



## HYPOTRACHYNA <sup>1</sup>

Gintaras Kantvilas <sup>2</sup>

*Hypotrachyna* (Vain.) Hale, *Phytologia* 28: 341 (1974).

Type: *H. brasiliiana* (Nyl.) Hale

= *Parmelinopsis* Elix & Hale, *Mycotaxon* 29: 242 (1987); type: *P. horrescens* (Taylor) Elix & Hale

Thallus foliose, generally loosely adnate, with lobes flattened, dorsiventral, frequently linear-elongate with truncate apices, sinuous axils and a black marginal border; upper surface whitish grey or greenish yellow, rarely maculate, lacking cortical hairs and pseudocyphellae, corticate, sometimes fragile and flaking, with a pored epicortex; lower surface pale to dark brown to black, with sparsely to richly, usually dichotomously or squarrosely branched rhizines occurring to the lobe margins and sometimes projecting beyond. Photobiont trebouxoid. Ascomata apothecia, lecanorine, laminal; disc plane to concave, imperforate, pale to dark brown, epruinose; proper exciple cupulate. Paraphyses 1.5–2.5 µm thick, sparsely branched and anastomosed; apices usually brownish and capitate, 3.5–5 µm wide. Asci 8-spored, of the *Lecanora*-type: clavate; tholus well-developed, amyloid, pierced entirely by a narrow, non-amyloid *masse axiale* with parallel flanks; ocular chamber not developed. Ascospores simple, hyaline, ellipsoid to subglobose, with a distinct wall c. 0.5–1 µm thick. Conidiomata pycnidia, immersed, laminal. Conidia fusiform or bacilliform. Chemistry: atranorin, usnic acid or lichexanthone occur in the cortex; medullary chemistry is complex with a wide range of substances and substance-types reported.

A cosmopolitan genus of attractive, usually corticolous, foliose lichens, with its greatest diversity in the tropics. In its current circumscription, based heavily on molecular data (Divakar *et al.* 2013), it comprises about 250 species and subsumes the genera *Cetrariastrum* and *Everniastrum* (not found in Tasmania), as well as *Parmelinopsis*. Across its entire range, *Hypotrachyna* can be difficult to distinguish from other genera of the Parmeliaceae. However, in Tasmania, most species are usually easily recognised at the generic level by their generally elongate-truncate lobes with a thin, black border fringed with rhizines, the sinuous lobe axils and the black lower surface. Species previously included in *Parmelinopsis* were distinguished by mainly simple rhizines as well as by their relatively thin and fragile, often flaking upper cortex. The apparently ciliate lobe margins seen in *Parmelinopsis* have been interpreted by authors such as Krog & Swinscow (1979) as having their origin in the lower cortex, and simply being projecting, horizontally-orientated rhizines. *Hypotrachyna* is superficially most similar to *Austroparmelina*, which differs by having incised axils and marginally (but often very sparsely) ciliate lobes. Furthermore, all Tasmanian species of *Austroparmelina* contain lecanoric acid, a compound not found in any Tasmanian species of *Hypotrachyna*. The difference between these superficially similar genera is further supported by molecular data.

Key references: Krog & Swinscow (1979); Elix (1994); Kantvilas *et al.* (2002); Divakar *et al.* (2013); Lendemer & Allen (2020).

1 Upper surface greenish yellow (containing usnic acid)  
Upper surface grey (containing atranorin or lichexanthone)

8 H. sinuosa  
2

1 This work can be cited as: Kantvilas G (2024). *Hypotrachyna*, version 2024:1. In MF de Salas (Ed.) *Flora of Tasmania Online*. 7 pp. (Tasmanian Herbarium, Tasmanian Museum and Art Gallery: Hobart). <https://flora.tmag.tas.gov.au/lichen-genera/hypotrachyna/>

