GROUP E

[Thallus saxicolous, sterile; sorediate or isidiate]

1 Thallus isidiate, stictic acid present 2
1: Thallus sorediate 3

2 Thallus containing 4,5-dichlorolichexanthone ..... **P. montpittensis**
2: Thallus containing thiophaninic acid ..... **P. xanthodactylina**

3 Thiophaninic acid absent 4
3: Thiophaninic acid present 5

4 Chlorolichexanthones and stictic acid present ..... **P. puffina**
4: Perlatolic acid homologues present ..... **P. salebrosa**

5 Thallus dull yellow to greyish yellow, containing hypostictic acid ..... **P. remota**
5: Thallus dull to bright yellow, not containing hypostictic acid ..... **P. xanthoplaca**

Pertusaria montpittensis A.W.Archer, *in* J.A.Elix, H.Streimann & A.W.Archer, *Proc. Linn. Soc. New South Wales* 113: 65 (1992)

T: Mount Bates summit trail, Mount Pitt Reserve, Norfolk Is., 29°00'S, 167°56'30"E, 7 Dec. 1984, *J.A.Elix 18641*; holo: CANB.

Illustration: J.A.Elix, H.Streimann & A.W.Archer, *op. cit.* 66, fig. 2A.

Thallus pale olive-green to pale yellow-grey, thin, continuous, smooth and glossy. Soredia absent, copiously isidiate especially towards the centre of the thallus. Isidia concolorous with the thallus, usually simple, otherwise branched or becoming coralloid, occasionally narrow at the base and swelling at the tip, 0.4–1.0 mm tall, 0.2–0.5 mm wide. Apothecia not seen.

Chemistry: Thallus K–, KC–, C–, Pd–; containing stictic acid (major), 4,5-dichlorolichexanthone (minor), constictic acid (minor), cryptostictic acid (minor), menegazziaic acid (minor) and ±skyrin (minor to major).

Rare and corticolous in eastern Qld; also in Lord Howe Is. (corticolous and saxicolous), Norfolk Is., Papua New Guinea and Tonga.

Qld: Ingham–Kangaroo Hills road, 36 km SW of Ingham, *J.A.Elix* 20413 (CANB); Pine Mountain S.F., 24 km SSW of Calliope, *J.A.Elix 34799* (CANB); Springbrook, *H.T.Lumbsch 5391h* (Herb. H.T.Lumbsch).

The species is characterised by the typically short simple isidia and the chemistry which distinguishes it from the Hawaiian *P. ramulifera* H.Magn. (containing norstictic acid) and from the isidiate *P. muricata*.

Pertusaria puffina A.W.Archer & Elix, *Telopea* 6: 22 (1994)

T: track to Mutton Bird Pt, Lord Howe Is., 31°32'45"S, 159°05'00"E, 21 June 1992, *J.A.Elix 32823*; holo: CANB.

Illustration: A.W.Archer & J.A.Elix, *op. cit.* 16, fig. 7.

Thallus dull yellow, thin, cracked, smooth and glossy. Isidia absent. Soralia numerous, scattered, white to off-white, disciform, 0.4–0.8 mm diam. Apothecia not seen.

Chemistry: Thallus K–, KC–, C–, Pd–; containing 2,4-dichlorolichexanthone (major), 2,5-dichlorolichexanthone (major), 2,4,5-trichlorolichexanthone (major), stictic acid (major), 2-chlorolichexanthone (minor) and constictic acid (minor).

A rare, corticolous and saxicolous species in south-eastern Qld, eastern N.S.W.; also in Papua New Guinea (muscicolous) and Lord Howe Island.

Qld: summit of Mt Kiangarow, Bunya Mountains Natl Park, 68 km N of Dalby, *J.A.Elix 37645* (CANB). N.S.W.: Mount Boss S.F., 37 km NW of Wauchope, *A.W.Archer P669* (NSW).

The distinctive chemistry separates lichen from other sterile sorediate Australian *Pertusaria* species.

