

## GROUP N

### [Thallus saxicolous, fertile; apothecia disciform]

- 1 Ascospores 8 per ascus, 30–47  $\mu\text{m}$  long; thallus K+ yellow then red, containing norstictic acid ..... **P. erubescens**
- 1: Ascospores 1 per ascus ..... 2
- 2 Ascospores 106–220  $\mu\text{m}$  long; thallus Pd–, containing usnic and 5-*O*-methylhiasic acids ..... **P. flavoexpansa**
- 2: Ascospores 164–281  $\mu\text{m}$  long; thallus Pd+ red, containing protocetraric acid ..... **P. parathalassica**

#### **Pertusaria erubescens** (Taylor) Nyl., *Mém. Soc. Sci. Nat. Cherbourg* 5: 117 (1858)

*Urceolaria erubescens* Taylor, *London J. Bot.* 3: 640 (1844). T: Port Louis, Falkland Islands, [1842], *J.D.Hooker*; syn: BM, H-NYL 23560, 23561.

*Pertusaria perfida* Nyl., *Flora* 48: 339 (1865). T: Otago, New Zealand; *W.L.Lindsay s.n.*; lecto: E, *vide* D.J.Galloway, *Fl. New Zealand Lichens* 378 (1985); isolecto: H-NYL 23573, 23737.

*Pertusaria concava* Müll.Arg., *Bull. Herb. Boissier* 3: 640 (1895). T: Grampians, Vic., 1894, *D.Sullivan s.n.*; holotype: G.

Illustration: A.W.Archer, *Biblioth. Lichenol.* 69: 183, fig. 71 (1997).

Thallus off-white to pale grey, areolate and cracked, smooth and dull. Soredia and isidia absent. Apothecia numerous, scattered, disciform, concolorous with the thallus, 0.4–0.7 mm diam.; disc black, epruinose or slightly white-pruinose. Ascospores 8 per ascus, irregularly uniseriate, ellipsoidal, smooth, 30–40 (–47)  $\times$  17–25  $\mu\text{m}$ .

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

Occurs in southern N.S.W. and Vic., usually inland and on granite at altitudes of 300–1750 m; also in South Africa, New Zealand, the Falkland Islands and Antarctica.

N.S.W.: Dora Dora S.F., 18 km SE of Holbrook, *J.A.Elix 23008* (CANB); Tinderry Mtns, 11 km ESE of Michelago, *D.Verdon 2070* (CANB). Vic.: Mt Cope, Alpine Natl Park, *J.A.Elix 40690* (CANB); Lookout Hill, 1.5 km E of Myrtleford, *H.Streimann 35931* (CANB, H).

*Pertusaria erubescens* is characterised by 8-spored asci and the presence of norstictic acid. The chemically similar New Zealand species *P. erumpescens* Nyl. has verruciform rather than disciform apothecia.

#### **Pertusaria flavoexpansa** Kantvilas & Elix, *Sauteria* 15: 253 (2008)

T: Crater Peak, Tas., 41°39'S 145°56'E, on soil, shrubs and stones in alpine heathland, 1200 m alt., 16 Feb. 1984, *G.Kantvilas 415/84* & *P.W.James*; holotype: HO; iso: BM

Illustration: G.Kantvilas & J.A.Elix, *op. cit.* 254, fig. 2.

Thallus pale lemon-yellow, occasionally  $\pm$ maculate, usually thick (to 2 mm) and wide-spreading, continuous, smooth to verrucose, papillate or glomerulate. Apothecia scattered, immersed in gall-like verrucae 0.4–1.0 mm wide,  $\pm$ globose, superficial, basally constricted, pale brownish, pale greyish to pale yellowish, splitting by up to 5  $\pm$ radial fissures, becoming coarsely abraded and exposing the 'disc'; disc initially convex and brown, at length eroded and becoming  $\pm$ plane and black, with a thin rather ragged rim of thalline tissue resembling a lecanorine margin. Verrucae in section subtended by a band of dark brown tissue 20–40  $\mu\text{m}$  thick, occasionally with flecks or streaks of a purple-black K+ aeruginose greenish pigment. Ascospores 1 per ascus, broadly ellipsoidal to ovate to oblong, (106–) 130–168 (–220)  $\times$  (40–) 84 (–112)  $\mu\text{m}$ , colourless, but sometimes becoming pale brown with age and internally sculptured with transverse strands; wall 5–10  $\mu\text{m}$  thick, generally swelling noticeably in KOH. Pycnidia not seen.

