

Trapeliopsis Hertel & G. Schneider
(LECANORACEAE: TRAPELIACEAE)

After Purvis, 1992, Ozenda & Clauzade, 1970, and others

Rev. 5/94

Thallus pale, usually not brownish or blackish, crustose, granular to squamulose or small-foliose; upper cortex of entangled hyphae only present in representatives with distinctly squamulose thallus.

Apothecia adpressed, constricted at base, yellow-brown to reddish or almost black, biatorine, pseudolecanorine, or lecideine, sessile or emergent, (0.2)0.5-1.5(-2.5) mm diam., Apothecia coarser, with massive excipular and "hypotheacial" tissues, usually a proportionally shallower hymenium, usually marginate, without pseudolecanorine margin, disk-like from start, expanding without splitting; exciple often C+ red; thalline exciple pronounced or absent; true exciple of colorless hyphae, the gel matrix occasionally weakly pigmented, but never dark brown; hypothecium (usually?) hyaline. Hymenium hyaline, rather low; epihymenium hyaline or sometimes paraphyses tips slightly swollen with an external coating of pigment. Epihymenium pale or dark. Paraphyses 2-3.5 μ m thick, coherent, anastomosing, the tips weakly thickened; asci subcylindrical to clavate; spores 6-16 x 3-7 μ m. Asci thin-walled, 8-spored; apical dome I- or + weakly blue. Spores simple, ellipsoid, colorless or faint pink, smooth, without distinct perispore.

Gyrophoric acid and traces of lecanroic acid often present. Pycnidia immersed; pycnosporangia cylindrical to thread-like. Photobiont chlorococcoid (including Chlorella and Pseudochlorella). On soil or wood.

Purvis questions the distinctness of this genus from Trapelia; sterile specimens cannot be definitely referred to either genus, and the key under Trapelia should also be tried for such sterile specimens. Differs from Trapelia in having apothecia more robust, with massive excipular and "hypotheacial" tissues, usually a proportionally shallower hymenium, usually marginate, without pseudolecanorine margin, disk-like from start, expanding without splitting, and paraphyses thicker.

**I. Thallus thick, well-developed,
coarsely squamulose-lobed,
C+ red.**

[Several rather different-looking taxa in western N. America belong here; they need to be studied before a key to this group can be made. The description of T. wallrothii below is based on European/British material; typical material of the species occurs directly on exposed but moist soil on the Channel Islands of California, whereas the material that would key out to that species elsewhere from California to the Pacific NW is usually on moss over rocks, often in fairly sheltered sites in inland, montane areas]

1. Thallus without vegetative propagules. Apothecia common. Thallus lobed at the margin; lobes subcartilagineous, rotund, incised to incised-crenate; thallus center plicate-verruculose; surface gray-white, subpulverulent. Apothecia common; discs plane then convex, livid- to ochraceous brown, becoming black, margin disappearing. Pycnidia common. Thallus K+ yellow. On soil among mosses. Southern California to Pacific NW. (Note: material from northern areas on mossy boulders in forests, and may be a separate taxon from southern material growing on exposed soil). T. phyllizans (Zahlbr.) Ryan & Timdal ined.

1. Thallus with vegetative propagules. Apothecia often absent. 2

2. Thallus light gray, with dark soralia, of small appressed to ascendent, roundish to ± elongate squamules 0.5-1.5 mm long. Apothecia unknown. On soil in Artemisia steppe, southern Idaho and eastern Washington, to southern California. T. sp. (undescribed; southern California material may not be the same as Pacific NW material)

2. Thallus cream, pale gray, or gray, often with irregular isidia-like propagules, squamulose to subfoliose, the lobes ascending and generally mounded and cushion forming; squamules to 3-4 mm long and lobes ca. 1 mm wide. Apothecia usually common. Spores 15-26 x 7-12 µm. Thallus closely appressed, distinctly but unevenly scattered or ± crowded-squamulose, in center with coarse (1-2 mm across), bullate convex squamules, at margins ± effigurate, with ± distinct, short, flat to ± convex marginal lobes 0.5-1.6 mm wide and 0.1-0.3 mm thick, whitish or pale gray, often with scattered clusters of coarse, irregular isidia-like protuberances which, following abrasion, leave small circular scars 0.5-1 mm diam.; without soredia; C+ red. Apothecia often absent, 0.5-2 mm diam., yellowish rose to pink-brown, dull-green-gray or black, often faintly pruinose, paler when wet, plane or convex; margin often persistent, flexuose, paler than disc. Spores (6-)8-10(-14) x 4-5(-7) µm. Thallus P-, K-. On soil and turf, usually amongst low, protruding rocks, earth banks and walls. Most if not all North American records (at least from western North America) are based on misidentifications. T. wallrothii