Pertusaria remota A.W.Archer, *Mycotaxon* 41: 238 (1991)

T: March Fly Glen, 64 km NE of Lennard R. crossing, along Gibb River road, King Leopold Ra., W.A., 17°10'S, 125°18'E, 14 May 1988, *J.A.Elix 22221*; holo: CANB.

Illustration: A.W.Archer, *Biblioth. Lichenol.* 69: 132, fig. 48 (1997).

Thallus thin to diffuse, discontinuous, dull yellow to greyish yellow, areolate and cracked, smooth. Isidia absent. Soralia sparse, scattered or numerous, 0.2–0.6 mm diam., discoid to hemispherical. Apothecia not seen.

Chemistry: Thallus K–, KC+ weak orange, C–, Pd–; containing thiophaninic acid (major), stictic acid (major), hypostictic acid (minor), 2-chloro-6-*O*-methylnorlichexanthone (trace) and cryptostictic acid (trace).

Saxicolous in northern W.A., N.T. and N.S.W.; also in the Philippines.

W.A.: Duncan Hwy, 14 km ESE of Halls Creek, *J.A.Elix 22376* (CANB); NE of Kununurra, *A.C.Beauglehole 13904* (MEL). N.T.: Kakadu Natl Park, *M.F.Day* (CANB); 2 km N of Victoria R. crossing, *J.A.Elix 22497* (CANB); Umbrawarra Gorge, 22 km SW of Pine Creek, *J.A.Elix 22525* (CANB). N.S.W.: Dangars Gorge, Oxley Wild Rivers National Park, 18.5 km SSE of Armidale, *J.A.Elix 36457* (CANB).

The species is characterised by the dull yellow, sorediate thallus and the distinctive chemistry. It resembles *P. xanthoplaca*, a common, saxicolous species in eastern Australia, but that species lacks hypostictic acid.

Pertusaria salebrosa A.W.Archer & Elix, *in* A.W.Archer, *Biblioth. Lichenol.* 69: 139 (1997)

T: First Turkey, Mount Archer Environmental Park, 7 km NE of Rockhampton, Qld, 23°21'S, 150°34'E, 24 Aug. 1993, *J.A.Elix 34510*; holo: CANB.

Illustration: A.W.Archer, *op. cit.* 141, fig. 50.

Thallus off-white, slightly cracked, smooth and dull. Isidia absent. Soralia numerous, scattered, circular, plane, 0.3–0.5 mm diam. Apothecia not seen.

Chemistry: Thallus K+ weak yellow, KC+ weak yellow, C–, Pd–; containing 2'-*O*-methylsuperlatolic acid (major), 2'-*O*-methylisohyperlatolic acid (major), 2'-*O*-methylperlatolic acid (minor), atranorin (minor) and 2-*O*-methylperlatolic acid (minor).

This endemic, saxicolous species is known only from the type locality in eastern Qld.

Pertusaria salebrosa is characterised by the sterile, sorediate thallus and the presence of 2'-*O*-methylsuperlatolic acid and 2'-*O*-methylisohyperlatolic acid. Morphologically, it resembles *P. subventosa*, but it is readily distinguished by examination under long wavelength UV light: *P. salebrosa* shows no fluorescence in contrast to the bright yellow fluorescence of *P. subventosa*.

Pertusaria xanthodactylina A.W.Archer & Elix, *in* A.W.Archer, *Biblioth. Lichenol.* 69: 165 (1997)

T: Cooktown road, 3 km NW of Mount Molloy, Qld, 16°40'S, 145°19'E, 3 July 1984, *J.A.Elix 17184*; holo: CANB.

Thallus dull to bright yellow, areolate and cracked, smooth. Soredia absent. Isidia simple, scattered, 0.2–0.4 mm tall, 0.05–0.10 mm wide. Apothecia rare, verruciform, scattered, rarely confluent, concolorous with the thallus, slightly flattened-hemispherical, becoming constricted at the base, 0.5–1.0 mm diam. Ostiole inconspicuous, pale to dark yellowish brown, 1 per verruca. Ascospores 8 per ascus, irregularly uniseriate, ellipsoidal, rarely subfusiform, smooth, 50–75 (–90) × 25–37 µm.

