

New combinations and synonymies in the Australian Graphidaceae

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Abstract

Species of the Australian Graphidaceae have been re-allocated to the genera proposed in a recent revision of the family. Forty-one new combinations are made, a new name, *Graphis elixiana*, is published, and the following synonymies are proposed: *Diorygma erythrellum* replaces *Graphina atramontana*; *Graphis leucoparypha* replaces *G. turgidula* var. *norstictica*; *Hemithecium chlorocarpoides* replaces *Graphina repleta* var. *monospora*; *Hemithecium chrysenteron* replaces *Graphina repleta*; *Leiorreuma hypomelaenum* replaces *Phaeographis necopinata*; *Phaeographis lindigiana* replaces *Phaeographis pseudomelana*, and *Platygramme pudica* replaces *Phaeographina echinocarpica*. Keys to the genera and species in Australia are given.

Introduction

The lichen family Graphidaceae has recently been rearranged, with new genera described, some older genera resurrected and existing genera revised (Staiger & Kalb 1999; Staiger 2002; Kalb, Staiger & Elix 2004). This re-arrangement necessitates a number of name changes, new combinations and new synonymies in the Australian Graphidaceae which are listed below, together with keys to the taxa in each genus.

As a result of this revision, the following genera are now known from Australia:

Acanthothecis Clem., *Carbacanthographis* Staiger & Kalb (new), *Diorygma* Eschw., *Dyplolabia* A. Massal., *Fissurina* Fée, *Glyphis* Ach., *Graphis* Adans. (revised), *Hemithecium* Trevis., *Leiorreuma* Eschw., *Phaeographis* Müll. Arg. (revised), *Platygramme* Fée, *Platythecium* Staiger (new), *Sarcographa* Fée, *Sarcographina* Müll. Arg., *Thalloloma* Trevis., *Thecaria* Fée. The genus *Phaeographina* Müll. Arg. has also been revised but there are now no Australian taxa in the revised genus.

The genus *Gymnographa* Müll. Arg. is rejected as it is based on an old specimen of *Phaeographis eludens* (Stirt.) Shirley with degenerate ascospores; consequently the genus *Sarcographina* Müll. Arg., which had been reduced to synonymy with *Gymnographa*, is retained.

Many specimens, including a large number of type specimens, were examined in detail, some for the first time, in the course of this revision of the Graphidaceae (Staiger 2002); the majority were from one collector and biased in favour of South

American material but few Australian specimens were examined. Consequently, the circumscription of the genera fits the specimens examined and some of the combinations made below must be regarded as tentative until the revised genera are better defined.

New synonymies and new reports

In addition to the synonymies recently described (Archer 2004, 2005), the following synonyms are reported.

Graphina atramontana A.W. Archer is morphologically indistinguishable from *Diorygma erythrellum* (Mont.) Kalb, Staiger & Elix and the two species are considered to be synonymous.

Graphina pertenella (Stirt.) Shirley and *Graphina laevigata* (Müll. Arg.) A.W. Archer possess the same chemistry and similar ascospores and differ only in the degree to which the lirellae are open. The two species are considered to be synonymous and are here combined under the earlier name and transferred to the genus *Platythecium* as *P. pertenellum*.

The ascospores in *Graphina repleta* (Stirt.) Shirley are usually hyaline, with some gradually becoming pale brown, but all give a red-brown colour with iodine, in contrast to the hyaline ascospores present in other *Graphina* species which usually give a blue or blue-violet colour. Stirton reported the ascospores to react brownish blue "sporae caeruleo-infusatae" (Stirton 1881). This colour reaction of the ascospores with iodine, the pale reddish-brown exciple and the presence of stictic acid are identical to those of *Hemithecium chrysenteron* (Mont.) Trevis.; the two species are here reduced to synonymy. Similarly, *Graphina repleta* var. *monospora* A.W. Archer, with larger ascospores, is identical with *Hemithecium chlorocarpoides* (Nyl.) Staiger, a species originally described from Java and recently reported from Australia (Staiger 2002). The two *Hemithecium* species differ only in the size of the ascospores and may be synonymous (Staiger *op. cit.*).

Phaeographina echinocarpica A.W. Archer & Elix is a later name for *Platygramme pudica* (Mont. & Bosch) M. Nakan. & Kashiw (Nakanishi et al. 2003). The chemistry of the latter species was originally reported as 'an unknown substance' (Nakanishi 1977) but the compound was recently identified as echinocarpic acid (Nakanishi et al. 2003) so *P. pudica* is identical to *P. echinocarpica*.

The morphology and chemistry of *Phaeographis necopinata* A.W. Archer & Elix are identical to those of *Leiorreuma hypomelaenum* (Müll. Arg.) Staiger, recently reported from Australia. Both contain the uncommon hypostictic acid as the major lichen compound.

Phaeographis pseudomelana Müll. Arg. is indistinguishable from *Phaeographis lindigiana* Müll. Arg., recently reported from Australia.

In addition, the following species in the Graphidaceae have recently been reported from Australia:

Phaeographis brasiliensis (A.Massal.) Kalb & Matthes-Leicht, *P. hypomelaena* Müll. Arg., *P. lindigiana* Müll. Arg., *P. lobata* (Eschw.) Müll. Arg. and *P. platycarpa* Müll. Arg.

(Kalb 2001) and *Hemithecium chlorocarpoides* (Nyl.) Staiger [*Phaeographina chlorocarpoides* (Nyl.) Zahlbr.] (Staiger 2002).

The key to the genera is adapted from Staiger (*op. cit.*, pp. 62–67) with genera not found in Australia omitted. Detailed descriptions of the genera are also given in Staiger (*op. cit.*).

