

AMANDINEA

John A. Elix¹

Amandinea M.Choisy ex Scheid. & H.Mayrhofer, in C.Scheidegger, *Lichenologist* 25: 341 (1993)

Named in honour of Mme A. Manière (1937), a friend of Maurice Choisy.

Type: *A. coniops* (Wahlenb.) M.Choisy ex Scheid. & H.Mayrhofer

Thallus crustose, granulose, continuous or rimose to areolate, bullate or squamulose; soredia present or absent; isidia absent. Upper surface white, yellow, grey, yellow-brown to brown. Prothallus usually absent. Photobiont a unicellular green alga. Upper cortex pseudoparenchymatous. Medulla usually well defined, white, I-. Lower cortex present or not. Ascomata apothecia, lecanorine, biatorine to lecideine, immersed to sessile, with a broadly attached or constricted base; disc ±black, ±plane or becoming convex, greyish white-pruinose or epruinose; margin narrow or absent. Proper exciple thin and poorly differentiated, of radiating hyphae, lacking lichen substances; outer zone black or dark brown; inner zone paler to colourless; thalline exciple usually lacking, very rarely prominent at first but soon reduced or excluded. Epithemium bluish green, olive-grey, yellow-brown or brown; hymenium colourless, usually not interspersed, occasionally with scattered oil droplets; hypothecium colourless, bluish green, olive-grey, yellow-brown, brown or dark brown. Paraphyses septate, simple or branched in the upper third; apical cells swollen, usually with brown caps. Asci clavate, *Bacidia*-type or *Lecanora*-type; apical cushion conical, truncated-conical or arcuate, rarely cylindrical, ellipsoidal or bulbous; remainder of tholus amyloid, often stained more strongly adjacent to the apical cushion; amyloid layer above the apical cushion distinct, thin or absent; ocular chamber conical or weakly developed; with 8, 16 or up to 50 ascospores. Ascospores *Buellia*-type, *Orcularia*-type or *Physconia*-type, olive-brown to brown or brown-black, 1-septate, oblong to ellipsoidal, with internal walls of uniform thickness or with medial wall thickenings; internal wall thickenings appearing after the septum is inserted (type-A ontogeny); torus absent or poorly developed; outer spore wall smooth or ornamented. Conidiomata pycnidial, immersed in the thallus; conidiophores of type III (Vobis, 1980), acrogenous. Conidia filiform, curved, 12–30 µm long.

Amandinea is a cosmopolitan genus of c. 30 species, eight of which are known from Australia.

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Key

- 1 Thallus growing on rock 2
1: Thallus growing on bark or wood..... 5
2 Ascospores *Buellia*-type 7. **A. punctata**
2: Ascospores *Physconia*-type or *Orcularia*-type 3
3 Apothecia greyish white-pruinose; ascospores 15–24 × 10–15 µm; ascospores *Physconia*-type or *Orcularia*-type 2. **A. decedens**
3: Apothecia epruinose; ascospores 12–20 × 6–10 µm; ascospores *Physconia*-type 4
4 Apothecia adnate; ascospores 8–10 µm wide, constricted at the septum 1. **A. coniops**
4: Apothecia sessile; ascospores 6.0–8.5 µm wide, not constricted at the septum 6. **A. lecideina**
5 Ascospores *Orcularia*-type 5. **A. insperata**
5: Ascospores *Buellia*-type 6
6 Thallus yellow; medulla C+ orange, UV+ orange 3. **A. diorista** var. **hypopelidna**
6: Thallus white, grey or brown; medulla C–, UV– 7
7 Thallus sorediate 4. **A. efflorescens**
7: Thallus not sorediate 8
8 Thallus white, K+ yellow; atranorin present 8. **A. subduplicata**
8: Thallus white, grey or brown, K–; atranorin absent 7. **A. punctata**

1. *Amandinea coniops* (Wahlenb.) M.Choisy ex Scheid. & H.Mayrhofer, in C.Scheidegger, *Lichenologist* 25: 342 (1993)

Lecidea coniops Wahlenb., in E.Acharius, *Methodus*, Suppl. 8 (1803); *Buellia coniops* (Wahlenb.) Th.Fr., *Nova Acta Reg. Soc. Sci. Upsal.*, ser. 3, 3: 331 (1860). T: Bosenkop, Altenfiord, Finmark, Norway, Apr. 1802, G.Wahlenberg; holotype: UPS n.v.

