

GROUP K

[Thallus corticolous, fertile; apothecia disciform; asci 1- or 2-spored]

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Pertusaria amnicola Elix & A.W.Archer, in J.A.Elix, A.Aptroot & A.W.Archer, *Mycotaxon* 64: 18 (1997)

T: track to Mt Gower, Lord Howe Island, 31°34'42"S, 159°04'43"S, alt. 185 m, on bark, 11 Feb. 1985, *H.Streimann* 56033; holo: CANB.

Illustrations: J.A.Elix, A.Aptroot & A.W.Archer, *op. cit.* 22, fig. 1; A.W.Archer, *Biblioth. Lichenol.* 69: 214, fig. 83 (1997).

Thallus pale greenish white, smooth, slightly cracked, lacking isidia and soredia. Apothecia disciform, numerous, scattered, slightly immersed or adnate on the thallus, 0.5–0.8 mm diam.; disc black, white-pruinose; disc margin occasionally inrolled and torn. Ascospores 2 per ascus, ellipsoidal, thin-walled, (70–) 80–98 × (21–) 25–35 µm; ascospore wall 3–4 µm thick.

Chemistry: Thallus K+ weak red, KC-, C-, Pd+ weak yellow; containing norstictic acid in low concentration.

A rare endemic corticolous species is known only from Lord Howe Island.

Lord Howe Island: type locality, *H.Streimann* 56035 (CANB).

The lichen is characterised by disciform apothecia, bisporous asci and the presence of norstictic acid. The ascospores are smaller than those in the broadly similar *P. asiana* (*q.v.*).

Pertusaria asiana Vain., *Suomal. Elain-ja Kasvit. Seuran Vanamon Julk.* 1(3): 44 (1921)

T: Mount Doi Sutep, Siam [Thailand], 1904, *C.C.Hosseus s.n.*; lecto: TUR-V 6679, *fide* Oshio, in *sched.*; isolecto: TUR-V 6678.

Illustration: A.W.Archer, *Biblioth. Lichenol.* 69: 183, fig. 67 (1997).

Thallus pale olive-green, smooth, dull and cracked. Isidia absent. Apothecia numerous, conspicuous, disciform, sorediate, 0.8–1.3 mm diam. Ascospores 2 per ascus, ellipsoidal, 120–145 × 40–50 µm; wall 4–5 µm thick.

Chemistry: Thallus K+ yellow → red, KC–, C–, Pd+ yellow; containing norstictic acid (major) and connorstictic acid (trace).

This rare, corticolous species is known only from one locality in north-eastern Qld. Also in Thailand and the Philippines.

Qld: Paluma–Hidden Valley road, 41 km SSW of Ingham, *H.Streimann 57784* (CANB).

Characterised by 2-spored asci and the presence of norstictic acid in the thallus. While its morphology resembles that of *P. novaeseelandiae*, the latter has a very different chemistry.

***Pertusaria clarkeana* A.W.Archer, *Mycotaxon* 53: 280 (1995)**

Pertusaria confusa A.W.Archer, *Mycotaxon* 41: 224 (1991), *nom. illeg., non P. confusa* Zahlbr., *Cat. Lich. Univ.* 5: 134 (1928). T: Clarke Ra., 46 km SSW of Proserpine, Qld, 29 June 1986, *H.Streimann 37465*; holo: CANB; iso: B.

Illustration: A.W.Archer, *Biblioth. Lichenol.* 69: 183, fig. 69 (1997).

Thallus off-white to pale yellowish white, wrinkled and cracked. Soredia and isidia absent. Apothecia numerous and crowded, disciform, adnate or rarely slightly stipitate, 0.5–1.5 mm diam.; disc rounded, somewhat sunken, plane, white-pruinose; margin concolorous with the thallus. Asci clavate, rarely fertile. Ascospores 1 per ascus, sublachrymoid to elongate-ellipsoidal, smooth, (100–) 135–150 (–175) × 30–55 µm; ascospore wall c. 1 µm thick.

Chemistry: Thallus K–, KC+ violet, C–, Pd–; containing lichexanthone (minor to major), with picrolichenic acid (minor) and subpicrolichenic acid (minor), or rarely with picrolichenic acid (minor), superpicrolichenic acid (minor) and hyperpicrolichenic acid (minor).

