

\ **Thelocarpon** Nyl.

(ACAROSPORACEAE)

After Poelt & Vezda, 1977, and Watson, et al., 1992

Rev. November 16, 1998

Thallus of raised warts, sometimes forming a thin crust, usually minute and evanescent, very inconspicuous, sessile or immersed in the substratum; warts globose to conical. Photobiont chlorococcoid, with algal cells only present around base of thalline warts, enclosed in a  $\pm$  well developed algal sheath around the apothecia, sometimes in the lower exciple, or absent in some lichenicolous species.

Apothecia  $\pm$  perithecioid with a narrow opening, sunken in erect, small, globose to conical or short-cylindrical verrucae; exciple absent or indistinct, colorless or pale; hymenium ovoid. Periphyses around the ostiole and on the side walls, occasionally resembling paraphyses, simple, branched or absent; paraphyses present, poorly developed or absent, simple, branched or anastomosed and confluent. Asci globular to cylindrico-flask-shaped, often narrowed above, thin-walled, apex not or slightly thickened, I- or with an I+ blue internal tholus or meniscus, persisting long after ascospore release. Spores 50-300, colorless, small or minute, simple, 1-2 guttulate or pseudoseptate, ellipsoid or  $\pm$  elongate.

Pycnidia infrequent, formed with algal sheath or in separate warts; wall entire, colorless; conidiogenous cells simple, acrogenous; conidia oblong, simple. Pulvinic acid derivatives. On limestones, mica-schist, flints and brick, on rotten wood and soil, leather, and on decaying thalli of other lichens (e.g., Peltigera, Solorina, Baeomyces).

[Description of Ahlesia]

Thallus absent (ascocarps lichenicolous) or with green algae.

Apothecia tiny, with unbranched paraphyses of equal length, the tips mutually compressed to form the disk, which as a narrow mouth and resembles a perithecium; apothecia sessile, forming inconspicuous spherical bodies; asci with tips thickened and not persistent after extrusion of spores; spores numerous, hyaline, simple.

**1. Paraphyses lacking or only developing in the form of a very short tissue at the base of the asci;** periphyses 20-25  $\mu$ m long, much divaricately branched, around ostiole and on the sides, easily detached; ascocarp perithecia-like and closed; fruiting warts sessile to at best weakly sunken at the base, greenish yellow. Thallus envelope lacking or very thin and rudimentary, composed of loose hyphal filaments and yellow pruina mixed with very few algal cells; algae scattered around base of fruiting warts; asci (80-)100-160(-220)  $\mu$ m long, I+ pale blue, without amyloid apical apparatus; bases (and scanty hymenial gel) I+ yellow-red; spores 3-4(-5) x 1-1.5  $\mu$ m, oblong, occasionally somewhat constricted in center, simple or biguttulate; fruiting warts  $\pm$  spherical, 0.1-0.3 mm wide. Wall of apothecia 30-45  $\mu$ m thick above, narrowing to 15-25  $\mu$ m below. On rotten wood, old leather, moist rocks, generally associated with algae. ....T. intermediellum

**1. Paraphyses occurring.** .....2

**2. Hymenial gelatin I+ strong blue. Spores oblong.** Thallus verrucae citrine yellow.

Apothecia convex then plane, round, dispersed, minute, margin entire, thin, pale, conspicuous only under a lens. Hymenial gelatin I+ strong blue; paraphyses slender, asci inflated, 45 um long, apex becoming thickened; spores numerous, simple, hyaline, oblong, 2.5-3 x 1-1.5 um. On bark, southern California. .... T. hassei B. de Lesd.