Illustration: H.Mayrhofer & R.Moberg, *Nordic Lichen Fl.* 2: 89 (2002).

Thallus crustose, areolate to bullate or warted-granulose, 1–5 cm wide; areolae 0.1–0.3 mm wide, convex, occasionally becoming short-lobed, often aggregating to form a warted, secondarily rimose crust up to 1–2 mm thick in the centre; prothallus often present, blackish, delimiting the thallus, sometimes also visible between dispersed areolae. Upper surface pale grey-brown to brown or dark brown, esorediate. Apothecia 0.3–0.8 mm wide, biatorine to lecideine, broadly sessile; disc brown-black or black, epruinose, plane to convex; proper margin broad, persistent or excluded with age. Proper exciple 40–70 µm thick, dark brown to black. Epithymenium 7–14 µm thick, brown, N–; hymenium 58–80 µm thick; hypothecium 100–140 µm thick, dark brown. Paraphyses 1.5–2.0 µm wide, simple to branched subapically; apices 4.5–5.5 µm wide, with brown caps. Asci 8-spored. Ascospores *Physconia*-type, brown to brown-black, ellipsoidal to broadly oblong, 13–20 × 7–10 µm, constricted at the septum; with medial wall thickenings; outer spore wall ornamented. Pycnidia ±common; conidia 15–30 µm long.

Chemistry: Thallus K–, C–, P–, UV–; no lichen substances detected.

Scattered, mainly on coastal rocks in Tas.; also in Europe, North America, Antarctica and Subantarctic islands.

Tas.: Alum Cliffs, near Hobart, *G.Kantvilas* 165/97 (HO); L. Kaye, *G.Kantvilas* 94/00 (HO); Lagoon Bay, Forestier Penin., *G.Kantvilas* 310/09 (HO).

This species is characterised by the pale grey-brown to brown, areolate to bullate sublobate thallus, the adnate epruinose apothecia, and *Physconia*-type ascospores.

2. *Amandinea decedens* (Nyl.) Blaha & H.Mayrhofer, in J.Blaha, *Taxonomische Studien an saxicolen Arten der Flechtengattung Amandinea (lichenisierte Ascomyceten, Physciaceae) von Neuseeland* 32 (2002)

Lecidea decedens Nyl., in W.A.Leighton., *Bot. J. Linn. Soc.* 10: 31 (1869); *Buellia decedens* (Nyl.) Müll.Arg., *Bull. Herb. Boissier* 2, App. 1: 71 (1894). T: S side of Wellington Harbour, Wellington, New Zealand, on littoral rocks, *W.Colenso* 6543; lecto: BM n.v., fide J.Blaha, *loc. cit.*

For further synonymy, see Galloway (2007).

Illustration: C.Knight, *Trans. New Zealand Inst.* 8: pl. 10, fig. 12 (1876), as *Lecidea tubulata*.

Thallus crustose, thin or evanescent, continuous to areolate, 1–3 cm wide; areolae, ±angular, 0.15–0.30 mm wide; prothallus usually present, grey to blackish, delimiting the thallus, sometimes also visible between dispersed areolae. Upper surface whitish to pale grey, esorediate; upper cortex 20–30 µm thick. Apothecia 0.3–0.8 mm wide, lecideine, sessile, sparse and solitary or frequent and contiguous; disc black, greyish white-pruinose, plane to weakly convex; proper margin narrow, persistent or excluded with age, black. Proper exciple 30–60 µm thick, dark brown to brown-black, N+ purple-brown to red-brown. Epihymenium 7–10 µm thick, dark brown to aeruginose-brown, N– or N+ purple-brown; hymenium 90–100 µm thick; hypothecium 80–120 µm thick, dark reddish brown. Paraphyses 1.5–2.0 µm wide, simple to branched subapically; apices 4.5–5.5 µm wide, with brown caps. Asci 8-spored. Ascospores *Orcularia*-type to *Physconia*-type, brown, ellipsoidal, 15–24 × 10–15 µm, not or slightly constricted at the septum, with medial wall thickenings; outer spore wall ornamented. Pycnidia ±rare; conidia 20–25 µm long.