An endemic, corticolous species in eastern Australia (Qld and N.S.W.); mainly in mangroves (*Avicennia*, *Bruguiera* and *Rhizophora*), but also on *Acacia*, *Argyrodendron* and *Casuarina*.

Qld: Lake Barrine Natl Park, *J.A.Elix 2639* (CANB); Noosa R., N of Tewantin, *J.Hafellner 19229* (GZU); Hinchinbrook Is., *G.N.Stevens 3925* (BRI). N.S.W.: 3 km SW of Evans R., Bundjalung Natl Park, *A.W.Archer P383* (NSW); Buckenbowra R. estuary, W of Batemans Bay, *J.A.Elix 21864* (CANB).

Pertusaria clarkeana is characterised by the sterile or 1-spored asci and the presence of lichexanthone and picrolichenic acid in the thallus. It resembles *P. velata* and *P. commutata*, but it is chemically distinct from those species.

A possible earlier name for this species is *P. velatoides* A.L.Sm. (1922), from New Caledonia. However, the type material of that taxon was not available for examination.

***Pertusaria commutata* Müll.Arg., *Flora* 67: 269 (1884)**

T: Caracas, Venezuela, *Dr Ernst s.n.*; lecto: G, *fide* A.W.Archer, *Mycotaxon* 41: 253 (1991); isolecto: US.

Illustration: A.W.Archer, *Biblioth. Lichenol.* 69: 183, fig. 70 (1997).

Thallus off-white to pale grey, folded and cracked, smooth and dull. Soredia and isidia absent. Apothecia numerous and crowded, disciform, adnate, 0.4–0.8 mm diam.; disc coarsely white-pruinose. Ascospores 1 per ascus, ellipsoidal, smooth, single-walled, 100–135 (–150) × 35–50 µm.

Chemistry: Thallus K+ yellow, KC–, C–, Pd+ yellow; containing haemathamnolic acid (major), lichexanthone (variable), thamnolic acid (trace) and baeomycesic acid (trace).

A tropical to subtropical, corticolous species that is known from eastern Qld and N.S.W.; also in Brazil, Venezuela, south-eastern U.S.A. and China.

Qld: Chester R., E of McIlwraith Ra., *G.Butler 429* (CANB); Mt Farrenden, 26 km SSW of Charters Towers, *J.A.Elix 20588* (CANB); Three-Mile Ck, 5 km N of Townsville, *J.A.Elix 20042* (CANB). N.S.W.: Toonumbar S.F., *A.W.Archer P454* (NSW); Evans R., *A.W.Archer P389* (NSW).

The species is characterised by asci with a single ascospore and the presence of haemathamnolic acid in the thallus. It resembles *P. velata*, but it is distinguished from that species by its chemistry.

Reports of *P. commutata* from Tas. are probably based on misidentifications of *P. novaezelandiae*, a common species in Tasmanian rainforest.

***Pertusaria lacericans* A.W.Archer, *Mycotaxon* 41: 230 (1991)**

T: Cattle Creek State Forest, Briggsdale, 12 km NNE of Dorrigo, N.S.W., 13 Oct. 1978, *D.Verdon* 3843; holo: CANB.

Illustration: A.W.Archer, *Biblioth. Lichenol.* 69: 194, fig. 74 (1997).

Thallus olive-green, somewhat areolate and cracked, smooth and glossy. Soredia and isidia absent. Pustules 0.2–1.0 mm diam., opening at the top to reveal the white medulla. Apothecia inconspicuous, disciform, immersed in larger pustules. Ascospores uncommon, 1 per ascus, elongate-ellipsoidal, smooth, 170–180 × 35–40 µm; ascospore wall c. 1 µm thick.

Chemistry: Thallus K–, KC–, C–, Pd+ orange; containing protocetraric acid (major).

An uncommon, endemic, corticolous species of montane rainforest in eastern Qld and N.S.W.

Qld: Bunya Mtns, c. 56 km NE of Dalby, *J.Hafellner* 16744, 18928 (GZU). N.S.W.: Mt Banda Banda, 44 km NW of Wauchope, *D.Verdon* 4049 (CANB); Wilson R., Mount Boss S.F., c. 37 km NW of Wauchope, *A.W.Archer* P615 (NSW); Dorrigo Natl Park, 38 km WSW of Coffs Harbour, *A.W.Archer* P868 (NSW).

Pertusaria lacericans is characterised by the pustulate apothecia and the presence of protocetraric acid in the thallus. It resembles *P. lacerans* and *P. sublacerans*, but it is distinguished from those species by having protocetraric acid in place of picrolichenic acid and norstictic acid, respectively.