Key to genera of Graphidaceae in Australia

- 1a. Exciple with distinctly carbonised areas 2
- 1b. Exciple uncarbonised with, at the most, small brownish areas 15
- 2a. Mature ascospores hyaline, I+ blue or blue-violet, or I-ve 3
- 2b. Mature ascospores brown or brownish, I+ red, red-brown or red-violet 9
- 3a. Lirellae with white powdery cover containing lecanoric acid (C+ red) *Dyplolabia*
- 3b. Lirellae lacking a white powdery cover, or, if present, lacking lecanoric acid (C-ve) 4
- 4a. Hymenia in well-developed carbonised stromata; discs open, brownish granular *Glyphis*
- 4b. Hymenia not in well-developed carbonised stromata; discs closed or, if open, not brownish granular 5
- 5a. Labia or exciple divergent; discs visible in surface view 6
- 5b. Labia or exciple convergent; discs completely covered by the labia 7
- 6a. Carbonisation restricted to the base of the exciple, lateral exciple poorly developed; ascospores 20 µm long; testacein A and/or B present *Platythecium*
- 6b. Lateral exciple and labia well-developed; ascospores > 20 µm long; lichen compounds absent *Glyphis* sub. gen. *Pallidoglyphis*
- 7a. Labia carbonised, often completely, and convergent, with a thalline cover or a white pruinose layer; ascospores I- or I+ weak violet *Carbacanthographis*
- 7b. Carbonised layer lacking a white pruinose layer; ascospores I+ blue-violet 8
- 8a. Lirellae fissurine, apically or laterally carbonised; ascospores ovoid-ellipsoid, 4-locular or muriform, with or without halo *Fissurina*
- 8b. Lirellae not fissurine; labia distinctly developed and carbonised or, if fissurine, ascospores not ovoid but elongate and lacking halo *Graphis*
- 9a. Carbonised exciple and excipular labia usually well-developed 10
- 9b. Carbonised exciple lacking thalline cover *Phaeographina*
- 10a. Hypothecium becoming carbonised with age, giving a thick carbonised base 11
- 10b. Hypothecium not becoming carbonised with age but base may be carbonised 14
- 11a. Lirellae embedded in stromata [raised, paler, whitish areas] 12
- 11b. Lirellae not embedded in stromata but may be crowded or branched 13
- 12a. Ascospores septate with lenticular locules *Sarcographa*
- 12b. Ascospores muriform *Sarcographina*
- 13a. Proper margin and lateral exciple well-developed, discs open, ± sunken, red or white pruinose [ascospores in known species muriform] *Thecaria*
- 13b. Proper margin and lateral exciple poorly developed or, if well-developed upper part not covered by thalline layer; discs not sunken, brown to black, epruinose or weakly pruinose [ascospores in known species transversely septate] *Leiorreuma*

- 14a. Proper margins well-developed, convergent, apices wedge-shaped and carbonised, or laterally carbonised; disc sunken and white- or greyish white pruinose; ascocarps large and prominent *Platygramme*
- 14b. Proper margins poorly developed and weakly carbonised, \pm brown, divergent or well-developed but discs not concealed and not pruinose *Phaeographis* p.p.
- 15a. Ascospores brown 16
- 15b. Ascospores hyaline 18
- 16a. Labia well-developed, convergent, sulcate, disc not visible [stictic acid] *Hemithecium* p.p.
- 16b. Labia poorly developed, no sulcate, not convergent; discs \pm open but narrow or margins well-developed and slightly striate; discs visible and distinctly open 17
- 17a. Ascospores ovoid, $< 20 \mu\text{m}$ long, $4 \times 1-2$ -locular, discs open, brownish black, epruinose *Platythecium* p.p.
- 17b. Ascospores elongate, $> 20 \mu\text{m}$ long, $> 4 \times 1-2$ -locular; if ascospores ovoid, then discs not brownish black and epruinose *Phaeographis* p.p.
- 18a. Paraphysis tips warty 19
- 18b. Paraphysis tips not warty 20
- 19a. Ascospores ovoid or globose, \pm halonate; lirellae fissurine; exciples and margins poorly developed *Fissurina* p.p.
- 19b. Ascospores elongate; lirellae not fissurine *Acanthothecis*
- 20a. Labia well-developed, crenate, convergent; disc slit-like, not visible, completely concealed by margins; apothecia raised from thallus 21
- 20b. Labia poorly developed or not distinctly convergent, with discs \pm open; apothecia usually not raised from thallus 22
- 21a. Ascospores ovoid, 4 -locular or muriform \pm halonate *Fissurina* p.p.
- 21b. Ascospores lacking halo, I+ blue-violet, $> 25 \mu\text{m}$ long, > 6 -locular; labia often distinctly crenate *Hemithecium* p.p.
- 22a. Apothecia fissurine; thalline margins project over disc; ascospores ovoid \pm halonate, I+ weak blue or I -ve, rarely I+ blue violet *Fissurina* p.p.
- 22b. Apothecia otherwise; ascospores distinctly I+ blue or blue violet 23
- 23a. Ascospores small, $< 20 \mu\text{m}$ long, $4-5 \times 1-2$ -locular *Platythecium*
- 23b. Ascospores larger, $> 20 \mu\text{m}$ long 24
- 24a. Discs open, sometimes \pm narrow, brown or reddish; paraphysis tips brown, granular nor stictic and stictic acids absent *Thallolema*
- 24b. Discs open, distinctly white pruinose; norstictic or stictic acids may be present *Diorygma*

Keys to species of Graphidaceae in Australia

Acanthothecis

- 1a. Thallus saxicolous; ascospores $19-22 \mu\text{m}$ long, 4-locular [in Australian specimen] *A. silicicola*
- 1b. Thallus corticolous; ascospores muriform 2
- 2a. Ascospores $20-30 \mu\text{m}$ long; norstictic acid present *A. subaggregans*
- 2b. Ascospores $14-24 \mu\text{m}$ long; stictic acid present *A. gyridia*

Carbacanthographis

- 1a. Exciple laterally carbonised; ascospores 12–17 µm long, 4–5 × 2 -locular *C. marcescens*

 1b. Exciple completely carbonised; ascospores 19–23 µm long, 8 × 1–2 -locular
 *C. salazinica*

Diorygma

- 1a. Ascospores septate with lenticular locules; norstictic acid only present 2
 1b. Ascospores muriform; norstictic acid and/or other depsides present 3
 2a. Ascospores 60–90 µm long *D. circumfusum*
 2b. Ascospores 45–55 µm long *D. wilsonianum*
 3a. Ascospores < 80 µm long 4
 3b. Ascospores ≥ 80 µm 5
 4a. Ascospores 30–65 µm long *D. erythrellum*
 4b. Ascospores 18–23 µm long *D. nothofagum*
 5a. Stictic acid present; ascospores 95–150 µm long *D. hieroglyphicum*
 5b. Norstictic or protocetraric acid present 6
 6a. Norstictic acid only present; ascospores 80–105 µm long *D. junghuhnii*
 6b. Protocetraric acid ± norstictic acid present 7
 7a. Protocetraric acid only present; ascospores 95–150 µm long *D. pruinorum*
 7b. Protocetraric and norstictic acid present; ascospores 120–150 µm long
 *D. rufopruinosum*

Fissurina

- 1a. Thallus saxicolous 2
 1b. Thallus corticolous 3
 2a. Ascospores 14–16 µm long, 4 -locular; psoromic acid absent *F. howeana*
 2b. Ascospores 16–20 µm long, 4 × 2 -locular; psoromic acid present *F. streimannii*
 3a. Ascospores muriform, 4–6 × 1–3 -locular 4
 3b. Ascospores 4 -locular 6
 4a. Lichen compounds absent; ascospores 21–28 µm long, 4–5 × 2 -locular *F. elaiocarpa*
 4b. Lichen compounds present 5
 5a. Ascospores 28–35 µm long; stictic acid present *F. abdita*
 5b. Ascospores 8–14 µm long; 2-methoxypsoromic acid present *F. globulifica*
 6a. 2-Methoxypsoromic acid present 7
 6b. Lichen compounds absent 8
 7a. Proper exciple laterally carbonised; ascospores 16–20 µm long *F. elixii*
 7b. Proper exciple uncarbonised; ascospores 16–26 µm long *F. paradoxica*
 8a. Lirellae inconspicuous, visible only as a slit 9
 8b. Lirellae conspicuous, raised; ascospores 15–22 µm long *F. insidiosa*
 9a. Proper exciple laterally carbonised; ascospores 10–11 µm long *F. albonitens*
 9b. Proper exciple uncarbonised 10