Chemistry: Thallus K+ yellow or reddish, C–, P–, UV–; no lichen substances detected.

Rare on coastal rocks in Tas.; also in New Zealand and South Africa.

Tas.: Croppies Pt, *A.Moscal* 4297 p.p. (HO).

Characterised by the whitish to pale grey thallus, the greyish white-pruinose apothecia, and large *Orcularia*-type to *Physconia*-type ascospores.

3. *Amandinea diorista* (Nyl.) Marbach var. ***hypopelidna*** (Stirt.) Marbach & Kalb, in B.Marbach, *Biblioth. Lichenol.* 74: 60 (2000)

Lecidea hypopelidna Stirt., *Proc. Roy. Philos. Soc. Glasgow* 10: 298 (1877); *Buellia hypopelidna* (Stirt.) Müll.Arg., *Bull. Herb. Boissier* 2, Append. 1: 71 (1894). T: Wellington, New Zealand, *J.Buchanan* 45/74; lecto: GLAM n.v., fide D.J.Galloway, *Fl. New Zealand Lichens* 49 (1985).

Illustration: B.Marbach, *op. cit.* 64, fig. 16.

Thallus crustose, continuous to rimose, smooth or verruculose, 1–3 cm wide; prothallus absent. Upper surface yellow to yellow-green, esorediate. Apothecia 0.3–0.4 mm wide, lecideine, immersed to adnate; disc black, weakly to strongly convex, epruinose; proper margin excluded. Proper exciple 10–15 µm thick or not apparent, K–. Epihymenium 5–10 µm thick, dark brown to olive-brown, K–; hymenium 55–65 µm thick; hypothecium 100–120 µm thick, pale to dark brown. Paraphyses 1.6–1.8 µm wide, simple to furcate or sparingly branched subapically; apices 4–6 µm wide, with brown or dark brown caps. Asci 8-spored. Ascospores *Buellia*-type, 1-septate, olive-green to olive-brown or olive-grey, ellipsoidal, 10–14 × 4.5–5.5 µm; torus absent; outer spore wall moderately to strongly ornamented. Pycnidia not seen.

Chemistry: Thallus K+ yellow, C–, P–, UV+ orange; containing arthothelin (major), thuringione (major), 4,5-dichloronorlichexanthone (trace), 4,5-dichloro-3-O-methylnorlichexanthone (trace).

Common on bark in monsoon woodland in tropical W.A., N.T. and Qld; also in the Philippines, New Zealand and New Caledonia.

W.A.: Couchman Ra., 16 km NW of King Edward River Stn (Doongan Stn), *J.A.Elix* 27975A, *H.T.Lumbsch* & *H.Streimann* (CANB). N.T.: Howard Springs road, 34.5 km SE of Darwin, *J.A.Elix* 37111 (CANB). Qld: Jourama Falls, Paluma Range Natl Park, 23 km S of Ingham, *J.A.Elix* 37201 (CANB).

This is characterised by the yellow to yellow-green, esorediate thallus, the *Buellia*-type ascospores with moderately to strongly ornamented outer walls and the presence of arthothelin and thuringione.

4. *Amandinea efflorescens* (Müll.Arg.) Marbach, *Biblioth. Lichenol.* 74: 61 (2000)

Buellia efflorescens Müll.Arg., *Hedwigia* 32: 129 (1893). T: Singapore, Apr. 1860, A.C. Maingay 158; holo: BM n.v.