2 Tasmanian Herbarium, Tasmanian Museum & Art Gallery, PO Box 5058, UTAS LPO, Sandy Bay, TAS 7005, Australia.

2(1) Upper surface K-, UV+ yellow (containing lichexanthone) Upper surface K+ yellow, UV- (containing atranorin)	6 <i>H. osseoalba</i>	3
3(2) Thallus lacking isidia, soredia or pustules Thallus isidiate, sorediate or with laminal pustules that become abraded	5 <i>H. neodamaziana</i>	4
4(3) Thallus isidiate; isidia with ciliate apices Thallus sorediate, or with pustules that become abraded and/or sorediate	2 <i>H. horrescens</i>	5
5(4) Thallus with laminal and subterminal pustules (often in masses) that become abraded but not sorediate; medulla C- Thallus sorediate (sometimes very sparingly so); soredia sometimes developing from subapical pustules; medulla C+ pink or orange, or C-	9 <i>H. subfaticens</i>	6
6(5) Medulla C- (containing colensoic acid); soredia in capitate, dull grey to brownish grey soralia Medulla C+ red or orange	3 <i>H. immaculata</i>	7
7(6) Medulla C+ orange, KC+ yellow-orange (containing barbatic acid); lower surface very densely rhizinate, with the rhizines forming a dense, shaggy, marginal fringe that protrudes from beneath the thallus; very rare and known only from the rainforests of the north-west Medulla C+ reddish, KC+ reddish (containing gyrophoric acid); rhizines sometimes protruding from beneath the thallus margins but then usually sparse and scattered; widespread and common	4 <i>H. laevigata</i>	8
8(7) Thallus rather fragile, with the upper cortex frequently flaking and exposing the medulla; marginal lobes plane to undulate; soredia arising from laminal and submarginal pustules Thallus robust, with an intact upper cortex; marginal lobes erect or ascending; soredia formed in usually dark, discoloured, rounded or lip-shaped soralia, carried conspicuously above the thallus mass on revolute lobe apices	1 <i>H. afrorevoluta</i>	7 <i>H. revoluta</i>

### 1 *Hypotrachyna afrorevoluta* (Krog & Swinscow) Krog & Swinscow

*Lichenologist* 19: 420 (1987); —*Parmelia afrorevoluta* Krog & Swinscow, *Norweg. J. Bot.* 26: 22 (1979); *Parmelinopsis afrorevoluta* (Krog & Swinscow) Elix & Hale, *Mycotaxon* 29: 242 (1987).

Thallus usually loosely adnate, to 10 cm wide; lobes 0.5–5(–8) mm wide, irregularly branched, plane to undulate to rather crumpled, densely imbricate, with truncate or rounded, ascending or deflexed apices, crenulate margins and usually sinuate axils; upper surface whitish grey, occasionally with a narrow, black, marginal border, smooth to somewhat dimpled, occasionally faintly rimose, ± glossy, emaculate or rarely faintly maculate, sorediate, typically with the upper cortex fragile and flaking to expose the whitish or blackened medulla; soredia developing from laminal and submarginal pustules, coarsely granular, concolorous with the thallus, at length becoming confluent and spreading across the thallus; lower surface black except for a paler brown subapical zone, wrinkled, with sparse to dense, simple or sparsely dichotomously branched rhizines to 1 mm long, frequently protruding from beneath the lobe margins and forming a sparse fringe. Apothecia rare, shortly stipitate, 1–7 mm wide; thalline margin incurved, becoming pustulate and sorediate. Ascospores 13–18.4–23 × 9–11.3–14.5(–16) µm. Pycnidia not seen.

Chemistry: atranorin, chloroatranorin, gyrophoric acid (major) and 5-O-methylhiascic acid (trace); medulla K-, KC+ pink or red, C+ pink or red, P-, UV-.

Widely distributed in temperate areas of both hemispheres. In Tasmania, this species is widespread and common, ranging from rainforest, where it is a canopy species, to dry sclerophyll woodland and coastal communities, where it can occur on rocks or as an epiphyte. The soredia originating in pustules, and the fragile, flaking cortex are diagnostic. The upper surface is frequently speckled with black, pycnidia-like structures, but these have not been found to contain conidia. It is most easily confused with *Austroparmelina labrosa* (Zahlbr.) A. Crespo *et al.*, which has a similarly wide ecological amplitude, but which differs by having incised axils, an intact cortex, and contains lecanoric acid.

Grasstree Hill, 42°47'S 147°21'E, 320 m, 1970, G.C. Bratt 70/854 & J.A. Cashin (HO); South Sister near summit, 41°32'S 148°10'E, 750 m, 2004, J.A. Elix 28658 & G. Kantvilas (CANB, HO); Rabalga Track, 41°05'S 145°22'E, 280 m, 2019, G. Kantvilas 97/19 (HO).