- 10a. Lirellae (slit) with thin black margin; ascospores 18–22 μm long
 *F. nigririmis* var. *deficiens*
 10b. Lirellae lacking black margins; ascospores 11–20 μm long *F. dumastii*

Glyphis

- 1a. Ascospores septate with lenticular locules, 30–60 μm long, 8–13 -locular .. *G. cicatricosa*
 1b. Ascospores muriform 2
 2a. Lirellae raised from the thallus; ascospores 30–45 μm long, 8–10 \times 2–4 -locular
 *G. scyhpuliferum*
 2b. Lirellae not raised from thallus; ascospores 40–50 μm long, 12–14 \times 2–5 -locular
 *G. montoensis*

Graphis

- 1a. Ascospores septate with lenticular locules 2
 1b. Ascospores muriform 38
 2a. Lirellae immersed 3
 2b. Lirellae not immersed 9
 3a. Proper exciple completely carbonised 4
 3b. Proper exciple laterally or apically carbonised 6
 4a. Norstictic acid present; ascospores 30–44 μm long, 8–12 -locular *G. inamoena*
 4b. Lichen compounds absent 5
 5a. Ascospores 20–25 μm long *G. immersicans*
 5b. Ascospores 55–65 μm long, 13–16 -locular *G. propinqua*
 6a. Proper exciple apically carbonised; lichen compounds absent; ascospores 38–55 μm long,
 9–12 -locular *G. sayeri*
 6b. Proper exciple laterally carbonised; lichen compounds present 7
 7a. Lichexanthone and norstictic acid present; ascospores 15–20 μm long, 5–6 -locular
 *G. stipitata*
 7b. Stictic acid present 8
 8a. Ascospores 50–65 μm long, 10–15 -locular *G. crassilabra*
 8b. Ascospores 24–35 μm long, 8–11 -locular *G. immersella*
 9a. Lirellae open; norstictic acid present 10
 9b. Lirellae closed; lichen compounds present or absent 12
 10a. Proper exciple completely carbonised; ascospores 20–34 μm long, 6–8 -locular.....
 *G. semiaperta*
 10b. Proper exciple laterally carbonised 11
 11a. Ascospores 28–40 μm long, 8–11 -locular *G. apertella*
 11b. Ascospores 45–60 μm long, 10–16 -locular *G. streimannii*
 12a. Lirellae sulcate 13
 12b. Lirellae not sulcate 19
 13a. Norstictic acid present; proper exciple laterally carbonised; ascospores 60–72 μm long,
 10–14 -locular *G. elegans*
 13b. Norstictic acid absent 14

14a.	Lichen compounds absent	15
14b.	Stictic acid present	18
15a.	Proper exciple completely carbonised; ascospores 40–55 µm long, 8–13 -locular	<i>G. rimulosa</i>
15b.	Proper exciple laterally carbonised	16
16a.	Ascospores 36–50 µm long, 9–14 -locular	<i>G. leptoclada</i>
16b.	Ascospores ≤ 35 µm long	17
17a.	Lirellae large, conspicuous, predominantly simple, terminally rounded; ascospores 23–35 µm long, 6–8 -locular	<i>G. endoxantha</i>
17b.	Lirellae small, inconspicuous, branched, terminally acute; ascospores 21–34 µm long 8–10 -locular	<i>G. subtenella</i>
18a.	Proper exciple laterally carbonised; ascospores 26–40 µm long, 7–10 -locular	<i>G. stenotera</i>
18b.	Proper exciple apically carbonised; ascospores 40–55 µm long, 10–16 -locular	<i>G. treubii</i>
19a.	Lichen compounds absent	20
19b.	Lichen compounds present	28
20a.	Proper exciple completely carbonised	21
20b.	Proper exciple apically or laterally carbonised	23
21a.	Lirellae weakly sulcate; ascospores 62–80 µm long, 13–16 -locular	<i>G. longula</i>
21b.	Lirellae smooth	22
22a.	Ascospores 28–42 µm long, 8–11 -locular	<i>G. anfractuosa</i>
22b.	Ascospores 50–65 µm long, 12–15 -locular	<i>G. catherinae</i>
23a.	Proper exciple apically carbonised	24
23b.	Proper exciple laterally carbonised	25
24a.	Lirellae inconspicuous; ascospores 40–60 µm long, 10–12 -locular	<i>G. epimelaena</i>
24b.	Lirellae conspicuous; ascospores 30–40 µm long, 8–10 -locular	<i>G. xanthospora</i>
25a.	Ascospores ≥ 50 µm long	26
25b.	Ascospores < 50 µm long	27
26a.	Lirellae 1–3 mm long; ascospores 54–70 µm long, 12–16 -locular	<i>G. stenospora</i> var. <i>deficiens</i>
26b.	Lirellae short, simple, < 1 mm long; ascospores 50–60 µm long, 12–14 -locular	<i>G. subregularis</i>
27a.	Ascospores 20–30 µm long, 6–8 -locular	<i>G. tenella</i> (auct.)
27b.	Ascospores 30–41 µm long, 10–12 -locular	<i>G. albissima</i>
28a.	Norstictic acid present	29
28b.	Stictic or protocetraric acid present	35
29a.	Proper exciple completely, or almost completely, carbonised	30
29b.	Proper exciple laterally carbonised; ascospores 40–50 µm long, 10–14 -locular	<i>G. vinosa</i>
30a.	Lirellae much-branched; ascospores 15–26 µm long, 6–8 -locular	<i>G. intricata</i>
30b.	Lirellae simple or little branched	31