For further synonymy, see Marbach (2000).

Illustration: B. Marbach, *op. cit.* 64, fig. 16.

Thallus crustose, continuous to rimose, 1–4 cm wide; prothallus absent. Upper surface olive-green, green or grey, sorediate; soralia round, discrete or ±spreading; upper and lower cortices 15–20 µm thick. Apothecia 0.3–0.4 mm wide, lecideine, immersed to adnate; disc black, plane to convex, epruinose; proper margin narrow. Proper exciple 10–20 µm thick, K–, poorly defined in convex apothecia; outer zone dark brown to black, slightly darker than the hypothecium; inner zone pale brown. Epihymenium 5–10 µm thick, dark brown, K–; hymenium 60–70 µm thick, not markedly inspersioned, but with a few scattered oil droplets; hypothecium 80–110 µm thick, pale brown. Paraphyses 1.7–2.0 µm wide, simple to furcate; apices 4–5 µm wide, with brown or dark brown caps. Asci 8-spored. Ascospores *Buellia*-type, 1-septate, olive-green to olive-brown or olive-grey, ellipsoidal, 10–15 × 4.5–6.5 µm; torus absent; outer spore wall moderately to strongly ornamented. Pycnidia immersed, 0.08–0.10 mm wide, brown; conidia 15–23 × 0.5–0.7 µm.

Chemistry: Thallus K–, C–, P–, UV+ orange; soralia UV+ turquoise; containing lobaric acid, 4,5-dichlorolichexanthone.

Rare on the bark of trees in forest in tropical N.T. and Qld; also in North, Central and South America, Asia, Africa and the western Pacific (Papua New Guinea, Fiji and New Caledonia).

N.T.: Botanical Gardens, Darwin, K. & A. Kalb 27734 (Herb. Kalb). Qld: Magra Is., 21 July 1985, E. Youman (BRI).

Amandinea efflorescens is characterised by the olive-green, green or grey crustose thallus with a sorediate upper surface, *Buellia*-type ascospores and the presence of lobaric acid and 4,5-dichlorolichexanthone.

5. *Amandinea insperata* (Nyl.) H. Mayrhofer & Ropin, in H. Mayrhofer, G. Kantvilas & K. Ropin, *Muelleria* 12: 191 (1999)

Lecanora insperata Nyl., *Lich. Nov. Granat.* 1: 443 (1863); *Lecidea insperata* (Nyl.) Nyl., *Flora* 63: 128 (1880); *Rinodina insperata* (Nyl.) Malme, *Bih. K. Svenska Vetensk-Akad. Handl.* 28: 44 (1902). T: Bogota, Nova Granata [Colombia], 1860, A. Lindig 2616; lecto: H-NYL 28494 n.v., *vide* A. Aptroot, *Fl. Guianas*, Ser. E, 1: 51 (1987); isolecto: H-NYL 28493 n.v.

Buellia endoleuca Müll.Arg., *Bull. Herb. Boissier* 1: 50 (1893). T: Camperdown, Vic., 1892, F.R.M. Wilson 118; holo: G n.v.

For further synonymy, see Mayrhofer *et al.* (1999).

Illustrations: H. Mayrhofer, G. Kantvilas & K. Ropin, *loc. cit.* fig. 15; B. Marbach, *Biblioth. Lichenol.* 74: 79, fig. 25 (2000).