Chemistry: Thallus K–, KC+ orange, C+ orange, Pd– or Pd+ weak yellow; containing thiophaninic acid (major), stictic acid (major), constictic acid (minor), 2-chloro-6-*O*-methylnorlichexanthone (trace) and ±lichexanthone (minor to trace).

A locally common, endemic, saxicolous species in north-eastern Qld.

Qld: Shipton Flat Rd, 44 km S of Cooktown, *H.Streiman 57517* (CANB); Mt Leswell, 32 km S of Cooktown, *J.A.Elix 17353* (CANB); The Black Gap, 21 km SSW of Cooktown, *J.A.Elix 17337* (CANB); Mt Slopeway, 23 km S of Cardwell, *H.Streimann 45411* (CANB); Mt Finnegan, 39 km S of Cooktown, *H.Streimann 57610* (CANB).

Pertusaria xanthodactylina is characterised by the yellow isidiate thallus, the presence of thiophaninic and stictic acids and, when fertile, 8-spored asci.

Pertusaria xanthoplaca Müll.Arg., *Flora* 65: 485 (1882)

T: Toowoomba, Qld, 1881, *C.Hartmann 32*; holo: G; iso: MEL 7286.

Pertusaria persulphurata Müll.Arg., *Nuovo Giorn. Bot. Ital.* 23: 391 (1891). T: Brisbane, Qld, *F.M.Bailey s.n.*: holo: G.

Pertusaria fallax f. *sulphurea* F.Wilson, *Victorian Naturalist* 4: 87 (1887), *nom. nud*.

Illustration: A.W.Archer *Biblioth. Lichenol.* 69: 123. fig. 41 (1997); A.W.Archer, *Fl. Australia* 56A: 106, pl. 55 (2004).

Thallus dull to bright yellow, areolate and cracked, smooth, lacking isidia. Soralia scattered, somewhat immersed, 0.2–0.5 mm diam. Apothecia rare, verruciform, scattered, rarely confluent, concolorous with the thallus, slightly flattened-hemispherical, becoming constricted at the base, 0.5–1.0 mm diam. Ostiole inconspicuous, pale to dark yellowish brown, 1 per verruca. Ascospores 8 per ascus, irregularly uniseriate, ellipsoidal, rarely subfusiform, smooth, 50–75 (–90) × 25–37 µm.

Chemistry: Thallus K–, KC+ orange, C+ orange, Pd– or Pd+ weak yellow; containing thiophaninic acid (major), stictic acid (major), constictic acid (minor), 2-chloro-6-*O*-methylnorlichexanthone (trace), ±lichexanthone (minor to trace) and 4-chloro-6-*O*-methylnorlichexanthone (trace); rarely with additional norstictic acid (minor).

A conspicuous, saxicolous species on exposed rock in eastern Qld, N.S.W. and Tas.; often growing with *P. subventosa*; also in Papua New Guinea, New Caledonia, Lord Howe Is., Norfolk Is. and New Zealand.

Qld: Kennedy Development Rd, 7 km SSW of Lyndhurst, *H.Streimann 46853* (CANB); Staircase Ra., 18 km SE of Springsure, *J.A.Elix 34287* (CANB); Magill S.F., *R.W.Rogers 2369* (BRI). N.S.W.: Colo R., 50 km NW of Sydney, *D.Verdon 2603* (CANB); Hat Head summit, Hat Head Natl Park, *A.W.Archer P379* (NSW). Tas.: c. 1 km NE of Coles Bay township, *G.Kantvilas 164/07* (HO); western slopes of Mt Freycinet, *G.Kantvilas 149/95* (HO).

The species is characterised by the yellow, sorediate thallus and the presence of thiophaninic and stictic acids. Fertile specimens are very uncommon. It can be distinguished from the somewhat similar *P. hypoxantha* (*q.v.*) the presence of soredia. Only one Australian specimen is known to contain additional norstictic acid. *Pertusaria xanthoplaca* can be distinguished from *P. remota* by the absence of hypostictic acid.