31a.	Lirellae completely lacking a thalline margin [cf. <i>Opegrapha</i>]; ascospores 30–40 μm long, 8–11 -locular	<i>G. emersa</i>
31b.	Lirellae with a thalline margin	32
32a.	Ascospores 55–85 μm long, 15–20 -locular	<i>G. leucoparypha</i>
32b.	Ascospores < 50 μm long	33
33a.	Lirellae 2–6 mm long; ascospores 25–35 μm long, 8–11 -locular	<i>G. kakaduensis</i>
33b.	Lirellae < 3 mm long	34
34a.	Proper exciple completely carbonised; ascospores 25–35 μm long, 6–9 -locular	<i>G. desquamescens</i>
34b.	Proper exciple completely, or almost completely carbonised; ascospores 15–30 μm long, 6–8 -locular	<i>G. librata</i>
35a.	Protocetraric acid present; proper exciple laterally carbonised; ascospores 25–32 μm long, 8–10 -locular	<i>G. supracola</i>
35b.	Stictic acid present	36
36a.	Proper exciple laterally carbonised; ascospores 24–33 μm long, 6 -locular	<i>G. leptocarpa</i>
36b.	Proper exciple completely carbonised	37
37a.	Ascospores 28–40 μm long, 8–11 -locular	<i>G. descissa</i>
37b.	Ascospores 66–84 μm long, 14–18 -locular	<i>G. rustica</i>
38a.	Thallus saxicolous	39
38b.	Thallus corticolous	40
39a.	Proper exciple laterally carbonised; ascospores 70–90 μm long; lichen compounds absent	<i>G. celata</i>
39b.	Proper exciple completely carbonised; ascospores 40–55 μm long; norstictic acid present	<i>G. saxicola</i>
40a.	Carbonised exciple concealed in thalline margin; norstictic or hirtiructic acid present	41
40b.	Carbonised exciple visible; lichen compounds present or absent	43
41a.	Exciple completely carbonised; ascospores terminally muriform only	42
41b.	Exciple laterally carbonised; ascospores 120–140 μm long, fully muriform;	<i>G. atrocelata</i>
42a.	Ascospores 85–105 μm long; norstictic acid present	<i>G. aquilonia</i>
42b.	Ascospores 102–130 μm long; hitifructic acid present	<i>G. elixiana</i>
43a.	Lirellae short and simple, 1–2 mm long	44
43b.	Lirellae > 2 mm long, simple or branched	46
44a.	Proper exciple completely carbonised; ascospores 95–150 μm long	45
44b.	Proper exciple laterally carbonised; ascospores 90–100 μm long; norstictic acid present	<i>G. hiascens</i>
45a.	Norstictic and protocetraric acids present; ascospores 115–150 μm long	<i>G. lumbschii</i>
45b.	Lichen compounds absent; ascospores 95–120 μm long	<i>G. lumbschii</i> var. <i>deficiens</i>
46a.	Lichen compounds present; proper exciple laterally carbonised	47
46b.	Lichen compounds absent; proper exciple laterally or completely carbonised	51
47a.	Norstictic acid present	48
47b.	Stictic acid present	50

- 48a. Ascospores < 60 µm long 49
 48b. Ascospores 100–130 µm long *G. subserpentina*
- 49a. Lirellae immersed, visible as a thin black line; ascospores 37–50 µm long *G. borealis*
 49b. Lirellae conspicuous, black; ascospores 25–35 µm long *G. gracilescens*
- 50a. Ascospores 37–50 µm long *G. polyclades*
 50b. Ascospores 70–90 µm long *G. streblocarpa*
- 51a. Proper exciple completely carbonised; ascospores 100–145 µm long, terminally muriform only *G. vestitoides*
 51b. Proper exciple laterally carbonised 52
- 52a. Ascospores ≥ 35 µm long 53
 52b. Ascospores < 35 µm long 54
- 53a. Ascospores 60–80 µm long *G. daintriensis*
 53b. Ascospores 35–45 µm long *G. subvelata*
- 54a. Lirellae closed; ascospores 2-seriate, 19–23 µm long *G. tenuirima*
 54b. Lirellae open; ascospores 1-seriate, 20–28 µm long *G. dimidata*

Hemithecium

- 1a. Ascospores septate with lenticular locules, 2
 1b. Ascospores muriform 3
- 2a. Lirellae sessile; ascospores 80–95 µm long, 15–24 -locular *H. aphanes*
 2b. Lirellae immersed; ascospores 28–32 µm long, 6–10 -locular *H. argopholis*
- 3a. Lirellae with grooves; stictic acid present 4
 3b. Lirellae lacking grooves 5
- 4a. Ascospores 50–75 µm long *H. chrysenteron*
 4b. Ascospores 80–100 µm long; *H. chlorocarpoides*
- 5a. Ascospores 8 per ascus, 35–40 µm long; stictic acid present *H. radicola*
 5b. Ascospores 1 per ascus; stictic acid absent 6
- 6a. Ascospores 155–225 µm long *H. hadrospora*
 6b. Ascospores ≥125 µm long 7
- 7a. Ascospores 80–100 µm long *H. incerta*
 7b. Ascospores 57–80 µm long *H. contorta*

Leiorreuma

- 1a. Lichen compounds absent; ascospores 20–33 µm long, 6 -locular *L. exaltum*
 1b. Lichen compounds present 2
- 2a. Stictic or hypostictic acid present 3
 2b. Nornotatic acid present; ascospores 21–25 µm long, 6 -locular *L. nornotaticum*
- 3a. Hypostictic acid present; ascospores 25–40 µm long, 7–8 -locular *L. hypomelaenum*
 3b. Stictic acid present; ascospores 25–37 µm long, 8–9 -locular *L. melanostalazans*

Phaeographis

1a.	Ascospores muriform	2
1b.	Ascospores septate with lenticular locules	7
2a.	Ascospores 1 per ascus, 100–135 μm long; norstictic acid present	<i>P. atromaculata</i>
2b.	Ascospores 8 per ascus; norstictic acid absent	3
3a.	Stictic acid present	4
3b.	Lichen compounds absent	5
4a.	Ascospores 36–53 μm long, 8–11 \times 2–5 -locular; proper exciple carbonised ..	<i>P. wilsonii</i>
4b.	Ascospores 25–35 μm long, 6–8 \times 2–3 -locular; proper exciple yellow-brown	<i>P. montiscalvi</i>
5a.	Ascospores 15–18 μm long, 4 \times 2 -locular	<i>P. exilior</i>
5b.	Ascospores > 20 μm long	6
6a.	Ascospores 40–60 μm long, 10–14 \times 2–3 -locular	<i>P. litoralis</i>
6b.	Ascospores 23–35 μm long, 6–8 \times 2–3 -locular	<i>P. caesioradians</i>
7a.	Thallus saxicolous; ascospores 4 -locular	8
7b.	Thallus corticolous; ascospores \geq 4 -locular	10
8a.	Lirellae open, disc visible; ascospores 12–15 μm long	<i>P. hypoglaucoides</i>
8b.	Lirellae closed or only slightly open	9
9a.	Thallus smooth; thalline margins absent; ascospores 12–15 μm long	<i>P. eludens</i>
9b.	Thallus tuberculate; thalline margins conspicuous; ascospores 10–12 μm long	<i>P. tuberculifera</i>
10a.	Ascospores 4 -locular	11
10b.	Ascospores \geq 4 -locular	16
11a.	Norstictic acid present	12
11b.	Norstictic acid absent	13
12a.	Ascospores 15–15 μm long	<i>P. subtigrina</i>
12b.	Ascospores 14–23 μm long	<i>P. brasiliensis</i>
13a.	Carbonised exciple present;	14
13b.	Carbonised exciple absent; ascospores 8–12 μm long	<i>P. ceratoides</i>
14a.	Proper exciple completely carbonised; ascospores 15–22 μm long	<i>P. elaeina</i>
14b.	Proper exciple laterally or apically carbonised	15
15a.	Proper exciple laterally carbonised; ascospores 14–24 μm long	<i>P. subintricata</i>
15b.	Proper exciple apically carbonised; ascospores 17–20 μm long	<i>P. lindigiana</i>
16a.	Ascospores 4–6 -locular	17
16b.	Ascospores > 6 -locular	19
17a.	Norstictic acid present; ascospores 16–20 μm long	<i>P. intricans</i>
17b.	Norstictic acid absent	18
18a.	Lichen compounds absent; ascospores 16–22 μm long	<i>P. subdividens</i>
18b.	Neotricone present; ascospores 12–23 μm long	<i>P. neotricosa</i>
19a.	Norstictic acid present	21
19b.	Norstictic acid absent; lirellae carbonised	20