## 2 *Hypotrachyna horrescens* (Taylor) Krog & Swinscow

*Lichenologist* 19: 420 (1987); —*Parmelia horrescens* Taylor, in J.T. Mackay, *Fl. Hibern.* 2: 144 (1836); *Parmelina horrescens* (Taylor) Hale, *Phytologia* 28: 482 (1974); *Parmelinopsis horrescens* (Taylor) Elix & Hale, *Mycotaxon* 29: 242 (1987).

Thallus loosely to tightly adnate, to c. 5 cm wide; lobes 0.4–2.5 mm wide, shortly linear, richly dichotomously branched, plane to undulate, densely imbricate, with truncate, often deflexed apices and sinuous axils; upper surface whitish grey, usually with a narrow, black, marginal border, smooth, ± glossy, emaculate, isidiate; isidia terete to a little flattened, laminal, to 0.3 mm tall and 0.07–0.1 mm wide, with apical, black cilia to 0.25 mm long, soon forming dense, coralloid or lobulate clusters that dominate the thallus centre; lower surface black except for a paler brown subapical zone, with dense, simple or dichotomously branched rhizines to 0.3–1.5 mm long, typically protruding from beneath the lobe margins and forming a sparse fringe. Apothecia sessile, very rare, 1.5–2.5 mm wide; thalline margin crenulate, becoming isidiate. Ascospores (11–)12–14.4–17.5(–19) × (8–)9–10.2–12.5(–13) μm. Pycnidia not seen.

Chemistry: atranorin, chloroatranorin, 3-methoxy-2,4-di-O-methylgyrophoric acid (major), gyrophoric acid (minor), 2,4-di-O-methylgyrophoric acid (minor) and 5-O-methylhiassic acid (minor); medulla K–, KC+ reddish pink, C–, P–, UV–.

Widespread in temperate and subtropical regions of the world. This species is highly localised in Tasmania and restricted to drier, coastal areas where it is found mostly in sheltered microhabitats on large outcrops of granite or quartzite in dry sclerophyll woodland; more rarely it can also occur on bark. The dense, apically ciliate isidia are diagnostic, and readily distinguish it from the superficially similar *Austroparmelina conlabrosa* (Hale) A.Crespo *et al.* Laminal, black, pycnidia-like specks seen in many thalli are the initials of ciliate isidia.

Saddle on track to Wineglass Bay, 42°09'S 148°17'E, 200 m, 1996, G. Kantvilas 93/96 (HO); Rocky Cape, 40°52'S 145°31'E, 10 m, 2001, G. Kantvilas 1166/01 (HO); Flinders Island, track to Mt Strzelecki, 40°12'00"S 148°04'06"E, 550 m, 2014, G. Kantvilas 208/14 (HO).

## 3 *Hypotrachyna immaculata* (Kurok.) Hale

*Smithsonian Contr. Bot.* 25: 41 (1975); —*Parmelia immaculata* Kurok., in M.E. Hale & S. Kurokawa, *Contr. U.S. Natl. Herb.* 36: 178 (1964).

Thallus generally loosely adnate, to c. 5 cm wide; lobes 0.5–1.5 mm wide, linear-elongate to short and irregular, dichotomously branched, plane to undulate to convex, imbricate, with rounded to truncate apices and sinuous axils; upper surface whitish grey to dull grey, smooth, ± glossy, emaculate, sorediate; soredia laminal, coarsely granular, soon discoloured dull grey to brownish grey, arising in capitate soralia that spread and coalesce into elevated, glomerulate clusters to 2 mm wide; lower surface black, with dense, dichotomously branched rhizines to 0.5 mm long, not protruding from beneath the lobe margins. Apothecia unknown in Tasmania; ascospores reported as 10–14 × 4–7 μm (Elix 1994). Pycnidia not seen.

Chemistry: atranorin, colensoic acid and 4-O-methylphysodic acid; medulla K–, KC+ very weak pink, C–, P–, UV–.

Rare in Tasmania and formally listed as such under the *Tasmanian Threatened Species Protection Act 1995*. It is known from just two localities on the East Coast where it occurs on exposed rock outcrops (granite and dolerite) in dry sclerophyll forest and heathland. It is widespread in temperate and tropical areas of the world and is known to also colonise bark. The chemical composition of this species is diagnostic.

Mt Amos, 42°09'S 148°18'E, 480 m, 1991, G. Kantvilas 285/91 (HO); Buxton River, southern cliff tops of gorge, 42°15'S 147°59'E, 50 m, 2008, G. Kantvilas 278/08 (HO).