Thallus crustose, smooth, thin to thick, continuous to rimose-areolate or verrucose, 0.5–3.0 cm wide; prothallus absent. Upper surface sordid white to pale brown, yellow-grey or pale grey, esorediate; upper and lower cortices 10–20 µm thick. Apothecia 0.25–0.50 mm wide, scattered or crowded, lecanorine at first, then biatorine and finally lecideine, immersed to adnate; disc black, plane to convex, epruinose; thalline exciple initially prominent and concolorous with the thallus, soon reduced or excluded; proper margin narrow to moderately broad. Proper exciple 10–20 µm thick, K–; outer zone dark brown, slightly darker than the hypothecium. Epihymenium 5–10 µm thick, reddish brown to dark brown, K–; hymenium 50–90 µm thick, colourless, not markedly inspersioned, but with a few scattered oil droplets; hypothecium 50–100 µm thick, pale to dark brown. Paraphyses 1–2 µm wide, simple to branched; apices 4–5 µm wide, with brown or dark brown caps. Asci clavate, *Bacidia*-type,

8-spored. Ascospores *Orcularia*-type, 1-septate, yellowish olive to olive-brown, ellipsoidal, $12\text{--}19 \times 6\text{--}9 \mu\text{m}$; torus absent; cell lumina connected by an elongate tubulus; outer spore wall smooth. Pycnidia black, c. 0.08 mm wide; conidia $15\text{--}30 \times 1 \mu\text{m}$.

Chemistry: Thallus K⁻, C⁻, P⁻, UV⁻; no lichen substances detected.

Scattered on bark or wood in eastern Qld, Vic. and Tas.; also in Central and South America, Africa and New Zealand.

Qld: 1 km S of Eurong Beach, Fraser Is., *J.A.Elix* 22909 (CANB); Sandgate Rd–Brown St, Boondall, Brisbane, 4 Sept 1975, *C.Scarlett* & *N.Stevens* (BRI). Vic.: Malvern, *F.R.M.Wilson* 690 (G); Warrnambool, *F.R.M.Wilson*, Nov. 1886 (H). Tas.: Cape Contrariety, *G.Kantvilas* 185/98 (HO).

This species is characterised by the sordid white to pale brown, yellow-grey or pale grey crustose thallus, the initially lecanorine apothecia, the *Orcularia*-type ascospores and the absence of lichen substance.

6. *Amandinea lecideina* (H.Mayrhofer & Poelt) Scheid. & H.Mayrhofer, in *C.Scheidegger, Lichenologist* 25: 342 (1993)

Rinodina lecideina H.Mayrhofer & Poelt, *Biblioth. Lichenol.* 12: 112 (1979). T: Balloughteragh, N of Ballyferriter, Kerry, Ireland, Aug. 1978, *J.Poelt s.n.*; holotype: GZU n.v.

Illustration: H.Mayrhofer & R.Moberg, *Nordic Lichen Fl.* 2: 89 (2002).

Thallus crustose, rimose or rimose-areolate, 1–5 cm wide; areolae 0.2–0.4 mm wide, convex, subangular; prothallus often present, blackish, delimiting the thallus, occasionally visible between dispersed areolae. Upper surface whitish to pale grey or grey-brown, esorediate. Apothecia 0.3–0.8 mm wide, lecideine, sessile, solitary to 1–4-confluent, rounded or irregular through mutual pressure; disc black, plane to weakly convex, epruinose; proper margin thin, black, persistent. Proper exciple 40–60 μm thick, dark brown to black, N⁻. Epithemium 7–10 μm thick, dark brown, N⁻; hymenium 75–100 μm thick; hypothecium 70–100 μm thick, dark brown to brown-black. Paraphyses 1.5–2.0 μm wide, simple to moderately branched; apices 4–6 μm wide, with brown caps. Asci 8-spored. Ascospores *Physconia*-type, brown, oblong to ellipsoidal, $10\text{--}15 \times 6.5\text{--}8.0 \mu\text{m}$, not constricted at the septum, with median wall thickenings; outer spore wall weakly ornamented. Pycnidia common; conidia $15\text{--}30 \times 0.8\text{--}1.0 \mu\text{m}$.

Chemistry: Thallus K⁻, C⁻, P⁻, UV⁻, rarely K⁺ yellow then red, C⁻, P⁺ yellow-orange, UV⁻; no lichen substances detected or, rarely, with norstictic acid (major), connorstictic acid (trace).

Scattered on coastal rocks in S.A. and Tas.; also in Europe, North and Central America, North Africa, Asia and New Zealand.