**II. Thallus thinner, less distinct, \pm crustose,
granular to finely areolate-squamulose, often with soredia.
C+ red or C-.**

1. Thallus C+ red. 2

1. Thallus C-. Thallus thin, greenish gray or olivaceous green to dark green-brown, membranous to subverruculose or minutely granular, the verrucules \pm fused and indistinct, 0.05-0.1 mm wide, without or often (especially when sterile) with pale green soralia (contrasting markedly with thallus color), at first 0.2-0.7 mm diam., but often becoming very conspicuous, irregular and confluent. Apothecia solitary or confluent, 0.2-1(-1.6) mm, adpressed, plane to moderately convex, dark olive brown to dark green-grey to gray-black or black, the margin thin and pale, not prominent, becoming excluded. Epitecium green, K+ brown. Spores ellipsoid, (8-)11-14 x 4.5-5.5(-6) μ m. Thallus P-, K-, KC-. On shaded, peaty or clay soil, or moss, mainly in banks or cutting with overhanging herbs or small shrubs. T. gelatinosa

2. Thallus usually (but not always!) with irregular orange-red patches which are K+ purple. Soredia farinose. Thallus effuse, often wide-spreading and forming large patches to 20 cm diam., gray or greenish white, in part patchily orange-pigmented, K+ purple, of granular areoles that soon coalesce forming a faintly cracked, granular crust; areoles 0.04-0.2 mm diam. Soralia 0.2-1.6 mm diam., greenish white, in part orange-pigmented, at first convex and discrete, later coalescing and forming coarse, irregular patches; soredia 18-25 μ m diam., farinose. Apothecia rare, 0.4-1(-1.6) mm diam., \pm adpressed, flat with a shallow, wavy true exciple; disc greenish gray to gray-black. Spores 10-12.5 x 3.5-6.0 μ m. Thallus, soralia and apothecia P-, C+ red, UV- (gyrophoric acid); orange-pigmented areas K+ purple, UV \pm deep orange-red (unidentified anthraquinone). On various humid, sheltered, acidic substrates, especially peat or over decaying bryophytes, rotting wood and plant debris, often in old woodlands. I have seen material of this from the west slope of the Cascades in Washington state. Material lacking the orange pigment can be distinguished from T. granulosa by the smaller areoles and soralia, and by the farinose rather than granular soredia. T. pseudogranulosa

2. Thallus without orange-red patches; all parts K-. Soredia granular or farinose.
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3. Thallus minutely granular-areolate; granules under 0.1 mm diam., never effigurate; soralia, when present, often confluent; true exciple not apparent. Apothecia 0.2-0.6 mm diam., soon convex-emarginate, sometimes confluent and tuberculate, to c. 1 mm diam., black or greenish black; spores 9-12 x 4-5 μ m. Thallus whitish, pale gray, pale greenish, or yellowish green, dirty green when wet, coherent; soralia pale greenish, irregular and soon confluent, or effuse from the beginning, giving thallus a leprose appearance. On decaying trunks and stumps. T. viridescens

3. Thallus of granular-warted areoles; areoles mostly over 0.1 mm diam., often effigurate at edge of thallus or when scattered; soralia when present \pm discrete; true exciple distinct at least when young. 4

4. Soralia, when present, gray-green to dark green, often tinged blue-green; spores

7-10 x 2.5-4(-5) um. Thallus greenish gray to gray-green, white to dark blue-gray, granular-areolate-squamulose; areoles flattish-convex, scattered to closely congregated and crowded, uneven; areoles 0.08-0.25 mm diam., but scattered or marginal areoles often \pm flattened and effigurate and up to 0.4 mm diam. Soralia 0.2-0.4 mm diam., at first discrete, sometimes becoming confluent; soredia farinose to finely granular. Apothecia (when present) 0.3-0.5(-0.7) mm diam., sessile; disc flat to slightly convex, black, slightly roughened, the margin thin, dark greenish gray to green-black, rarely paler, or pinkish (in extreme shade), \pm flexuous, permanent. Hymenium 40-50 um tall; asci 30-50 um tall. Spores obovoid-ellipsoid. Thallus P-, K-. On hard, often charred, wood, rarely on plant debris or sandstone.T. flexuosa