#### 4 *Hypotrachyna laevigata* (Sm.) Hale

*Smithsonian Contr. Bot.* 25: 44 (1975); —*Lichen laevigatus* Sm., in J.E. Smith & J. Sowerby, *Engl. Bot.* 26: pl. 1852 (1808); *Parmelia laevigata* (Sm.) Ach., *Syn. Meth. Lich.*: 212 (1814).

Thallus loosely adnate, to 6 cm wide when well developed, but often consisting of a few dispersed lobes; lobes 0.5–3.5 mm wide, dichotomously branched, plane to undulate, imbricate, with truncate, adnate, ascending or reflexed apices and sinuous axils; upper surface whitish grey, usually with a narrow, black, marginal border, smooth or faintly and sparsely rimose, sometimes transversely cracked, matt, usually weakly maculate, sorediate when well developed, but often with small thalli esorediate or almost so; soralia capitate, apical or subapical, to 1–2 mm wide, white or discoloured dull grey or brownish; lower surface black except for a paler brown subapical zone, with very dense, shaggy, dichotomously branched rhizines to 1 mm long protruding from beneath the lobe margins as a conspicuous fringe. Apothecia and pycnidia unknown in Tasmania.

Chemistry: atranorin, chloroatranorin, barbatic acid and 4-O-demethylbarbatic acid; medulla K–, KC+ yellow-orange, C+ orange, P–, UV–.

A cosmopolitan, temperate species, very rare and localised in Tasmania and listed as “vulnerable” under the *Tasmanian Threatened Species Protection Act 1995*. It is known only from the extensive rainforests of the far north-west, where it grows in the forest canopy. Most specimens seen are poorly developed and lack the characteristic, capitate soralia, but are nevertheless readily identified by the C+ orange medulla.

35 km NNE of Savage River, along the pipeline road, 41°18'S 145°16'E, 480 m, 1993, J.A. Elix 40144 & G. Kantvilas (CANB, HO); Blackwater Road, Spur 6, 41°10'S 144°57'E, 160 m, 2001, J. Jarman & G. Kantvilas 1178/01 (HO); Savage River Pipeline Road near 26 mile peg, 41°11'S 145°18'E, 410 m, 2003, G. Kantvilas 692/03 (HO).

#### 5 *Hypotrachyna neodamaziana* (Elix & J. Johnst.) Divakar, A.Crespo, Sipman, Elix & Lumbsch

In P. Divakar *et al.*, *Phytotaxa* 132: 34 (2013); —*Parmelina neodamaziana* Elix & J. Johnst., *Brunonia* 9: 155 (1986); *Parmelinopsis neodamaziana* (Elix & J. Johnst.) Elix & Hale, *Mycotaxon* 29: 243 (1987).

Thallus generally loosely adnate, to 5 cm wide; lobes 0.5–1.5 mm wide, richly dichotomously branched, plane to undulate to convex, densely imbricate, with rounded to ± truncate, subascending apices and incised to sinuous axils; upper surface whitish grey, smooth, ± glossy, emaculate, lacking soredia, isidia or pustules; lower surface black except for a paler brown subapical zone, with sparse, simple or sparingly dichotomously branched rhizines to 0.5–0.7 mm long occasionally protruding from beneath the lobe margins. Apothecia shortly stipitate, unknown in Tasmania; ascospores reported as 9–12 × 6–8 μm (Elix 1994). Pycnidia abundant, laminal, black and speck-like; conidia fusiform, 5–6 × 1 μm.

Chemistry: atranorin, chloroatranorin, gyrophoric acid (major), umbilicic acid (minor), 2,4,5-tri-O-methylhiassic acid (minor), 2,4-di-O-methylgyrophoric acid, and 5-O-methylhiassic acid (minor); medulla K–, KC+ pink, C+ pink, P–, UV–.

Highly localised on the East Coast where it occurs on granite outcrops in dry sclerophyll woodland; it is also known from eastern mainland Australia where it sometimes grows on trees. The absence of soredia distinguish it from the superficially similar *H. afroevoluta*. Also similar is *Austroparmelina pseudorelicina* (Jatta) A.Crespo *et al.*, which rarely occurs on rocks, has broader, coarser, irregular lobes, and contains lecanoric acid.

