PHYSCIACEAE

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Physciaceae Zahlbr., *in* H.G.A.Engler, *Syllabus*, 2nd edn 46 (1898).

Type: *Physcia* (Schreb.) Mich.

Thallus foliose, fruticose, squamulose, crustose or evanescent, usually autonomous, rarely lichenicolous. Lobules, isidia, soredia and blastidia present or absent. Upper cortex prosoplectenchymatous, paraplectenchymatous or absent. Photobiont a unicellular green alga, 5–20 µm diam., forming a continuous layer or not, the genus (where known) *Trebouxia*. Medulla poorly to well developed or absent, when present frequently containing lichen substances. Lower cortex prosoplectenchymatous, paraplectenchymatous or absent; lower surface with or without rhizines. Prothallus present or absent. Ascomata apothecia. Apothecia immersed, sessile or short-stalked, cryptolecanorine (immersed), lecanorine to lecideine, with a ±distinct exciple; disc (when present) ±round, plane to convex; disc brown to dark reddish brown or black. Thalline exciple present or absent. Proper exciple thin and weakly pigmented to well developed and dark-pigmented; composed of conglutinated radially-oriented hyphae. Epihymenium brown-black, brown or green; hymenium colourless or partly green, with or without oil droplets; hypothecium colourless, yellow-brown, brown or dark brown. Paraphyses simple or sparingly branched in the uppermost part; apices usually thickened, with a brown-pigmented cap. Asci clavate, of the *Lecanora*- or *Bacidia*-type, (2–) 8 (–16)-spored, usually with a well-developed amyloid tholus, with a paler conical axial mass and an ocular chamber. Ascospores 1–multiseptate, olive to brown, ellipsoidal, often with uneven wall thickenings. Conidiomata pycnidial, immersed or superficial. Conidia formed acrogenously or, usually, pleurogenously, ellipsoidal, bacilliform, fusiform or filiform.

This cosmopolitan family currently comprises c. 46 genera. Twenty genera and 228 species are known from Australia.

KEY TO GENERA

1 Thallus foliose 2
1: Thallus crustose or squamulose 8
2: Lower surface and margins without rhizines or with short sparse inconspicuous rhizines *(1)* 3
2: Lower surface and/or margins distinctly rhizinate 4
3 Upper surface K+ yellow; atranorin present; thallus erhizinate *(2)* ..... **DIRINARIA**
3: Upper surface K–; atranorin absent; thallus erhizinate or with short sparse inconspicuous rhizines ..... **HYPERPHYSCIA**
4 Upper cortex prosplectenchymatous *(2:)* ..... **HETERODERMIA**
4: Upper cortex paraplectenchymatous 5
5 Upper surface brownish, K–, UV–; atranorin and lichexanthone absent *(4:)* ..... **PHAEOPHYSCIA**
5: Upper surface greyish, K+ yellow or UV+ yellow, rarely K– or UV–; atranorin or lichexanthone usually present 6
6 Upper surface K–, UV+ yellow; lichexanthone present *(5:)* ..... **PYXINE**
6: Upper surface K+ yellow or K–, UV–; lichexanthone absent 7
7 Upper surface glossy, often with patchy pruina; pseudocyphellae common *(6:)* ..... **PYXINE**
7: Upper surface dull, evenly pruinose or epruinose; pseudocyphellae absent ..... **PHYSCIA**

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8 Thallus autonomous *(1:)* 9
8: Thallus lichenicolous 23

9 Thallus with placodioid-lobate or radiate-plicate margins *(8)* 10
9: Thallus lacking placodioid-lobate or radiate-plicate margins 13

10 Thallus with placodioid-lobate margins; exciple lacking photobiont cells *(9)* 11
10: Thallus with radiate-plicate margins; exciple containing photobiont cells 12

11 Thallus on rock, rarely on bark or wood *(10)* ..... **DIPLOICIA**
11: Thallus on soil ..... **BUELLIA *auct. non.* De Not.**

12 Conidia bacilliform; ascospore wall uniformly thin *(10:)* ..... **DIMELAENA**
12: Conidia filiform; ascospore wall unevenly thickened ..... **AUSTRALIAENA**

13 Exciple containing photobiont cells *(9:)* ..... **RINODINA**
13: Exciple lacking photobiont cells 14

14 Ascospore wall unevenly thickened *(13:)* 15
14: Ascospore wall of uniform thickness 16

15 Ascospores with strong to weak subapical and septal wall thickenings *(14)* ..... **BUELLIA *sens. str.***
15: Ascospores with strong to weak apical wall thickenings only ..... **CRATIRIA**

16 Ascospore wall thin *(14:)* ..... **RINODINELLA**
16: Ascospore wall uniformly thickened 17

17 Conidia filiform *(16:)* ..... **AMANDINEA**
17: Conidia bacilliform, fusiform or absent 18

18 Conidia fusiform *(17:)* ..... **GASSICURTIA**
18: Conidia bacilliform or absent 19

19: Thallus growing on bark or wood *(18:)* 20
19: Thallus growing on rock or soil 22

20 Ascospores *Pachysporaria*- or *Mischoblastia*-type; ascospore cell lumina funnel-shaped *(19)* ..... **SCULPTOLUMINA**
20: Ascospores *Buellia*-type; ascospore cell lumina hemi-ellipsoidal 21

21 Disc pruinose; pruina UV+ red or yellow *(20:)* ..... **STIGMATOCHROMA**
21: Disc epruinose ..... **BUELLIA *auct. non.* De Not.**

22: Ascospores pluriseptate, epihymenium brown; perispore thick; thallus growing on calcareous rock *(19:)* ..... **DIPLOTOMMA**
22: Ascospores 1-septate, rarely pluriseptate, if pluriseptate the epihymenium aeruginose; perispore thin; thallus on siliceous or calcareous rock or soil ..... **BUELLIA *auct. non.* De Not.**

23: Ascospores *Dirinaria*-type: diploicin present *(8:)* ..... **ENDOHYALINA**
23: Ascospores *Buellia*-type; lichen substances absent ..... **MONEROLECHIA**