GROUP I

[Thallus corticolous, sterile, sorediate (soralia white) or isidiate]

1 Thallus isidiate.................................................................2

1: Thallus sorediate ........................................................................3

2 Thallus K+ yellow, containing thamnolic acid .....................................P. trichosa

2: Thallus K–, containing barbatic acid ..............................................P. barbatica

3 Soralia K+ yellow, red or violet....................................................4

3: Soralia K–..................................................................................7

4 Soralia K+ violet, Pd–; hypothamnolic acid present........................5

4: Soralia K+ yellow or red ............................................................6

5 Soralia UV+ yellow; lichexanthone present..................................P. tropica

5: Soralia UV–; lichexanthone absent .............................................P. novaezelandiae

6 Soralia K+ yellow then red; norstictic acid present ..............................P. erythrella

6: Soralia K+ yellow; thamnolic acid present ....................................P. leucosorodes

7 Soralia KC–, Pd+ intense yellow; psoromic acid present ..........P. psoromica

7: Soralia KC+ violet, Pd–; lichexanthone and picrolichenic acid present P. verdonii


T: Alfred Natl Park, 19 km E of Cann River, Vic., 21 Sept. 1978, J.A.Elix 5249; holo: CANB.
Illustration: A.W.Archer, op. cit. 183, fig. 68 (1997).

Thallus pale olive-green, thin, smooth and dull. Soredia absent. Isidia numerous, inconspicuous, simple, rarely branching, concolorous with the thallus, 0.2–0.3 mm tall, c. 0.1 mm wide. Apothecia not seen.

Chemistry: Thallus K–, KC–, C–, Pd–; containing barbatic acid (major), 4-O-demethyl-barbatic acid (minor to trace) and 3β-hydroxybarbatic acid (trace).

An uncommon, corticolous species in south-eastern Australia (N.S.W., Vic. and Tas.); also in New Zealand.


The species is one of several sterile, isidiate Australian taxa that are differentiated by chemistry. It resembles Neophyllis melacarpa (F.Wilson) F.Wilson (Cladoniaceae), but the latter contains fumarprotocetraric acid (Pd+ red).


T: Lakes Entrance, Vic., 1891, F.R.M.Wilson 999; holo: G.

Thallus off-white to pale greyish white, slightly cracked and areolate, faintly wrinkled, dull. Isidia absent. Soralia numerous, conspicuous, white, disc-like or subhemispherical, sometimes constricted at the base, 0.5–1.0 mm diam.; upper surface occasionally becoming smooth and pale reddish brown. Apothecia not seen.

Chemistry: Thallus K+ yellow then red, KC–, C–, Pd+ yellow; containing norstictic acid (major), connorstictic acid (trace) and ±lichexanthone (minor to trace).
An endemic, corticolous species that is usually found in rainforest in eastern Australia (Qld, N.S.W. and Vic.); also on islands in Bass Strait, Tas.

Qld: Bald Mtn, Gambubal S.F., J.Hafelber 16340 (GZU).
N.S.W.: Fitzroy Falls, 16 km SE of Moss Vale, D.Verdon 3030 (CANB).
Vic.: 6 km N of Club Terrace, 60 km ENE of Orbost, J.A.Elix 19251 (CANB).
Tas.: Deal Is., Kents Group, Bass Str., J.Winray s.n. (MEL 1012473).

The lichen is characterised by the sterile, sorediate thallus containing norstictic acid. It resembles *P. leucosorodes* (q.v.), but that species contains thamnolic acid.


T: Rampodde, Ceylon [Sri Lanka], 1879, E.Almquist s.n.; holo: H-NYL 23821.


T: Sassafras Ck, Springwood, 65 km W of Sydney, N.S.W., 33°43'S, 150°34'E, 16 July 1988, A.W.Archer P8; holo: NSW.


Thallus off-white to greyish white, thin, areolate and cracked, smooth. Isidia absent. Soralia conspicuous, white, becoming numerous towards the thallus centre, flattened and disciform, 0.5–1.5 mm wide. Apothecia not seen.

**Chemistry:** Thallus K+ yellow, KC–, C–, Pd+ yellow; containing thamnolic acid (major), ±lichexanthone (major); rarely with additional norstictic acid.

A corticolous species in W.A., N.T., Qld, N.S.W. and Vic.; also in Sri Lanka, Papua New Guinea and Norfolk Is.

W.A.: Prince Regent River Reserve, NW Kimberley, A.George 12730 (PERTH).
N.T.: Greenant Ck, trail to Tjaetaba Falls, Litchfield Natl Park, 60 km SW of Batchelor, J.A.Elix 38409 (CANB).
Qld: Clarke Ra., 46 km SE of Proserpine, J.A.Elix 20944 (CANB).
N.S.W.: Ben Lomond, 40 km S of Glen Innes, J.A.Elix 2425 (CANB); Robertson Nature Reserve, Robertson, J.A.Elix 40732 (CANB).
Vic.: Colquhoun S.F., 9 km E of Lakes Entrance, J.A.Elix 5357 (CANB).