Mt Amos, 42°09'S 148°17'E, 300 m, 1968, G.C. Bratt 68/1245 & J.A. Cashin (HO); Sleepy Bay Road, 42°08'S 148°18'E, 20 m, 1984, G. Kantvilas & P. James s.n. (HO); Whalers Lookout, Bicheno, 41°53'S 148°18'E, 50 m, 2000, G. Kantvilas 500/00 (HO).

#### 6 *Hypotrachyna osseoalba* (Vain.) Y.S.Park & Hale

*Taxon* 38: 88 (1989); —*Parmelia osseoalba* Vain., *Ann. Soc. Zool. Bot. Fenn. 'Vanamo'* 1: 39 (1921).

Thallus tightly adnate, to 10 cm wide; lobes 0.8–3 mm wide, linear-elongate, dichotomously branched, plane to undulate to convex, radiating and imbricate, with truncate, adnate apices and sinuous axils; upper surface whitish grey, smooth or shallowly wrinkled, ± glossy, emaculate, sorediate; soredia coarsely granular, concolorous with the thallus, occurring in scattered, laminal or submarginal pustules that become abraded, at length forming coralloid clusters and often coalescing; lower surface black, wrinkled, with dichotomously branched rhizines to 0.5–0.8 mm long, only rarely protruding from beneath the thallus. Apothecia shortly stipitate, unknown in Tasmania; ascospores reported as 7–11 × 4–6 μm (Elix 1994). Pycnidia not seen.

Chemistry: lichexanthone, colensoic acid, 4-O-methylphysodic acid, lividic acid, physodic acid and oxyphysodic acid; cortex K–, KC–, C–, P–, UV+ yellow; medulla K+ red, KC+ red, C± fleeting orange, P–, UV–.

A widespread temperate-subtropical species, highly localised in Tasmania in the far north-east and on Flinders Island where it occurs on granite boulders or small trees in dry sclerophyll woodland. The UV+ reaction of the upper cortex is diagnostic and distinguishes this species from all other Tasmanian taxa, as well as from all other Tasmanian species of Parmeliaceae.

Mt William summit, 40°55'S 148°11'E, 215 m, 2003, G. Kantvilas 129/03 (HO); Flinders Island, summit of Mt Killiecrankie, 39°49'S 147°52'E, 310 m, 2006, G. Kantvilas 18/06 (HO); Flinders Island, North Patriarch, 39°58'S 148°12'E, 100 m, 2007, G. Kantvilas 134/07 (HO).

### 7 *Hypotrachyna revoluta* (Flörke) Hale

*Smithsonian Contr. Bot.* 25: 60 (1975); —*Parmelia revoluta* Flörke, *Deutsche Lich.* 1: 11 (1815).

Thallus loosely to tightly adnate centrally, ± free at the margins, to 8 cm wide; lobes 0.5–5 mm wide, shortly linear-elongate, dichotomously branched, plane to undulate, imbricate, with truncate, usually free, erect, revolute or hooded apices and ± sinuous axils; upper surface whitish grey to pale greenish grey, sometimes with a narrow, black border, smooth, dimpled or puckered, usually emaculate, sorediate; soredia farinose, concolorous with the thallus or more typically discoloured dull greenish grey or blackened, occurring in apical, discrete, ± circular to lip-shaped soralia, elevated conspicuously above the thallus mass and extending the width of the lobe; lower surface black with a paler brown subapical zone, typically with sparse, simple to dichotomously branched rhizines to 0.5–1 mm long that only rarely protrude from beneath the thallus. Apothecia very rare, to 4 mm wide, shortly stipitate; thalline margin coarsely sorediate. Ascospores (10–)11.5–14.5–16.5(–20) × 9–10.5–12(–13) μm. Pycnidia not seen.

Chemistry: atranorin, chloroatranorin, gyrophoric acid (major) and 5-O-methylhiassic acid (trace); medulla K–, KC+ pink or red, C+ pink or red, P–, UV–.

A cosmopolitan species, widespread in Tasmania, especially in lowland areas where it occurs mainly on rocks but also on bark in heathland and eucalypt woodland. The erect to revolute, narrow lobe apices with usually blackened soralia are very characteristic.

Along the road to Bothwell, c. 1 km S of Apsley, 220 m, 1993, G. Kantvilas 266/93 & J. Elix (HO); road to Ansons Bay, 41°15'S 148°10'E, 80 m, 2001, G. Kantvilas 257/01 (HO); near Temma, 41°13'07"S 144°41'34"E, 5 m, 2001, G. Kantvilas 1194/01 & J. Jarman (HO).

