conidia however, are pale brown and conidiogenous cells are smaller (2.5-3.5 × 2-3 μm). *Phaeophleospora delegatensis* (R.F. Park and Keane) Crous also has overlapping condial dimensions (21-51 × 3-5 μm), 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
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hosts cells, in which the conidiomata are embedded.

**Key to Phaeophleospora species**

1. Conidia predominantly 1-septate ................................................................. 2
1. Conidia predominantly multiseptate .............................................................. 4

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 brown ......................................................................................... 6

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 ........................................................................... 9

8. Conidia up to 4 μm wide, mainly 3-4-septate .............................................. *P. phormii*
8. Conidia more than 4 μm wide ....................................................................... 9

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 ............................................................................... 11
10. Conidia predominantly more than 4-septate ............................................. 11

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. epicccoides*

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**References**


Wu, W., Sutton, B.C. and Gange, A.C. (1996). Revision of *Septoria* species on *Hebe* and *Veronica* and description of *Kirramyces hebes* sp. nov. Mycological Research 100: 1207-1217.