- 20a. Lichen compounds absent; lirellae apically carbonised; ascospores 27–47 µm long, 8–10 -locular *P. lobata*
 20b. Stictic acid present; thin carbonised exciple present; ascospores 20–37 µm long, 6–8 -locular *P. dendroides*
 21a. Lirellae carbonised; ascospores 30–55 µm long, 7–11 -locular *P. mucronata*
 21b. Lirellae uncarbonised; ascospores 6–8 -locular 22
 22a. Ascospores 23–36 µm long, *P. nardiensis*
 22b. Ascospores 15–31 µm long *P. platycarpa*

Platygramme

- 1a. Ascospores 8 per ascus2
 1b. Ascospores 1 per ascus3
 2a. Carbonised exciple visible; ascospores 20–40 µm long, 4–6 x 2–3 -locular
*P. arechavelatae*
 2b. Carbonised exciple concealed; ascospores 13–18 µm long, 4 x 2 -locular*P. fuscescens*
 3a. Carbonised exciple visible; lichen compounds absent4
 3b. Carbonised exciple concealed; echinocarpic acid present; ascospores 162–200 µm long*P. pudica*
 4a. Lirellae conspicuously open; ascospores5
 4b. Lirellae not conspicuously open; ascospores 135–180 µm long*P. impudica*
 5a. Ascospores 145–180 µm long *P. muelleri*
 5b. Ascospores 40–75(–100) µm long *P. australiensis*

Sarcographa

- 1a. Lichen compounds absent; ascospores 14–18 × 5–6 µm, 4-locular *S. subtriosa*
 1b. Stictic acid present 2
 2a. Ascospores 7–10 -locular, 25–37 µm long *S. oculata*
 2b. Ascospores ≤ 6 -locular..... 3
 3a. Ascospores 17–22 µm long, 4 -locular *S. labyrinthica*
 3b. Ascospores 23–32 µm long, 6 -locular *S. verrucosa*

Thecaria

- 1a. Disc red; hymenium with red pigment [isohypocrellin]; ascospores 125–175 µm long, muriform *T. montagnei*
 1b. Disc white pruinose; hymenium lacking red pigment; ascospores 75–100 µm long
 *T. quassicola*

List of species in Australia

Acanthothecis Clem.

1. *Acanthothecis gyridia* (Stirt.) A.W. Archer, **comb. nov.**
Graphis gyridia Stirt., *Trans. Proc. R. Soc. Vic.* 17: 77 (1881)
Graphina gyridia (Stirt.) Zahlbr., *Cat. Lich. Univ.* 2: 412 (1923)
2. *Acanthothecis cf. silicicola* (Redinger) Staiger & Kalb, *Mycotaxon* 73: 112 (1999)
Graphis cf. silicicola Redinger, *Ark. Bot.* 27A (3): 56 (1935)
3. *Acanthothecis subaggregans* (Müll. Arg.) A.W. Archer, **comb. nov.**
Graphina subaggregans Müll. Arg. *Bull. Herb. Boissier* 1: 58 (1893)
Acanthothecis gracilis Staiger & Kalb, *Mycotaxon* 73: 99 (1999), **syn. nov.**

Carbacanthographis Staiger & Kalb

1. *Carbacanthographis marcescens* (Feé) Staiger & Kalb, *Biblioth. Lichenol.* 85: 109 (2002)
Graphis marcescens Feé, *Essai Crypt.*: 38 (1825)
2. *Cabacanthographis salazinica* (A.W. Archer) A.W. Archer, **comb. nov.**
Graphina salazinica A.W. Archer, *Mycotaxon* 77: 176 (2001)

Diorygma Eschw.

1. *Diorygma circumfusum* (Stirt) Kalb, Staiger & Elix, *Symb. Bot. Ups.* 34(1): 145 (2004)
Graphis circumfusa Stirt., *Trans. & Proc. Roy. Soc. Victoria* 17: 73 (1881)
2. *Diorygma erythrellum* (Mont. & Bosch) Kalb, Staiger & Elix, *Symb. Bot. Ups.* 34(1): 150 (2004)
Ustalia erythrella Mont. & Bosch, *Plant. junghuhn.*, Fasc. IV: 478 (1855)
Graphina erythrella (Mont. & Bosch) Zahlbr., *Cat. Lich. Univ.* 2: 405 (1923)
Graphina incisa A.W. Archer, *Mycotaxon* 77: 169 (2001)
Graphina atramontana A.W. Archer, *Mycotaxon* 77: 161 (2001), **syn. nov.**
3. *Diorygma junghuhnii* (Mont. & Bosch) Kalb, Staiger & Elix, *Symb. Bot. Ups.* 34(1): 157 (2004)
Ustalia junghuhnii Mont. & Bosch, *Plant. junghuhn.*, Fasc. IV: 477 (1855)
Graphis mendax Nyl., *Ann. Sci. Nat. Bot. ser. 4*, 11: 244 (1859)
4. *Diorygma hieroglyphicum* (Pers.) Staiger & Kalb, *Symb. Bot. Ups.* 34(1): 151 (2004)
Opegrapha hieroglyphica Pers., *Ann. Wetterauischen Ges. Gesammthe Naturk.* 2:16 (1811)
Graphis pallido-ochracea Kremp., *Nuovo. Giorn. Bot. Ital.* 7: 32 (1875)
5. *Diorygma nothofagi* (A.W. Archer) A.W. Archer, *Australasian Lichenology* 56: 10(2005)
Graphina nothofagi A.W. Archer, *Mycotaxon* 77:172 (2001)
6. *Diorygma pruinatum* (Eschw.) Kalb, Staiger & Elix, *Symb. Bot. Ups.* 34(1): 166 (2004)
Leiolemma pruinatum Eschw., in Martius, *Icon. select. cryptogam.* Fasc. I: 12 (1828)

Graphis platyleuca Nyl., *Syn. Lich. Nov. Cal.*: 75 (1868)

7. *Diorygma rufopruinosum* (A.W. Archer) Kalb, Staiger & Elix, *Symb. Bot. Ups.* 34(1): 169 (2004)

Graphina rufopruinosa A.W. Archer, *Mycotaxon* 77: 175 (2001)

Graphina boweniana A.W. Archer, *Mycotaxon* 77: 164 (2001)

8. *Diorygma wilsoniana* (Müll. Arg.) A.W. Archer, *Australasian Lichenology* 56: 10 (2005)

Graphis wilsoniana Müll. Arg., *Bull. Herb. Boissier* 1: 57 (1893)

Dyplolabia A. Massal.