### 8 *Hypotrachyna sinuosa* (Sm.) Hale

*Smithsonian Contr. Bot.* 25: 63 (1975); —*Parmelia sinuosa* Sm., in J.E. Smith & J. Sowerby, *Engl. Bot.* 29: pl. 2050 (1809).

Thallus loosely adnate, to 7 cm wide; lobes 0.6–3 mm wide, linear-elongate, dichotomously branched, plane to convex, loosely imbricate, with truncate, often ascending apices and sinuous axils; upper surface pale yellow to greenish yellow, typically with a narrow, black border, smooth and ± glossy, emaculate, sorediate; soredia farinose, concolorous with the thallus or sometimes discoloured greyish, occurring in apical, discrete, ± circular to elongate soralia to 1–2 mm wide; lower surface black, glossy, wrinkled, with dense, dichotomously or squarrosely branched rhizines to 0.5–1 mm long that can protrude from beneath the

thallus, occasionally forming a dense mat. Apothecia very rare, to 3.5 mm wide, shortly stipitate; thalline margin sorediate. Ascospores 10–14 × 5–7.5 µm. Pycnidia not seen.

Chemistry: usnic acid, salazinic acid (major), ± traces of fumarprotocetraric acid or norstictic acid; medulla K+ yellow→red, KC–, C–, P+ orange, UV–.

A cosmopolitan species, common and widespread in Tasmania, especially in wetter areas where it occurs on bark, wood or, rarely, on rocks. It is usually found on twigs and small branches in scrub, at the margins of eucalypt forest, on emergent small trees in buttongrass moorland, and in the rainforest canopy. The yellowish, linear lobes with truncate apices and rounded, sinuous axils are very distinctive. Occasional sparsely sorediate (or esorediate) individuals have been misidentified as *H. reducens* (Nyl.) Hale, an esorediate, fertile species that does not occur in Tasmania. It is more likely to be confused with species of *Pannoparmelia*, which have a similar, yellowish thallus of linear lobes, but which are easily distinguished by their cushion-like prothallus on the underside.

Near Lynchford Siding, 42°07'S 145°32'E, 1976, G. C. Bratt 76/440 et al. (AD, HO, MEL); Boyd Lookout, 42°49'07"S 146°21'28"E, 600 m, 2001, G. Kantvilas 84/01 & J. Jarman (HO) (fertile); Poimena, 41°12'S 148°00'E, 750 m, 2020, G. Kantvilas 111/20 (HO).

### 9 *Hypotrachyna subfatiscens* (Kurok.) Swinscow & Krog

*Macrolichens of East Africa*: 122 (1988); —*Parmelia subfatiscens* Kurok., in M.E. Hale & S. Kurokawa, *Contr. U.S. Natl. Herb.* 36: 134 (1964); *Parmelina subfatiscens* (Kurok.) Hale, *Phytologia* 28: 483 (1974); *Parmelinopsis subfatiscens* (Kurok.) Elix & Hale, *Mycotaxon* 29: 243 (1987).

Thallus tightly adnate, to 10 cm wide; lobes 0.5–2.5(–3) mm wide, richly dichotomously branched, plane to undulate, densely imbricate, with rounded to ± truncate, often ascending apices, rather incised, crenulate margins and sinuous axils; upper surface whitish grey, sometimes with a narrow, black, marginal border, smooth to somewhat dimpled, occasionally faintly rimose, ± glossy, emaculate, pustulate, lacking soredia and isidia; pustules laminal and marginal, subglobose, 0.3–0.8 mm wide, becoming abraded and eroded, exposing the arachnoid, white or blackened medulla, at length becoming confluent and spreading across the thallus in a glomerulate mass; lower surface black except for a paler brown subapical zone, with dense, simple or sparsely squarrose or dichotomously branched rhizines to 1 mm long, typically protruding from beneath the lobe margins and forming a sparse fringe. Apothecia sessile, very rare, 0.8–4 mm wide; thalline margin crenulate, becoming pustulate and abraded. Ascospores 12–15.5–20 × 8–10.2–13(–14) µm. Pycnidia not seen.

