

CHAPSA

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[From *Flora of Australia* volume 57 (2009)]

Chapsa A.Massal., *Atti Reale Ist. Veneto Sci. Lett. Arti*, ser. 3, 5: 256 (1860); probably from the Latin *capsa* (a case or box), in reference to the development of the ascomata.

Type: *C. indica* A.Massal.

Asteristion Leight., *Trans. Linn. Soc. London* 27: 163 (1869); *Asteristium* Clem., *Gen. Fungi* 76 (1909); *Thelotrema* sect. *Asteristion* (Leight.) Tat.Matsumoto, *J. Hattori Bot. Lab.* 88: 16 (2000). T: *A. erumpens* Leight. [= *C. platycarpa* (Tuck.) Frisch]

Thallus largely immersed in the substratum, less commonly \pm superficial, usually pale, in shades of grey with greenish, tannish, yellowish or whitish tones, rarely dark olive with brownish or yellowish tones. Photobiont trentepohlioid. Prothallus thin to indistinct, brown. Thallus usually with a protocortex or a true cortex. Ascomata \pm rounded to irregular, rarely somewhat elongate, apothecioid to chroodiscoid. Proper exciple fused to slightly detached or apically exposed, rarely distinctly free, non-amyloid, rarely \pm distinctly amyloid at the base. Hymenium non-amyloid, usually not interspersed; paraphyses not thickened to rarely \pm thickened, straight to slightly bent, unbranched; apices not to \pm distinctly thickened; lateral paraphyses usually clearly separated from the proper exciple; columella absent. Epithymenium hyaline, rarely pale yellowish or \pm brownish. Asci 1–8-spored, clavate, non-amyloid. Ascospores 1–4-seriate, transversely septate to muriform, usually hyaline or yellowish, or greyish at late maturity, rarely brown, non-amyloid to strongly amyloid; ascospore wall thin to thick. Conidiomata pycnidial, seen only in *C. lordhowensis*.

Chemistry: Secondary compounds predominantly of the stictic acid chemosyndrome, rarely the protocetraric acid chemosyndrome, or compounds absent.

A pantropical, subtropical and occasionally temperate genus of c. 35 species; 19 are known from Australia (eight endemic).

The genus name was introduced by Massalongo in 1860, but was neglected until recently resurrected by Frisch *et al.* (2006) for species formerly included in *Chroodiscus* and *Thelotrema*, especially members of the “*Thelotrema platycarpum*-group” (Salisbury, 1972) and *Thelotrema* sect. *Asteristion* (Matsumoto, 2000).

Chapsa species are characterised by a thin, usually corticolous thallus, rather large, apothecioid or chroodiscoid ascomata with a fused to indistinctly free proper exciple (except *C. platycarpa*, which has a distinctly free proper exciple) and the presence of lateral paraphyses. Similar genera include *Acanthotrema* Frisch (not in Australia), *Chroodiscus*, *Reimnitzia*, *Thelotrema* and *Topeliopsis*. *Acanthotrema* differs in having paraphyses with spiny tips, *Chroodiscus* has smaller thalli and smaller ascomata without lateral paraphyses, while *Reimnitzia* is distinguished by a thick, *Leptotrema wightii*-like, isidiate thallus with columnar calcium oxalate crystals. *Thelotrema* and *Topeliopsis* differ mainly by not having distinctly chroodiscoid ascomata. However, the separation of *Thelotrema* from *Chapsa* is sometimes uncertain, with some taxa (e.g. *T. cupulare*, *T. leucophthalmum* and *T. polythecium*) having \pm gaping apothecia with somewhat recurved margins. Most species in *Thelotrema* can be further distinguished by the markedly free proper exciple, while *Topeliopsis* has thicker proper exciples with indistinctly separated lateral paraphyses.

