

PYXINE

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Pyxine Fr., *Syst. Orb. Veg.* 1: 267 (1825); from the Latin *pyxis* (a cylindrical box), in reference to the dark exciple that encloses the apothecium.

Type: *P. soredata* (Ach.) Mont.

Thallus foliose, continuous, lobate, loosely to tightly adnate, 2–12 cm wide. Lobes irregular to radiating, discrete or contiguous, 0.2–2.0 (–5.0) mm wide, eciliate; apices rounded to truncate. Upper surface white, grey-white to bluish grey, lead-grey or yellow-grey, plane to convex, or concave towards the periphery, ±reticulately ridged, glossy or dull, usually pruinose; soredia, isidia and dactyls present or absent; pseudocyphellae usually present; upper cortex paraplechtenchymatous, formed by vertically orientated hyphae. Medulla white, yellow, orange, salmon-pink or scarlet. Lower surface usually brown-black or black, often paler towards the periphery, rarely grey-white or pale brown, rhizinate; rhizines simple or furcate; lower cortex prosoplectenchymatous, formed of longitudinally orientated hyphae. Ascomata apothecial, laminal, rounded, sessile or subpedicellate, with a distinct internal stipe that is colourless, brown or red; disc black, rarely pruinose; thalline exciple prominent or reflexed, either distinct and persistent (*physciaeformis*-type), or distinct in young apothecia, but becoming excluded, so that the apothecia appear lecideine (*cocoes*-type), or absent and all apothecia appearing lecideine (*obscurascens*-type); proper exciple present and persistent, ±blackened. Epihymenium bluish black, K+ purple. Hymenium colourless. Hypothecium brown to dark brown. Paraphyses septate, simple or with short branches near the apices; apices generally capitate, brown-black, K+ purple. Asci of *Bacidia*-type, clavate, with a well-developed amyloid tholus with a paler conical axial mass and an ocular chamber, 8-spored. Ascospores brown, 1–3-septate, thick-walled, ellipsoidal, mischoblastiomorphic (usually *Dirinaria*-type, rarely *Physcia*-type), 10–23 × 4–9 µm. Conidiomata pycnidial, laminal, immersed; conidiophores of type VI (*sensu* Vobis, 1980), pleurogenous. Conidia bacilliform, 3–4 × 0.8–1.2 µm.

Pyxine is a mainly pantropical to subtropical genus, with several species extending into temperate or oceanic regions; currently considered to comprise c. 65 species, 26 of which occur in Australia. These lichens grow on bark, wood, mosses or rocks.

T.D.V.Swincow & H.Krog, The genus *Pyxine* in East Africa, *Norweg. J. Bot.* 22: 43–68 (1975); R.Moberg, Studies on the Physciaceae (Lichens) 1. A new species of *Pyxine*, *Norweg. J. Bot.* 27: 189–191 (1980); G.Vobis, Bau und Entwicklung der Flechten-Pycnidien und ihrer Conidien, *Biblioth. Lichenol.* 14: 1–141 (1980); D.D.Awasthi, *Pyxine* in India, *Phytomorphology* 30: 359–379 (1982); R.W.Rogers, The genus *Pyxine* (Physciaceae, lichenized Ascomycetes) in Australia, *Austral. J. Bot.* 34: 131–154 (1986); R.W.Rogers, *Pyxine rugulosa* Stirton (Pyxinaceae, lichenized Ascomycetes) in Queensland, *Brunonia* 9: 229–232 (1986); K.Kalb, Brasilianische Flechten. 1. Die Gattung *Pyxine*, *Biblioth. Lichenol.* 24: 1–89 (1987); K.Kalb, *Pyxine* species from Australia, *Herzogia* 10: 61–69 (1994); D.Allen, H.T.Lumbsch, S.Madden & H.Sipman, New Australian and Australian State lichen records and lichenicolous lichen reports, *J. Hattori Bot. Lab.* 90: 269–291 (2001); K.Kalb, New or otherwise interesting lichens I, *Biblioth. Lichenol.* 78: 141–167 (2001); K.Kalb, *Pyxine*, *Lichen Fl. Greater Sonoran Desert Region* 1: 437–441 (2002); K.Kalb, New or otherwise interesting lichens II, *Biblioth. Lichenol.* 88: 301–329 (2004).