Chemistry: atranorin, chloroatranorin, 3-methoxy-2,4-di-O-methylgyrophoric acid (major), gyrophoric acid (minor), 2,4-di-O-methylgyrophoric acid (minor) and 5-O-methylhiassic acid (minor); medulla K–, KC– or fleetingly pale pink, C– or fleetingly pale pink, P–, UV–.

Widely scattered in Tasmania but rarely common, and found mostly in the north-west and north-east. It occurs in the rainforest canopy and on subdominant trees and large rock outcrops in open, eucalypt-dominated forest. Although superficially similar to several other species of Parmeliaceae, especially species of *Austroparmelina* and *Hypotrachyna*, the combination of a pustulate (but esorediate) thallus and C– medulla is diagnostic. This species is widespread from the tropics to temperate regions of the Southern Hemisphere.

Half Woody Hill, south of Melaleuca, 43°27'S 146°11'E, 80 m, 1985, G. Kantvilas 110/85B (HO); Robbins Island Track, 40°44'S 144°53'E, 1993, J. Elix 40275 & G. Kantvilas (CANB, HO); South Sister, near summit, 41°32'S 148°10'E, 800 m, 2004, G. Kantvilas 317/04 (HO).

## REFERENCES

- Divakar PK, Crespo A, Núñez-Zapata J, Flakus A, Sipman HJM, Elix JA, Lumbsch HT (2013) A molecular perspective on generic concepts in the *Hypotrachyna* clade (Parmeliaceae, Ascomycota). *Phytotaxa* **132** 21–38.
- Elix JA (1994) Parmeliaceae. *Flora of Australia* **55** 1–360.

- Kantvilas G, Elix JA, Jarman SJ (2002) *Tasmanian Lichens. Identification, Distribution and Conservation Status. I. Parmeliaceae*. Flora of Australia Supplementary Series no. 15. (Australian Biological Resources Study: Canberra and Tasmanian Herbarium: Hobart).
- Krog H, Swinscow TDV (1979) *Parmelia* subgenus *Hypotrachyna* in East Africa. *Norwegian Journal of Botany* **26** 11–43.
- Lendemer JC, Allen JL (2020) A revision of *Hypotrachyna* subgenus *Parmelinopsis* (Parmeliaceae) in eastern North America. *Bryologist* **123** 265–332.

## INDEX

<b>A</b>		<b>L</b>	
<i>Austroparmelina</i> .....	1, 6	<i>Lecanora</i> .....	1
<i>Austroparmelina conlabrosa</i> .....	3	<i>Lichen laevigatus</i> .....	4
<i>Austroparmelina labrosa</i> .....	2	<b>P</b>	
<i>Austroparmelina pseudorelicina</i> .....	4	<i>Pannoparmelia</i> .....	6
<b>C</b>		<i>Parmelia afrorevoluta</i> .....	2
<i>Cetrariastrum</i> .....	1	<i>Parmelia horrescens</i> .....	3
<b>E</b>		<i>Parmelia immaculata</i> .....	3
<i>Everniastrum</i> .....	1	<i>Parmelia laevigata</i> .....	4
<b>H</b>		<i>Parmelia osseoalba</i> .....	4
<i>Hypotrachyna</i> .....	1, 6	<i>Parmelia revoluta</i> .....	5
<i>Hypotrachyna afrorevoluta</i> .....	2, 4	<i>Parmelia sinuosa</i> .....	5
<i>Hypotrachyna brasiliana</i> .....	1	<i>Parmelia subfatiscens</i> .....	6
<i>Hypotrachyna horrescens</i> .....	3	Parmeliaceae.....	1, 5, 6
<i>Hypotrachyna immaculata</i> .....	3	<i>Parmelina horrescens</i> .....	3
<i>Hypotrachyna laevigata</i> .....	4	<i>Parmelina neodamaziana</i> .....	4
<i>Hypotrachyna osseoalba</i> .....	4	<i>Parmelina subfatiscens</i> .....	6
<i>Hypotrachyna reducens</i> .....	6	<i>Parmelinopsis</i> .....	1
<i>Hypotrachyna revoluta</i> .....	5	<i>Parmelinopsis afrorevoluta</i> .....	2
<i>Hypotrachyna sinuosa</i> .....	5	<i>Parmelinopsis horrescens</i> .....	1, 3
<i>Hypotrachyna subfatiscens</i> .....	6	<i>Parmelinopsis neodamaziana</i> .....	4
		<i>Parmelinopsis subfatiscens</i> .....	6