G.Salisbury, *Thelotrema* sect. *Thelotrema*. 2. The *T. platycarpum* group, *Rev. Bryol. Lichénol.* 38: 281–290 (1972); G.Kantvilas & A.Vezda, Studies on the lichen family Thelotremataceae in Tasmania. The genus *Chroodiscus* and its relatives, *Lichenologist* 32: 325–357 (2000); T.Matsumoto, Taxonomic studies of the Thelotremataceae (Graphidales, lichenized Ascomycota) in Japan. (1) Genus *Thelotrema*, *J. Hattori Bot. Lab.* 88: 1–50

(2000); A.Frisch, K.Kalb & M.Grube (eds), Contributions towards a new systematics of the lichen family Thelotremaaceae, *Biblioth. Lichenol.* 92: 1–556 (2006).

1	Ascospores transversely septate at maturity	2
1:	Ascospores submuriform to muriform at maturity	14
2	Ascospores brown (1)	3
2:	Ascospores hyaline	4
3	Ascospores strongly amyloid, to 28 μm long; proper exciple not distinctly free (2)	8. <i>C. lepriurii</i>
3:	Ascospores weakly to moderately amyloid, to 20 μm long; proper exciple distinctly free	16. <i>C. platycarpa</i>
4	Ascospores strongly amyloid (2:).....	5
4:	Ascospores non-amyloid, rarely faintly amyloid, then ascomata never more than 1 mm diam.	6
5	Thallus endophloeodal, dull, \pm corticate; ascomata to 1.5 mm diam.; cool-temperate (4)	18. <i>C. subpatens</i>
5:	Thallus epiphloeodal, glossy, corticate; ascomata to 5 mm diam.; tropical.....	19. <i>C. tibellii</i>
6	Ascospores > 28 μm long (4:).....	7
6:	Ascospores to 28 μm long	8
7	Ascospores 30–60 (–70) μm long, with 12–22 (–24) locules (6)	17. <i>C. pulchra</i>
7:	Ascospores 50–110 μm long, with 20–35 locules	5. <i>C. indica</i>
8	Thallus \pm distinctly glossy or waxy, with a well-defined true cortex (6:)	9
8:	Thallus dull to slightly glossy, lacking a well-defined true cortex	11
9	Ascomata to 0.6 mm diam.; ascospores 10–15 μm long, with 3–5 locules (8)	7. <i>C. lassae</i>
9:	Ascomata > 0.6 mm diam.; ascospores > 15 μm long, with > 5 locules	10
10	Subhymenial layer dark; secondary compounds absent (9:).....	3. <i>C. astroidea</i>
10:	Subhymenial layer not dark; thallus containing the stictic acid chemosyndrome	12. <i>C. megaphlyctidioides</i>
11	Ascospores 10–13 μm long, with 3–6 locules (8:).....	4. <i>C. halei</i>
11:	Ascospores > 13 μm long, with more than 6 locules	12
12	Thallus lacking secondary compounds (11:).....	1. <i>C. alborosella</i>
12:	Thallus containing the stictic acid chemosyndrome.....	13
13	Ascomata markedly sessile and emergent in older stages, never distinctly fused; disc epruinose (12:).....	13. <i>C. minor</i>
13:	Ascomata immersed to slightly emergent, often distinctly fused; disc pruinose.....	15. <i>C. phlyctidioides</i>
14	Hymenium interspersed with granules (1:).....	14. <i>C. niveocarpa</i>
14:	Hymenium not interspersed (although occasionally with granules among the lateral paraphyses).....	15
15	Asci 1 (–2)-spored; ascospores > 60 μm long (14:).....	16
15:	Asci 8-spored; ascospores < 60 μm long	17
16	Ascospores non-amyloid; secondary compounds absent (15).....	9. <i>C. leprocarpa</i>
16:	Ascospores distinctly amyloid; thallus containing the norstictic acid chemosyndrome	10. <i>C. lordhowensis</i>
17	Ascomata to 1.5 mm diam.; ascospores weakly amyloid; growing on dead leaves of <i>Astelia alpina</i> (15:).....	2. <i>C. asteliae</i>
17:	Ascomata larger; ascospores non-amyloid; growing on different substrata.....	18
18	Ascomatal margin distinctly layered; thallus containing the protocetraric acid chemosyndrome (17:).....	6. <i>C. lamellifera</i>
18:	Ascomatal margin not or indistinctly layered; thallus containing the stictic acid chemosyndrome.....	11. <i>C. megalophthalma</i>