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 Mts, 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).

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.


T: Kaiwaka, Otema County, North Is., New Zealand, J.K.Bartlett 24219; holo: AK 192231.

Illustration: A.W.Archer & J.A.Elix, op. cit. 205, fig. 5.
Thallus dull fawn or pale olive-green, areolate and cracked, smooth or subtuberculate, somewhat glossy. Isidia absent. Soralia numerous, conspicuous, discoid or hemispherical, white, initially pustulate, composed of granular soredia, 0.5–2.0 mm diam. Apothecia not seen.

**Chemistry:** Thallus K–, KC–, C–, Pd+ intense yellow; containing psoromic acid (major) and consoromic acid (minor).

This corticolous species occurs in rainforest in eastern Qld and north-eastern N.S.W.; also in Papua New Guinea, Norfolk Is. and New Zealand.

Qld: Mt Baldy, 4 km S of Atherton, J.A.Elix 16276 (CANB); Mt Windsor Tableland, 45 km NW of Mossman, J.A.Elix 16445, 16449 (CANB). N.S.W.: Wiangaree Forest Drive, Tweed Ra., G.Kantvilas 645/88 (HO, NSW); Bar Min Lookout, Border Ranges Natl Park, A.W.Archer P480 (NSW).

Characterised by conspicuous soralia and the presence of psoromic acid. The latter feature distinguishes it from *P. leucosorodes* which contains thamnolic acid.


T: Scrub Rd, Bago Bluff Natl Park, 7 km W of Waunchope, N.S.W., 31°28′45″S, 152°39′36″E, alt. 25 m, on dead wood, 8 Aug. 2008, J.A.Elix 43276; holo: CANB.

Illustration: J.A.Elix & A.W.Archer, op. cit. 20, figs 5, 6.

Thallus corticolous, off-white to pale fawn, thin, smooth and dull, isidiate; soredia absent. Isidia crowded, cylindrical, thin, simple, pale fawn, becoming brown at the tips, 0.2–0.4 mm tall, 0.03–0.05 mm diam. Apothecia not seen.

Chemistry: Thallus K+yellow; containing thamnolic acid (major).

A very rare corticolus species in eastern N.S.W.; endemic.

N.S.W.: type locality, J.A.Elix 43280 (CANB).

**Pertusaria trichosa** is characterised by the thin isidia, the presence of thamnolic acid and the absence of apothecia.

**Pertusaria tropica** Vain., Cat. Welw. Afr. Pl. 2: 404 (1901)


Illustration: A.W.Archer, op. cit. 214, fig. 80.

Thallus off-white to greyish white to greyish green, smooth or tuberculate, glossy, sometimes slightly areolate and cracked. Soredia and isidia absent. Apothecia disciform, often numerous and crowded, 0.6–1.5 (~2.0) mm diam.; discs dark but white-pruinose, sorediate when sterile. Ascospores 1 per ascus, ellipsoidal, (115–) 150–180 × (25–) 35–50 µm; wall 5–10 µm thick.

Chemistry: Thallus K+ violet, KC+ wine-red, C–, Pd–, UV+ yellow; containing hypothamnolic acid (major), ±lichexanthone (major); rarely with lichesterinic acid (minor).

Corticolous in north-eastern Qld; also in SW Africa, Thailand, Indonesia and Papua New Guinea.

Qld: track to Mt Lewis, 19 km W of Mt Malloy, J.A.Elis 16902 (CANB); Dawes Ra., 53 km E of Biloela, J.A.Elis 34747 (CANB); N end of Hinchinbrook Is., G.N.Stevens s.n. (BRI).

**Pertusaria tropica** is characterised by 1-spored asci and hypothamnolic acid in the thallus.

The temperate Australasian *P. novaezelandiae* lacks lichexanthone.


T: near Broken Pine, Mount Pitt Reserve, Norfolk Island, 29°01′30″S, 167°56′20″E, alt. 240 m, on *Elaeodendron* in mixed subtropical rainforest, 2 Dec. 1984, J.A.Elix 18283; holo: CANB.

Illustration: A.W.Archer, op. cit. 66, fig. 2D.
Thallus olive-green, wrinkled and cracked, smooth and dull, lacking isidia, sorediate. Soralia conspicuous, scattered, hemispherical, concolorous with the thallus, 1.0–1.5 mm diam. Apothecia absent.

Chemistry: Thallus K–, KC+ violet, C–, Pd–; containing lichexanthone (major), picrolichenic acid (major) and superpicrolichenic acid (major).

A rare, endemic corticolous species known only from Norfolk Island and north-eastern Qld. Qld: Tully Gorge, 49 km NW of Tully, J.A.Elix 36988 (CANB).

The species is characterised by the sorediate thallus and the presence of picrolichenic acid and lichexanthone.