**2. Hymenial gelatin I- or I+ yellow or red, or if I+ blue (T. sphaerosporum?) then spores spherical.**

**3. Ascocarp with open, punctiform to broader and highly convex discs;** envelope without algae; at least the ascus tips I+ blue ("Ahlesia"). Spores spherical, 4.5-5.5 um diam.; ascocarps 0.15-0.2 mm wide, with punctiform, somewhat concave disk and projecting margin. .... T. sphaerosporum

**3. Ascocarp opening by a pore.** ..... 4

**4. Paraphyses (and periphyses) regularly forked, branched, and entangled, ca. as long as the asci; algal containing outer envelope present, 25-60(-100) um thick.**

Fruiting warts greenish yellow pruinose, sometimes darker in center, each containing an ascocarp, usually broader than high, 0.15-0.4 mm wide, 0.15-0.2(-0.25) mm high, globose or hemispherical, often crowded, with an outer envelope having a strongly developed cortex; asci 75-150(-170) um long, I+ pale blue with a small amyloid apical apparatus; bases (and scanty hymenial jelly) I+ yellow-red; spores 1.5-4(-6) x 1.2-2 um, ellipsoid to subglobose, simple or 1-2-guttulate. Apothecia 90-150(-180) um diam., globose, the wall 12 um thick, colorless. On various substrates (e.g., wood, burnt ground, litter, brick, leather, etc.). .... T. laureri

**4. Paraphyses not, or only rarely branched, equal in length to asci; an algae-containing outer envelope lacking;** fruiting warts greenish yellow, ovoid to spherical, slightly immersed. .... 5

**5. Asci I+ dark blue; hymenial gelatin I-;** spores (6-)8-13 x (2.5-)3.5-5(-6) um, oblong, simple or usually with a pseudoseptum; two guttules I+ brick-red. Thallus of scattered fruiting warts 0.2-0.3(-0.4) mm diam., 0.25-0.35(-0.5) mm high, conical-globose, yellow-pruinose. Apothecia ca. 0.2 mm diam.; wall 35-60 um thick, colorless.Periphyses and paraphyses to 1 um thick. On decaying algae on stones and soil. .... T. superellum

**5. Asci I-; hymenial gelatin I+ red;** fruiting warts 0.1-0.15 mm wide. Thallus of inconspicuous, scattered warts 0.1-0.16 mm diam., 0.15-0.2 mm high, conical to globose, yellow-pruinose with dark centers, slightly immersed. Algal sheath absent, generally not lichenized. Apothecia ca. 100 um diam., the wall 15-30 um thick, colorless. Periphyses and paraphyses thin. Asci 110-135 x 19-21 um. Spores simple, oblong, occasionally slightly constricted. Containing vulpinic acid, pulvinic dilactone, and (?) pulvinic acid. .... 6

**6. Spores 4-5.5(-6) x 1.7-2 um.** On old lichen thalli (e.g., Baeomyces, Phytoconis), wood and other organic substrates in cooler regions. .... T. epibolium v. epibolium

**6. Spores (6-)8-10(-12) x 2.5-3 um.** Predominantly on dying thalli of Peltigera aphthosa colonies and Solorina in boreal and high montane-subalpine sites. Possibly different on Baeomyces.

..... T. epibolium v. epithallinum

T. sphaerosporum H. Magn.

Thallus lacking, or of green algae. Fruits in spherical granules 0.2 mm diam., greenish

yellow; margin lacking algae; lacking epithecium; paraphyses abundant, simple, slender, c. 1 µm thick; asci 100-130 x 12-17 µm; spores numerous, hyaline, spherical, 3.5-5.5 µm. Ascus wall I-, or the tips greenish blue; hymenial gelatin I+ reddish yellow; narrow hypothecium I+ pale blue. On humus soils in calcareous regions. Arctic.

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epibolum Nyl.  
\* epibolum var. epithallinum (Leighton ex Nyl.) Salisb.  
hassei de Lesd.  
intermediellum Nyl.  
laureri (Flotow) Nyl. Syn.: T. epilithellum, T. majusculum, T. prasinellum  
sphaerosporum H. Magn. Syn.: Ahlesia sphaerospora  
superellum Nyl.  
albomarginatum Herre = Acarospora albomarginata  
epilithellum Nyl. = T. laureri  
fimicola Fink = T. intermediellum  
majusculum Nyl. = T. laureri  
prasinellum Nyl. = T. laureri

## Literature

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