S.A.: Lesueur Conservation Park, c. 3.5 km SW of Cape Willoughby, Kangaroo Is., *G.Kantvilas* 359/09 (HO). Tas.: S of Gorrings Beach, Mortimer Bay, *G.Kantvilas* 175/00 (HO); SE end of beach Wineglass Bay, *G.Kantvilas* 732/03 (HO).

Characterised by the thin, whitish to pale grey or grey-brown, rimose or rimose-areolate thallus, the *Physconia*-type ascospores and the usual absence of lichen substances. It differs from *A. punctata* in having median ascospore wall thickenings and a rimose thallus.

7. *Amandinea punctata* (Hoffm.) Coppins & Scheid., in C.Scheidegger, *Lichenologist* 25: 343 (1993)

Verrucaria punctata Hoffm., *Deutschl. Fl.* 192 (1796); *Buellia punctata* (Hoffm.) A.Massal., *Ric. Auton. Lich. Crost.* 81 (1852). T: locality unknown, *vide* F.Bungartz, A.Nordin & U.Grube, *Lichen Fl. Greater Sonoran Desert Region* 3: 163 (2007).

Lecidea coniops var. *aequata* Ach., *Lichenogr. Universalis* 171 (1810); *Buellia punctata* var. *aequata* (Ach.) Zahlbr., *Cat. Lich. Univ.* 7: 400 (1931); *Buellia aequata* (Ach.) Szat., in K.Rechinger, *Denkschr. Akad. Wiss. Wien Math.-Naturwiss. Kl.* 105: 53 (1943). T: Switzerland; n.v.; synonymy *vide* H.Mayrhofer & R.Moberg, *Nordic Lichen Fl.* 2: 9 (2002).

Trachylia exigua F.Wilson, *Victorian Naturalist* 6: 67 (1889). T: Mt Macedon, Vic., 'ad vetera repagula Eucalypti', *F.R.M.Wilson s.n.*; holotype: BM n.v.

Buellia extenuata Müll.Arg., *Nuov. Giorn. Bot. Ital.* 23: 128 (1891); *Amandinea extenuata* (Müll.Arg.) Marbach, *Biblioth. Lichenol.* 74: 71 (2000). T: cortice Yatabe, Tokyo, Japan, 1890, *C.Miyoshi 103*; iso: G n.v.

For further synonymy, see Schiedegger (1993) and Mayrhofer & Moberg (2002).

Illustrations: V.Wirth, *Flechten Baden-Württembergs*, 2nd edn 120 (1995); B.Marbach, *op. cit.* 74, fig. 22, as *A. extenuata*; I.M.Brodo, S.D.Sharnoff & S.Sharnoff, *Lichens of North America* 159, pl. 207 (2001); H.Mayrhofer & R.Moberg, *Nordic Lichen Fl.* 2: 89 (2002).

Thallus crustose or not apparent, continuous to weakly verruculose, 1–5 cm wide; prothallus absent. Upper surface grey, yellow-grey, olive-grey to grey-brown, esorediate; upper cortex 10–15 µm thick. Apothecia 0.2–0.6 mm wide, lecideine, slightly immersed to sessile; disc black, plane to weakly convex, epruinose; proper margin narrow. Proper exciple 15–20 µm thick, K–; outer zone dark brown to carbonaceous, slightly darker than the hypothecium; inner zone pale brown. Epithemium 4–8 µm thick, dark brown, dark olive-brown or brown-black, K–; hymenium 60–80 µm thick, not markedly interspersed, but with a few scattered oil droplets in the lower part; hypothecium 80–100 µm thick, yellow-brown, medium brown or dark brown. Paraphyses 1.7–2.0 µm wide, simple to furcate or weakly branched; apices 4–5 µm wide, with dark brown caps. Asci 8-spored. Ascospores *Buellia*-type, 1-septate, olive-green to olive-brown or olive-grey, ellipsoidal, 8–20 × 5–9 µm, ±slightly curved; torus absent; outer spore wall smooth to weakly ornamented. Pycnidia black, 0.08–0.10 mm wide, brown; conidia 14–20 × 0.5–1.0 µm.