***Pertusaria miscella* A.W.Archer, *Mycotaxon* 41: 232 (1991)**

T: Clarke Ra., 46 km S of Proserpine, Qld, 20°50'S, 148°32'E, 29 June 1986, *J.A.Elix* 20942; holo: CANB.

Illustration: A.W.Archer, *Biblioth. Lichenol.* 69: 194, fig. 75 (1997).

Thallus off-white to very pale grey, thin, slightly wrinkled and cracked, smooth and glossy, lacking soredia and isidia. Apothecia conspicuous, disciform, scattered, the discs clustered on flattened verruciform swellings, subhemispherical or irregular in outline, concolorous with the thallus, 1–3 mm wide; disc white, plane or concave, sunken, 0.3–0.5 mm diam., epruinose; margin inrolled. Ascospores 1 per ascus, ellipsoidal, smooth, 100–130 × 30–40 (–50) µm; wall c. 1 µm thick.

Chemistry: Thallus K+ yellow, KC–, C–, Pd+ yellow; containing lichexanthone (major) and thamnolic acid (major).

An endemic, corticolous species known from two localities in north-eastern Qld.

Qld: Bambo Ra., 79 km SSE of Coen, *H.Streimann* 56689 (CANB).

The species is characterised by disciform apothecia on verruciform swellings, monosporous asci and the presence of lichexanthone and thamnolic acid in the thallus.

***Pertusaria novaezelandiae* Szatala, *Borbásia* 1: 60 (1939)**

T: L. Waikare-Moana, New Zealand, 1932, *J.Jablonszky*; holo: BP T298, *n.v.*

Illustrations: G.Kantvilas, *Lichenologist* 22: 291, figs 1, 3 (1990).

Thallus off-white to pale greyish white, thick, wrinkled and cracked, smooth and dull. Soredia and isidia absent. Apothecia disciform, 0.5–1.5 mm diam.; disc white-pruinose when fertile, occasionally sorediate. Ascospores 1 per ascus, ellipsoidal, (120–) 140–170 × 30–55 µm.

Chemistry: Thallus K+ violet, KC+ reddish violet, C–, Pd–, UV–; containing hypothamnolic acid (major) and ±conhypothamnolic acid (minor).

This corticolous species occurs mainly in *Nothofagus*-dominated rainforest in south-eastern Qld and in N.S.W., Vic. and Tas.; also in New Zealand.

Qld: Bunya Mtns, Oct. 1919, *J.B.Cleland* (NSW). N.S.W.: 4 km E of Robertson, *J.A.Elix 8891* (CANB); Chaelundi Mtn, 37 km N of Ebor, *D.Verdon 3877* (CANB). Vic.: Mallacoota Inlet, Mallacoota, *A.W.Archer P537* (NSW). Tas.: Mt Barrow, *G.Kantvilas 76/83* (HO).

This species is characterised by monosporous asci and the presence of hypothamnolic acid which is responsible for the K⁺ reddish violet reaction. It can be distinguished from *P. tropica* by the absence of lichexanthone and the more southerly distribution.

***Pertusaria patellifera* A.W.Archer, *Mycotaxon* 41: 237 (1991)**

T: 8 km E of Mt Mowbullian, Bunya Mtns, Qld, 15 Aug. 1985, *R.W.Rogers 8975*; holo: BRI.

Illustration: A.W.Archer, *op. cit.* 243, fig. 7.

Thallus pale olive-green, wrinkled and cracked. Soredia and isidia absent. Apothecia numerous and scattered, conspicuously dish-shaped, occasionally dividing into 2 or 3 smaller 'dishes', concolorous with the thallus, 1–3 mm diam.; disc concave, white-pruinose. Ascospores 1 per ascus, broadly ellipsoidal, smooth, thin-walled, 150–170 × 45–55 µm.

Chemistry: Thallus K⁻, KC⁺ violet, C⁻, Pd⁻; containing atranorin (major), picrolichenic acid (major), subpicrolichenic acid (minor), superpicrolichenic acid (trace) and megapicrolichenic acid (trace).

This endemic, corticolous species is known only from the type locality in south-eastern Qld.