1. *Dyplolabia afzelii* (Ach.) A. Massal. *Neogenea lichenum*: 6 (1854)

Graphis afzelii Ach., *Syn. Lich.*: 85 (1814)

Fissurina Fée

1. *Fissurina abdita* (A.W. Archer) A.W. Archer, **comb. nov.**

Graphina abdita A.W. Archer, *Mycotaxon* 77: 160 (2001)

2. *Fissurina albonitens* (Müll. Arg.) A.W. Archer, **comb. nov.**

Graphis albonitens Müll. Arg., *Hedwigia* 30: 53 (1891)

3. *Fissurina dumastii* Fée, *Essai Crypt.*:1–59 (1825)

Fissurina glauca (Müll. Arg.) Staiger, *Biblioth. Lichenol.* 85: 159 (2002)

Graphis glauca Müll. Arg., *Bull. Herb. Boissier* 1:58 (1893)

4. *Fissurina elaiocarpa* (A.W. Archer) A.W. Archer, **comb. nov.**

Graphina elaiocarpa A.W. Archer, *Mycotaxon* 77: 167 (2001)

Fissurina marginata Staiger, *Biblioth. Lichenol.* 85: 144 (2002), **syn. nov.**

5. *Fissurina elixii* (A.W. Archer) A.W. Archer, **comb. nov.**

Graphis elixii A.W. Archer, *Australasian Lichenology* 43: 16 (1998)

6. *Fissurina globulifica* (Nyl.) Staiger, *Biblioth. Lichenol.* 85: 137 (2002)

Graphis globulifica Nyl., *Bull. Soc. Linn. Normandie*, sér. 2, 2: 117 (1868)

7. *Fissurina howeana* (A.W. Archer) A.W. Archer, **comb. nov.**

Graphis howeana A.W. Archer, *Aus. Syst. Bot.* 14: 259 (2001)

8. *Fissurina insidiosa* C. Knight & Mitt., *Trans. Linn. Soc. London* 23: 102 (1860)

Graphis insidiosa (C.Knight & Mitt.) J.D.Hooker, *Handbook NZ Flora*: 586 (1867)

Fissurina subcontexta (Nyl.) Nyl., *Lich. Nov. Zel.*: 125 (1888)

Graphis subcontexta Nyl., *Bull. Soc. Linn. Normandie*, sér. 2, 2: 118 (1868)

Graphis robustior Müll. Arg., *Nuovo Giorn Bot. Ital.* 23: 398 (1891)

9. *Fissurina nigririmis* var. *deficiens* (A.W. Archer) A.W. Archer, **comb. nov.**

Graphis nigririmis (Nyl.) Müll.Arg. var. *deficiens* A.W.Archer, *Aus. Syst. Bot.* 14: 264 (2001)

10. *Fissurina paradoxica* (A.W. Archer) A.W. Archer, **comb. nov.**

Graphis paradoxica A.W. Archer, *Mycotaxon* 80: 367 (2001)

11. *Fissurina psoromica* (A.W. Archer) A.W. Archer, **comb. nov.**

Graphina psoromica A.W. Archer, *Mycotaxon* 77: 173 (2001)

12. ***Fissurina streimannii*** (A.W. Archer) A.W. Archer, **comb. nov.**

Graphina streimannii A.W. Archer, *Mycotaxon* 88: 143 (2003)

Glyphis Ach.

1. ***Glyphis cicatricosa*** Ach., *Syn. Lich.*: 107 (1814)

2. ***Glyphis montoensis*** (A.W. Archer) Staiger, *Biblioth. Lichenol.* 85: 173 (2002)

Graphina montoensis A.W. Archer, *Mycotaxon* 77: 172 (2001)

3. ***Glyphis scyphulifera*** (Ach.) Staiger, *Biblioth. Lichenol.* 85: 175 (2002)

Lecidea scyphulifera Ach., *Syn. Lich.*: 27 (1814)

Gyrostomum scyphulifereum (Ach.) Nyl. *Bull. Soc. Linn. Normandie*, sér. 2, 2: 78 (1867)

Graphis Adans.

1. ***Graphis albissima*** Müll. Arg., *Bull. Herb. Boissier* 3: 319 (1895)

2. ***Graphis anfractuosa*** (Eschw.) Eschw., in C.F.P. von Martius, *Fl. Bras. enum. pl.* 1: 86 (1833)

Scaphis anfractuosa Eschw., *Syst. Lich.*: 25 (1824)

3. ***Graphis apertella*** A.W. Archer, *Aus. Syst. Bot.* 14: 258 (2001)

4. ***Graphis aquilonia*** (A.W. Archer) Staiger, *Biblioth. Lichenol.* 85: 209 (2002)

Graphina aquilonia A.W. Archer, *Mycotaxon* 77: 160 (2001)

5. ***Graphis atrocelata*** (A.W. Archer) A.W. Archer, **comb. nov.**

Graphina atrocelata A.W. Archer, *Mycotaxon* 77: 163 (2001)

6. ***Graphis borealis*** (A.W. Archer) A.W. Archer, **comb. nov.**

Graphina borealis A.W. Archer, *Mycotaxon* 77: 164 (2001)

7. ***Graphis catherinae*** A.W. Archer, *Aus. Syst. Bot.* 14: 259 (2001)

8. ***Graphis celata*** (A.W. Archer) A.W. Archer, **comb. nov.**

Graphina celata A.W. Archer, *Mycotaxon* 77: 166 (2001)

9. ***Graphis crassilabra*** Müll. Arg., *Flora* 65: 502 (1882)

10. ***Graphis daintriensis*** (A.W. Archer) A.W. Archer, **comb. nov.**

Graphina daintriensis A.W. Archer, *Mycotaxon* 77: 166 (2001)

11. ***Graphis dimidata*** Vain., *Acta Soc. Fauna Flora Fenn.* 7(2): 108 (1890)

12. ***Graphis descissa*** Müll. Arg., *Bull. Herb. Boissier* 3: 318 (1895)

13. ***Graphis desquamescens*** (Fée) Zahlbr., *Denkschr. Akad. Wiss. Wien math.-naturwiss. Kl.* 83: 108 (1909)

Opegrapha desquamescens Fée, *Bull. Soc. Bot. France* 21: 24 (1874)