**Chemistry:** Thallus K<sup>-</sup>, KC<sup>+</sup> orange-pink, C<sup>+</sup> pink, P<sup>-</sup>, UV<sup>-</sup>; containing usnic acid, 5-*O*-methylhiascic acid (major), two unknowns (minor ; with UV spectra comparable with that of 5-*O*-acetyl-4-*O*-methylhiascic acid) and lecanoric acid (trace).

A widely distributed species endemic to Tas.; grows on soil, pebbles, rocks and low shrubs in mountainous areas.

Tas.: Western Arthur Ra., *G.Kantvilas* 441/06 (HO); Clear Hill, *G.Kantvilas* 105/92 (HO); Reservoir Lakes, *A.M.Buchanan* 2986A (HO); Jubilee Ra., *A.Moscal* 9238 (HO); Elliot Ra., *G.Kantvilas* 23/85 (BM, HO); Mt Bobs, *G.Kantvilas* 59/98 (HO); summit of Snowy North, *G.Kantvilas* 98/93 (CANB, HO); Greystone Bluff, *G.Kantvilas* 106/86 (herb. A.Vězda, HO); Mt Mawson, *G.Kantvilas* 771/81 (BM, HO); 4 km N of Precipitous Bluff, *G.Kantvilas* 109/90 (CANB, HO); Weindorfers Forest, *G.Kantvilas* s.n. (CANB, HO).

This conspicuous lichen is characterised by its yellowish, wide-spreading thallus that can form patches of more than 50 cm in extent, the single-spored asci and the presence of usnic and 5-*O*-methylhiascic acids. However, fertile asci and ascospores are not easily observed.

***Pertusaria parathalassica* Kantvilas & Elix, *Sauteria* 15: 258 (2008)**

T: Coal Pt, Bruny Is., Tas., 43°20'S, 147°19'E, alt. 1 m, on sandstone rocks within the spray zone, 14 June 2005, *G.Kantvilas* 145/05; holo: HO; iso: CANB.

Illustration: *G.Kantvilas* & *J.A.Elix*, *op. cit.* 259, fig. 4.

Thallus whitish to pale dull grey, deeply cracked and areolate, 0.4–1.5 (–2.0) mm thick, very hard, brittle, lacking isidia and soredia, ecorticate. Apothecia disciform, 0.8–1.5 (–2.5) mm wide, single or with 2 or 3 fused, usually rather deformed and squashed; hymenia at first deeply immersed within the verrucae and obscured by a thick sterile 'plug' of thalline tissue, at length exposed and revealing an orange-brown to greyish disc, soon becoming abraded, eroded and excavate. Asci 1-spored, elongate-oblong, soon rupturing. Ascospores oblong-ellipsoidal, hyaline, 164–281 × 51–109 μm; wall 3–4 μm thick, internally smooth.

**Chemistry:** Thallus K<sup>-</sup>, KC<sup>-</sup>, C<sup>-</sup>, Pd<sup>+</sup> red, UV<sup>-</sup>; containing protocetraric acid.

A locally common saxicolous species on southern coasts of Tas.; endemic.

Tas.: Roaring Bay, *G.C.Bratt* 68/529 & *J.A.Cashin* (HO); channel between Penguin Is. and Grass Pt, Bruny Is., *G.Kantvilas* 115/04 (HO); Cape Hauy, *G.Kantvilas* 420/01 (HO).

The lichen is characterised by large, disciform apothecia, single-spored asci, exceptionally large ascospores and the presence of protocetraric acid. It is distinguished from the chemically similar saxicolous species *P. macloviana* Müll.Arg., recorded from southern South America and the Falkland Islands, by the smaller ascospores in the latter (147–187 × 49–74 μm) and the disciform apothecia that become coarsely sorediate.