4. Soralia, when present, whitish to brownish yellow, sometimes tinged gray-green; spores 9-14 x 4-6 um. Apothecia (\pm frequently present) 0.3-1(-1.5) mm diam., occasionally tuberulate and to 1.7 mm diam., long remaining plane and marginate, but then convex and the exciple \pm excluded; disc rough, dull, partly pale (olive brown, olive, gray black to black or sometimes rosy gray, often variously colored on same thallus). Hymenium 70-80 um tall. Epithymenium pale to greenish. A few spores becoming 1-septate. Thallus P-, K-. Thallus in small patches or coalescing and extensive, usually whitish gray or glaucous, sometimes partly pinkish, more rarely greenish gray, of \pm crowded, granular to verrucose areoles 0.12-0.5 mm diam., effigurate and less often flattened when scattered or at edge of thallus. Soralia usually present, 0.3-0.6 mm diam., irregular and granular. Usually on acid soils, moribund bryophytes or plant debris, and on decayed wood, more rarely on shaded, acid rocks; a primary colonizer of recently burned areas. Montane to alpine, extremely common.T. granulosa

ADD:

Thallus \pm squamulose, pale, not granular or sorediate (?); apothecia lacking. On soil in sagebrush areas, Idaho. T. "rosentreteri" Ryan ined. (this is probably the same as the undescribed species referred to by McCune & Goward, 1995)

T. aeneofusca

T. phyllizans s. lato:

Trapeliopsis phyllizans (Zahlbr.) Ryan & Timdal

Lecidea granulosa var. phyllizans Zahlbr., Beihefte Bot. Centralbl. 13: 159 (1902). **Type:** CALIFORNIA. Los Angeles Co.: "Ad terram inter muscos et Cladonias in declivibus occidentalibus montium San Gabriel, c. 1300 m", Hasse 734.

Thallus lobed at the margin; lobes subcartilagineous, rotund, incised to incised-crenate; thallus center plicate-verruculose; surface gray-white, subpulverulent; thallus never leprose-crumblly; vegetative propagule absent. Apothecia common; discs plane then convex, livid- to ochraceous brown, becoming black, margin disappearing. Pycnidia common throughout the thallus, punctiform, black, brown when wet, semi-immersed, globose; fulcra exobasidial; basidia narrowly lageniform, densely crowded, subverticillate to verticillate, as long as or longer than the pycnosporos; pycnosporos bacilliform, slightly narrowed in the center and one apex slightly broadened, \pm straight, apices obtuse, 7-9 x 1.2-1.5 μ m. Thallus K+ yellow. On soil among mosses, San Gabriel Mountains/.

Thallus thick, of whitish, convex squamules, crenate-lobulate and rugulose, furfuraceous, K+ yellow, C+ red (reaction faint and tardy to appear in some specimens or altogether absent). Apothecia sessile, often grouped and conglomerate; disk red-brown, brown black, or dull black (as usually in herbarium); disk at first flat, becoming convex and papillate, excluding the pale apothecial margin; epihymenium continuous, reddish brown, gradually paling downward; hymenium hyaline at least in lower part; paraphyses coherent, the tips clavate and slightly colored; hypothecium colorless; asci clavate or subinflated-clavate; spores oblong-ellipsoid, with blunt ends and one or several globules disappearing after K, 10-18 x 4.5-7 μ m. Hymenial gelatin I+ blue, K-. On soft crumbling sandstone and earth, southern California (including Catalina Island). "Lecidea glebulosa Sm." sensu Hasse = T. phyllizans

Thallus determinate to effuse, often spreading extensively, of wavy, undulate, subcartilaginous, rounded squamules, incised or crenate, imbricate, at the circumference becoming radiate and lobate; whitish ash-colored to pale buff, K+ distinct yellow, C+ red. Apothecia scattered, or groupsed, and then becoming conglomerate, sessile, to 1.75 mm wide, plane to convex and turgid, at first with thin proper margin which is finally excluded; disk dull reddish or yellowish brown, or blackening, papillate, with a faint pruina. Epihymenium granulose, sordid yellow-brown; paraphyses coherent, indistinct; hymenium pale sordid yellowish; asci narrowly clavate; spores 9-14 x 3-6 μ m. Pycnidia present; sterigmata simple, straight; spermatia acicular, 7-9 x 1.2-1.5 μ m. Common on sandstone, in the foothills and occasional in the mountains to 3000 ft., California. (Syn. "Biatora glebulosa Tuck., pr. p." according to Herre, 1910). "Lecidea granulosa var. phyllizans Zahlbr."

Southern California. "Lecidea glaucopholis Nyl." [See Hasse for description]

On mossy rocks in shaded woodlands. Northern California. T. sp.

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