14. ***Graphis elegans*** (Smith) Ach., *Syn. Lich.*: 85 (1814)

Opegrapha elegans Smith, in J.E. Smith & J. Sowerby *English Botany*: 16 (1807)

15. *Graphis elixiana* A.W. Archer, **nom. nov.**
[The name *Graphis elixii* already exists; see *Fissurina elixii*]
Phaeographina elixii A.W. Archer, *Biblioth. Lichenol.* 78: 13–16 (2001)
16. *Graphis emersa* Müll. Arg., *Hedwigia* 32: 132 (1893)
17. *Graphis endoxantha* Nyl., *Bull. Soc. Linn. Normandie*, ser. 2, 2: 110 (1868)
18. *Graphis epimelaena* Müll. Arg., *Bull. Herb. Boissier* 3: 319 (1895)
19. *Graphis gracilescens* Vain., *Ann. Acad. Sci. Fenn.* ser. A, 15, 6: 203 (1920)
20. *Graphis hiascens* (Fée) A.W. Archer, **comb. nov.**
Opegrapha hiascens Fée, *Suppl. Ess. Crypt. Ecorc.*: 25 (1837)
21. *Graphis immersella* Müll. Arg., *Bull. Herb. Boissier* 3: 319 (1895)
22. *Graphis immersicans* A.W. Archer, *Aust. Syst. Bot.* 14: 262 (2001)
23. *Graphis inamoena* Zahlbr., *Ann. Crypt. Exot.* 1: 126 (1928)
24. *Graphis intricata* Fée, *Essai Crypt.*, 42 (1825)
Graphis centrifuga Räs., *Arch. Soc. Zool. Bot. Fenn.* “Vanamo” 3:187 (1949)
25. *Graphis kakaduensis* A.W. Archer, *Aus. Syst. Bot.* 14: 264 (2001)
26. *Graphis leptocarpa* Fée, *Essai Crypt.*: 36 (1824)
27. *Graphis leptoclada* Müll. Arg., *Flora* 65: 335 (1882)
28. *Graphis leucoparypha* Kremp., *Nuovo Giorn. bot. ital.* 7: 35 (1875)
Graphis turgidula var. *norstictica* A.W. Archer, *Aus. Syst. Bot.* 14:267 (2001), **syn. nov.**
29. *Graphis librata* C. Knight, *Trans. N.Z. Instit.* 16: 404 (1884)
30. *Graphis longula* Kremp., *Flora* 59: 414 (1876)
31. *Graphis lumbschii* (A.W. Archer) A.W. Archer, **comb. nov.**
Graphina lumbschii A.W. Archer, *Mycotaxon* 77: 166 (2001)
- 31a. *Graphis lumbschii* var. *deficiens* (A.W. Archer) A.W. Archer, **comb. nov.**
Graphina lumbschii var. *deficiens* A.W. Archer, *Mycotaxon* 77: 167 (2001)
32. *Graphis pertriosa* (Kremp.) A.W. Archer, **comb. nov.**
Enterographa pertriosa Kremp., *Nuovo. Giorn. Bot. Ital.* 7: 39 (1875)
33. *Graphis polyclades* Kremp., *Verh. K.K. Zool.-Bot. Ges. Wien* 30: 341 (1880)
34. *Graphis propinqua* Müll. Arg., *Flora* 65: 502 (1882)
35. *Graphis rimulosa* (Mont.) Trevis., *Spighe e Paglie*: 11 (1853)
Opegrapha rimulosa Mont., *Ann. Sci. Nat. Bot.*, ser.2, 18: 271 (1842)
36. *Graphis rustica* Kremp., *Nuovo Giorn. bot. ital.* 7: 61 (1875)
Graphis turgidula Müll. Arg., *J. Linn. Soc. Bot. London* 30: 457(1895)

37. *Graphis saxicola* (Müll. Arg.) A.W. Archer, **comb. nov.**
Graphina saxicola Müll. Arg., *Flora* 70: 401 (1887)
38. *Graphis sayeri* Müll. Arg., *Flora* 70: 401 (1887)
39. *Graphis semiaperta* Müll. Arg., *Nuovo Giorn. bot. ital.* 23: 397 (1891)
40. *Graphis stenospora* Müll. Arg. var. **deficiens** A.W. Archer, *Mycotaxon* 80: 370 (2001)
41. *Graphis stenotera* Vain., *Ann. Acad. Sci. Fenn. ser. A*, 15: 209 (1920)
42. *Graphis stipitata* A.W. Archer, *Mycotaxon* 80: 368 (2001)
43. *Graphis streblocarpa* (Bél.) Nyl., *Flora* 49: 133 (1866)
Opegrapha streblocarpa Bél., *Voy. Indies. Or., Botanique II, Cryptogamie*: 134 (1834)
Graphis fissofurcata Leight., *Trans. Linn. Soc. London, Bot.* 27: 177 (1869)
Graphina streblocarpa (Bél.) Müll. Arg., *Flora* 65: 502 (1882)
44. *Graphis streimannii* A.W. Archer, *Aus. Syst. Bot.* 14: 265 (2001)
45. *Graphis subregularis* A.W. Archer, *Aus. Syst. Bot.* 14: 266 (2001)
46. *Graphis subserpentina* Nyl., *Acta Soc. Sci. Fenn.* 7: 465 (1863)
Graphina subtartarea Müll. Arg., *Flora* 70: 402 (1887)
Graphina palmicola Müll. Arg., *Flora* 70: 402 (1887)
Graphina subserpentina (Nyl.) Müll. Arg., *Bull. Bot. Soc. Belgique* 32: 152 (1893)
47. *Graphis subtenella* Müll. Arg., *Flora* 70: 400 (1887)
48. *Graphis subvelata* Stirt., *Queensland Agric. J.* 5: 488 (1899)
Graphina subvelata (Stirt.) Zahlbr., *Cat. Lich. Univ.* 2: 428 (1923)
49. *Graphis supracola* A.W. Archer, *Aus. Syst. Bot.* 14: 267 (2001)
50. *Graphis tenella* auct, non Ach., *Syn. Lich.*: 81 (1814)
51. *Graphis tenuirima* (Shirley) A.W. Archer, **comb. nov.**
Graphina tenuirima Shirley, *Bot. Bull. Dept. Agric. Qld., Bot. Bull.* V:34 (1892)
52. *Graphis treubii* Zahlbr., *Ann. Cryptog exot.* 1: 129 (1928)
53. *Graphis vestitoides* (Fink) Staiger, *Biblioth. Lichenol.* 85: 263 (2002)
Graphina vestitoides Fink, *Mycologia* 19: 218 (1927)
Graphina acharii auct.
54. *Graphis vinosa* Müll. Arg., *Bull. Herb. Boissier* 3: 318 (1895)
55. *Graphis xanthospora* Müll. Arg., *Bull. Herb. Boissier* 3: 320 (1895)

Hemithecium Trevis.