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|----|-------------------------------------------------------------------|----|
| 1 | Thallus with isidia, soredia or dactyls | 2 |
| 1: | Thallus lacking vegetative propagules | 15 |
| 2: | Thallus with cylindrical or squamiform isidia (<i>l.</i>) | 3 |
| 2: | Thallus with soredia or erumpent dactyls | 5 |

3	Thallus with squamiform isidia (2)	12. <i>P. endochrycina</i>
3:	Thallus with cylindrical isidia.....	4
4	Medulla white, K+ red; norstictic acid present (3:)	9. <i>P. cylindrica</i>
4:	Medulla yellow to orange, K-; norstictic acid absent	15. <i>P. keralensis</i>
5	Dactyls present, occasionally becoming sorediate; well-defined soralia absent (2:)	6
5:	Dactyls absent; well-defined soralia present	8
6	Upper cortex UV+ yellow, K-; lichexanthone present (5)	19. <i>P. physciaeformis</i>
6:	Upper cortex UV-, K+ yellow; atranorin present	7
7	Medulla yellow to yellow-orange or yellow-brown, K-; norstictic acid absent (6:).....	8. <i>P. coralligera</i>
7:	Medulla white, K+ red; norstictic acid present	22. <i>P. retirugella</i>
8	Soralia and pseudocyphellae vivid red (5:).....	3. <i>P. coccifera</i>
8:	Soralia and pseudocyphellae not vivid red.....	9
9	Upper cortex UV+ yellow, K-; lichexanthone present (8:).....	10
9:	Upper cortex UV-, K+ yellow or violet; atranorin present or absent	11
10	Medulla white (9).....	4. <i>P. cocoes</i>
10:	Medulla yellow, salmon-orange or yellow-brown.....	26. <i>P. subcinerea</i>
11	Upper cortex K+ violet (under microscope); lower surface white to pale brown; atranorin absent (9:).....	17. <i>P. nubila</i>
11:	Upper cortex UV-, K+ yellow; lower surface black; atranorin present.....	12
12:	Medulla K+ red; norstictic acid present (11:).....	13
12:	Medulla K-; norstictic acid absent	14
13	Ascospores 12–17 µm long (12).....	13. <i>P. fallax</i>
13:	Ascospores 16–22 µm long	7. <i>P. copelandii</i>
14	Soredia coarse; internal stipe of apothecium orange, K+ red (12:)	25. <i>P. sorediata</i>
14:	Soredia farinose; internal stipe of apothecia white, K-.....	14. <i>P. farinosa</i>
15	Upper cortex UV+ yellow, K-; lichexanthone present (1:).....	16
15:	Upper cortex UV-, K+ yellow; atranorin present	20
16	Medulla white (15).....	17
16:	Medulla yellow or orange.....	18
17	Lobes 0.2–0.4 mm wide; internal stipe of apothecia white, K- (16).....	16. <i>P. microspora</i>
17:	Lobes 0.7–1.2 mm wide; internal stipe of apothecia red, K+ purple	18. <i>P. petricola</i>
18:	Medulla orange; apothecia of <i>obscurascens</i> -type (16:).....	5. <i>P. cognata</i>
18:	Medulla yellow; apothecia of <i>cocoes</i> -type.....	19
19	Lobes 0.5–0.8 mm wide; medulla uniformly yellow (18:).....	1. <i>P. australiensis</i>
19:	Lobes 0.5–1.5 mm wide; upper medulla yellow; lower medulla white.....	2. <i>P. berteriana</i>
20	Medulla white (15:)	21
20:	Medulla yellow or orange.....	22
21	Pseudocyphellae present; norstictic acid absent (20).....	24. <i>P. schmidtii</i>
21:	Pseudocyphellae absent; norstictic acid present (±minor)	6. <i>P. convexior</i>
22:	Pseudocyphellae absent (20:).....	23. <i>P. rugulosa</i>
22:	Pseudocyphellae present	23
23	Internal stipe of apothecium white, K- (22:).....	24
23:	Internal stipe of apothecium orange, K+ reddish.....	25
24	Ascospores broadly ellipsoidal, 10–14 × 6–7 µm (23).....	11. <i>P. elixii</i>
24:	Ascospores narrowly ellipsoidal, 12–16 × 5–6 µm	21. <i>P. pungens</i>
25	Upper medulla orange, K+ red, P-; lower medulla yellow-orange, K- (23:)	10. <i>P. desudans</i>
25:	Medulla uniformly deep orange, K+ red, P+ purple	20. <i>P. plumea</i>