Pertusaria patellifera is characterised by the dish-shaped apothecia, monosporous asci and the presence of atranorin and picrolichenic acid in the thallus. It is distinguished from the chemically similar *P. clarkeana* by the shape of the apothecia, larger ascospores and, to a lesser extent, by the chemistry (*P. clarkeana* lacks atranorin).

***Pertusaria sublacerans* A.W.Archer, *Mycotaxon* 41: 242 (1991)**

T: summit of Intermediate Hill, Lord Howe Island, [31°33'S, 159°06'E], July 1911, *W.W.Watts s.n.*; holo: NSW L5219.

Illustration: A.W.Archer, *Biblioth. Lichenol.* 69: 194, fig. 78 (1997).

Thallus olive-green, thin, somewhat areolate and cracked, glossy, lacking soredia and isidia. Pustules numerous, subsidioid, finally hemispherical to subspherical, 0.5–1.5 mm diam., the upper part opening to reveal the white medulla. Apothecia disciform, somewhat sunken; disc 0.5–1.0 mm diam., white-pruinose. Ascospores uncommon, 1 per ascus, ellipsoidal, 150–175 × 60–70 µm; wall smooth, c. 1 µm thick.

Chemistry: Thallus K⁺ yellow then red, KC⁻, C⁻, Pd⁺ yellow; containing norstictic acid (major) and connorstictic acid (trace).

An uncommon, corticolous species in eastern Qld and N.S.W.; also in Papua New Guinea, Lord Howe Is. and Norfolk Is.

Qld: Lamins Hill Lookout, Atherton Tableland, *J.A.Elix 11930* (CANB); Forty-Mile Scrub Natl Park, *W.H.Ewers 8023 p.p.* (CANB). N.S.W.: beside Boambee Ck, 6 km S of Coffs Harbour, *A.W.Archer P891* (NSW); Brushy Mountain Rest Area, Werrikimbe Natl Park, *A.W.Archer P672* (NSW).

Pertusaria sublacerans is characterised by the olive-green, pustulate thallus containing norstictic acid. It is distinguished from the morphologically similar *P. lacerans* and *P. lacericans* (*q.v.*) which contain picrolichenic acid and protocetraric acid, respectively.

***Pertusaria velata* (Turner) Nyl., *Lich. Scand.* 179 (1861)**

Parmelia velata Turner, *Trans. Linn. Soc. London* 9: 143 (1808). T: Sussex, England, 1805, *W.Borrer*; holo: BM, *n.v.*

Pertusaria rhodotropa Müll.Arg., *Bull. Herb. Boissier* 3: 637 (1895). T: Qld, *C.Knight 308 p.p.*; lecto: G, *vide* A.W.Archer, *Telopea* 4: 181 (1991).

Illustration: I.Yoshimura, *Lichen Flora of Japan in Colour* pl. 22, fig. 190 (1974).

Thallus greyish white to off-white, thick, slightly cracked and areolate, smooth to slightly wrinkled, dull. Soredia and isidia absent. Apothecia numerous, crowded, disciform, immature apothecia irregularly hemispherical or subspherical, constricted at the base, 0.5–1.0 mm diam., mature apothecia becoming flattened and exposing the pale to dark reddish orange discs, 0.5–0.8 mm diam., slightly to densely white-pruinose. Ascospores 1 per ascus, ellipsoidal, thin-walled, smooth, $110\text{--}155\text{ (–}175\text{)} \times 30\text{--}45\text{ (–}50\text{)} \mu\text{m}$.

Chemistry: Thallus K–, KC+ orange-red, C+ red, Pd–; containing lecanoric acid (major), gyrophoric acid (trace), orsellinic acid (trace) and \pm lichexanthone (trace to major).

Corticolous and common in northern and eastern Australia (N.T., Qld and N.S.W.); a tropical to temperate species in both hemispheres, including Norfolk Is., New Zealand, Fiji, Vanuatu, New Caledonia and Papua New Guinea.

N.T.: Yapilaika, Melville Is., *H.Streimann* 42437 (CANB). Qld: Four-Mile Ck, 6 km W of Cooktown, *J.A.Elix* 17412 (CANB); Tin Can Bay, *J.A.Elix* 22820 (CANB). N.S.W.: Diamond Ck, 22 km SW of Moruya, *D.Verdon* 5082 (CANB, H); Park Beach, Coffs Harbour, *J.A.Elix* 3428 (CANB).

The species is characterised by monosporous asci and the presence of lecanoric acid which gives the thallus a C+ red reaction.