1. *Hemithecium aphanes* (Mont. & Bosch) M. Nakan. & Kashiw.,
Bull. Natn. Sci. Mus., Tokyo, Ser. B, 29(2): 88 (2003)
Graphis aphanes Mont. & Bosch, *Plant. Junghuhn.* 4, 474 (1855)
Graphis vermifera Müll. Arg., *Flora* 70, 401 (1887)
2. *Hemithecium argopholis* (C.Knight in Müll. Arg) A.W. Archer, **comb. nov.**
Graphis argopholis C.Knight in Müll. Arg., *Flora* 70: 401 (1887)

3. **Hemithecium chlorocarpoides** (Nyl.) Staiger, *Biblioth. Lichenol.* 85: 283 (2002)

Graphis chlorocarpoides Nyl. *Flora* 49: 133 (1866)

Graphina repleta var. *macrospora* A.W. Archer, *Telopea* 8: 291 (1999), **syn. nov.**

4. **Hemithecium chrysenderon** (Mont.) Trevis, *Spighe e Paglie* 1: 13 (1853)

Phaeographina chrysenderon (Mont.) Müll. Arg., *Hedwigea* 30: 52 (1891)

Graphis chrysenderon Mont., *Ann. Sci. Nat., Bot.* 18(2): 268 (1842)

Graphis repleta Stirt., *Trans. & Proc. Roy. Soc. Victoria* 17: 73 (1881), **syn. nov.**

5. **Hemithecium contorta** (Müll. Arg.) A.W. Archer, **comb. nov.**

Graphina contorta Müll. Arg., *Rev. Mycol.* 9: 81 (1887)

6. **Hemithecium hadrospora** (A.W. Archer) A.W. Archer, **comb. nov.**

Phaeographina hadrospora A.W. Archer, *Telopea* 9: 337 (2001)

7. **Hemithecium incerta** (Redinger) A.W. Archer, **comb. nov.**

Graphina incerta Redinger, *Ark. Bot.* 26A(1): 59 (1933)

8. **Hemithecium radiculicola** (A.W. Archer) A.W. Archer, **comb. nov.**

Graphina radiculicola A.W. Archer, *Mycotaxon* 77: 175 (2001)

Leiorreuma Eschw.

1. **Leiorreuma exaltatum** (Mont. & Bosch) Staiger, *Biblioth. Lichenol.* 85: 298 (2002)

Phaeographis exaltata (Mont. & Bosch) Müll. Arg., *Flora* 65: 381 (1882)

Lecanactis exaltata Mont. & Bosch, in Junghuhn, *Plant. junghuhn.*, Fasc. IV: 475 (1855)

2. **Leiorreuma hypomelaenum** (Müll. Arg.) Staiger, *Biblioth. Lichenol.* 85: 300 (2002)

Phaeographis hypomelaena Müll. Arg., *Flora* 69: 313 (1886)

Phaeographis necopinata A.W. Archer & Elix, *Mycotaxon* 72: 92 (1999), **syn. nov.**

3. **Leiorreuma melanostalazans** (Leight.) A.W. Archer, **comb. nov.**

Phaeographis melanostalazans (Leight.) Müll. Arg., *Flora* 65: 336 (1882)

Platygrapha melanostalazans Leight., *Trans. Linn. Soc. London* 27: 180 (1869)

4. **Leiorreuma nornotaticum** (A.W. Archer) A.W. Archer, **comb. nov.**

Phaeographis nornotatica A.W. Archer & Elix, *Mycotaxon* 72: 93 (1999)

Phaeographis Müll. Arg.

1. **Phaeographis atromaculata** (A.W. Archer) A.W. Archer, **comb. nov.**

Phaeographina atromaculata A.W. Archer, *Telopea* 9: 331 (2001)

2. **Phaeographis brasiliensis** (A. Massal.) Kalb & Matthes-Leicht, *Biblioth. Lichenol.* 78: 148 (2001)

3. **Phaeographis caesioradians** (Leight.) A.W. Archer, **comb. nov.**

Phaeographina caesioradians (Leight.) Redinger, *Ark. Bot.* 26A: 99 (1933)

Graphis caesioradians Leight., *Trans. Linn. Soc. London* 27: 176 (1869)

4. **Phaeographis ceratoides** (Vain.) Zahlbr. *Cat. Lich. Univ.* 2: 365 (1923)

Graphis ceratoides Vain., *Ann. Acad. Sci. Fenn. ser. A.* 15 (6): 227 (1920)

5. **Phaeographis dendroides** (Leight.) Müll. Arg., *Flora* 65: 336 (1882)

Platygrapha dendroides Leight., *Trans. Linn. Soc. London* 27: 179 (1869)

6. ***Phaeographis elaeina*** (C. Knight) Müll. Arg., *Bull. Herb. Boissier* 3: 321 (1895)
Graphis elaeina C. Knight, *Trans. Linn. Soc. London, Bot.* 2: 41 (1882)
7. ***Phaeographis eludens*** (Stirt.) Shirley, *Proc. Roy. Soc. Queensland* 6: 197 (1889)
Graphis eludens Stirt., *Trans. Proc. Roy. Soc. Victoria* 17: 72 (1881)
8. ***Phaeographis exilior*** (Vain.) A.W. Archer, **comb. nov.**
Phaeographina exilior (Vain.) Zahlbr., *Cat. Lich. Univ.* 2: 438 (1923)
Graphis exilior Vain., *Ann. Acad. Sci. Fenn.*, ser.A, 15, 6: 200 (1920)
9. ***Phaeographis hypoglaucoides***, K.P. Singh & Awasthi, *Bull. Bot. Survey India* 21: 109 (1979)
10. ***Phaeographis intricans*** (Nyl.) Staiger, *Biblioth. Lichenol.* 85: 329 (2002)
Sarcographa intricans (Nyl.) Müll. Arg., *Flora* 70: 77 (1887)
Graphis intricans Nyl., *Acta Soc. Sci. Fenn.* 7: 473 (1863)
11. ***Phaeographis lindigiana*** Müll. Arg., *Flora* 65: 383 (1882)
Phaeographis pseudomelana Müll. Arg. *Bull. Herb. Boissier* 3: 321 (1895), **syn. nov.**
12. ***Phaeographis litoralis*** (A.W. Archer) A.W. Archer, **comb. nov.**
Phaeographina litoralis A.W. Archer, *Telopea* 9: 339 (2001)
13. ***Phaeographia lobata*** (Eschw.) Müll. Arg., *Flora* 65: 383 (1882)
Lecanactis lobata Eschw., *Syst. Lich.*: 25 (1824)
14. ***Phaeographis montiscalvi*** (A.W. Archer) A.W. Archer, **comb. nov.**
Phaeographina montiscalvi A.W. Archer, *Telopea* 9: 341 (2001)
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