Chemistry: Thallus K–, C–, P–, UV–; no lichen substances detected.

Common on bark and wood in southern Australia; rare on coastal rocks (W.A., S.A., Qld, N.S.W., A.C.T., Vic. and Tas.). Also in Europe, North and South America, Asia and Africa.

W.A.: Central Track, Charles Gardner Flora Reserve, 20 km SW of Tammin, *J.A.Elix 31854* (CANB). S.A.: L. Salmon, S of L. Torrens, c. 32 km N of Yadlamaka HS, Gairdner-Torrens district, *D.Verdon 4753* (CANB, UPS). Qld: neighbourhood of Brisbane, *F.M.Bailey s.n.* (BRI). N.S.W.: Willandra billabong, Willandra Natl Park, 51 km NW of Hillston, *J.A.Curnow 1646, 1647* (B, CANB). A.C.T.: Aranda Primary School, 5 km W of Canberra, *J.A.Elix 38833* (CANB, HO). Vic.: Chiltern-Mount Pilot Natl Park, 2 km N of Chiltern, *J.A.Elix 36936, 36937* (CANB). Tas.: Cascades, South Hobart, *G.Kantvilas 87/03* (HO).

This lichen is characterised by the grey, yellow-grey, olive-grey to grey-brown thallus, *Buellia*-type ascospores, and the absence of lichen substances. In inland areas the thallus is often not apparent, and only the apothecia are present. A poorly defined, heterogeneous species.

8. *Amandinea subduplicata* (Vain.) Marbach, *Biblioth. Lichenol.* 74: 101 (2000)

Buellia disciformis var. *subduplicata* Vain., *Acta Soc. Fauna Fl. Fenn.* 7: 166 (1890); *Buellia subduplicata* (Vain.) Kalb, *Lich. Neotrop.* 8: 4 (1984). T: Rio de Janeiro, Brazil, 1891, *E.A.Vainio 96* [*Lich. Bras. Exsicc.*]; iso: M n.v.

Illustration: B.Marbach, *op. cit.* 104, fig. 38.

Thallus crustose, often dispersed, continuous to weakly rimose, smooth or verrucose, 1–2 cm wide; prothallus absent. Upper surface white, whitish grey, grey or pale yellow-brown, esorediate; upper and lower cortices 15–20 µm thick. Apothecia 0.4–0.9 mm wide, lecideine, immersed to adnate; disc black, plane to concave, epruinose; proper margin broad. Proper

exciple 50–70 µm thick, K–; outer zone pale to dark brown, usually slightly darker than the hypothecium; inner zone colourless. Epihymenium 5–10 µm thick, dark brown to olive-brown, red-brown or black, K–; hymenium 80–120 µm thick, not markedly inspersed, but with a few scattered oil droplets in the lower part; hypothecium 60–120 µm thick, pale brown. Paraphyses 1.7–1.9 µm wide, simple to furcate or sparingly branched subapically; apices 3.5–5.0 µm wide, with brown or dark brown caps. Asci 8-spored. Ascospores *Buellia*-type, olive-green to olive-brown, ellipsoidal, 17–23 × 7–9 µm, often slightly bent; torus absent; outer spore wall strongly ornamented. Pycnidia c. 0.1 mm wide, brown; conidia 24–27 × 0.6–0.8 µm.

Chemistry: Thallus K+ yellow, C–, P+ pale yellow, UV–; containing atranorin (major).

Very rare on bark in eastern N.S.W.; also in North and South America and Asia.

N.S.W.: The Gib, 3 km E of Bowral, *H. Streimann 28231* (B, CANB).

Characterised by the often dispersed, white, whitish grey, grey or pale yellow-brown thalli, *Buellia*-type ascospores with strongly ornamented outer walls, the colourless inner zone of the proper exciple and the presence of atranorin.