

**Gyalecta** Ach.  
(GYALECTACEAE)

After Poelt, Fink, and James & Woods

Rev. 6/95

Thallus crustose, uniform, continuous, sometimes  $\pm$  cracked and scurfy, effuse, or inconspicuous; attached to substrate by prothallial hyphae, ecorticate. Apothecia circular, initially immersed, becoming adnate to sessile; disc  $\pm$  flat to strongly concave or urceolate, frequently waxy-looking, pallid, flesh-colored, orange or brown, translucent and semi-opaque when wet; proper exciple well developed, persistent, pale, white to gray or concolorous with the disc, waxy, cartilaginous and paraplectenchymatous; thalloid exciple absent (often present according to Rogers); hypothecium hyaline or pale, "soft"; paraphyses unbranched, confluent; asci clavate, unitunicate, thin walled, without a tholus; contents and wall I+ blue, rarely I-; spores 8, transversely 3-11-septate or muriform, hyaline, thin walled, ellipsoid to fusiform, non-halonate, not indented at the septa. Pycnidia immersed, colorless to brown; fulcrum exobasidial; pycnosporos linear or bacilliform, short. Photobiont Trentepohlia, Gloeocystis. No substances. On soil, mosses, bark and rock, on  $\pm$  nutrient- or  $\pm$  base-rich substrata.

1. **Spores transversely 3-septate.** Apothecia yellowish, flesh-red or orange-red (not blood red or brick red), rarely blackish, not pruinose. Usually not on rock. ....2
1. **Spores transversely 4-10 times septate or muriform.** ....6
  2. **On trees.** Thallus very thin, scurfy, ashy gray; apothecia 0.1-0.25 mm wide, adnate, flattened; disc flat, yellowish-flesh-colored; proper exciple thin, paler than the disc; spores 6-8 per ascus, fusiform-ellipsoid, 10-15 x 4-5.5  $\mu$ m. Florida. Identification questionable according to Fink. ....see Cryptolechia carneolutea
  2. **On soil, moss or wood, rarely on rock.** ....3
3. **Apothecia broadly sessile to immersed. Ascus tip drawn out into conical point. Usually on calcareous (or serpentine) soil.** ....4
3. **Apothecia with strongly constricted bases. Ascus tip rounded. On acidic or weakly calcareous,  $\pm$  mossy soils.** ....5
  4. **Apothecia (0.2-)-0.3-0.4(-0.7) mm wide. Spores 9-14(-16) x 4-6(7)  $\mu$ m, with at least a few oblique septa.** .... G. geonica (Wahlenb. ex Ach.) Ach.
  4. **Apothecia (0.4-)-0.6-0.8(-2.5) mm wide. Spores (10-)-12-6(21) x 5-6(-7)  $\mu$ m, with transverse septa only.** .... G. foveolaris (Ach.) Schaerer
5. **Discs finally flat, orange-red; apothecia 1-5 mm wide, scattered; spores 14-20 x 3-4.5  $\mu$ m.** Acidophilic, on mosses, plant remains, wood, rarely on silicate rock in shaded sites. Arctic-alpine. Newfoundland. .... G. friesii Flotow ex Körber
5. **Discs permanently concave, pale yellow-brown; apothecia 1-2.5 mm wide, scattered or aggregated, dry ones mostly irregularly angular; spores 15-18 x 5-6  $\mu$ m.** On mossy, weakly calcareous soils, arctic-alpine. .... G. peziza (Mont.) Anzi
  6. **Spores elongate fusiform to almost acicular.** .... G. erythrozona Lettau
  6. **Spores ovoid, ellipsoid or lemon-shaped.** ....7
7. **Paraphyses scarcely thickened above, about 1/4-1/2 longer than the mature asci; spores**

**abundantly muriform divided. On bark or rock. ....8**

**7. Paraphyses clavately or capitately thickened above, only a little longer than the mature asci; spores poorly muriform, rarely only transversely septate. Apothecial margin usually undivided. Usually on bark. ....9**

**8. Excipulum under the hymenium over 100  $\mu$ m high. Discs pale orange-rose. ....G. jenensis (Batsch) Zahlbr.**

**8. Excipulum under the hymenium ca. 30  $\mu$ m high. Discs yellowish-flesh color to brown. ....G. herrei Vezda**

**9. Spores "transversely" divided by sloping or diagonal septa, 6 or fewer cells visible in optical view, 9-18 x 6-8(-11)  $\mu$ m. ....G. flotowii Körber**

**9. Spores with  $\pm$  perpendicular cross septa.**

**10. Spores with one end conically pointed to elongated-tailed, poorly muriform, 18-25 x 7-10  $\mu$ m. On weakly basic rocks. Apothecia scattered, pale yellow-brown, 0.3-0.5 mm wide. Thallus leprose-granular. .... G. kukriensis (Räsänen) Räsänen**

**10. Spores without conical elongations on the ends. ....G. truncigena (Ach.) Hepp**

ADD? (see if this has now been synonymized):

G. radiatilis--Reported from Massachusetts and Rhode Island, but not listed by Egan or Esslinger.

### Detailed Descriptions

#### G. erythrozona

Apothecia  $\pm$  pale orange-red, 0.5-2 mm wide; hymenium I- or transient I+. Spores elongate fusiform to almost acicular, 6-8-septate, not muriform, 20-48 x 4-5  $\mu$ m. On  $\pm$  neutral rocks.

#### G. foveolaris

Thallus gray-white, thin to thick,  $\pm$  even, the granules sometimes tumid and intricately convoluted; surface matt to  $\pm$  shining, often pruinose, not cracked or areolate.

Apothecia abundant but scattered to less often crowded-confluent, frequent, sessile, (0.4-)0.6-0.8(-2.5) mm wide; disc shallowly to deeply concave-urceolate, flesh-pink to orange; true exciple well developed, smooth to crenate, sometimes  $\pm$  tumid, white to flesh-pink; spores (10-)12-16(-21) x 5-6(-7)  $\mu$ m, with transverse septa only. On mosses and soil associated with basic and serpentine rocks.

#### G. flotowii

Thallus thin, superficial to immersed, inconspicuous, smooth, continuous to somewhat cracked, gray to gray-green.

Apothecia 0.2-0.4 mm wide, usually numerous, scattered or confluent, sessile to immersed; disc concave, cream to orange; true exciple paler or concolorous, smooth to occasionally crenate. Spores "transversely" divided by sloping or diagonal septa, 6 or fewer cells visible in optical view, 9-18 x 6-8(-11)  $\mu$ m. On base-rich bark or in nutrient tracks on bark, of deciduous trees. Massachusetts.

### **G. friesii**

Thallus crustose, smooth to granular-powdery, dull, pale gray-green to olive-gray; reactions negative.

Apothecia to 4 mm broad; margin incurved, sometimes higher than disk, usually covered by thalloid tissue; exciple radiate, outer layer yellow-brown, hyaline within; disk flat to concave, orange-whitish to orange-red, darker than margin; hypothecium pale yellowish, I-; hymenium 80-105  $\mu$ m, hyaline or pale yellowish; paraphyses 1.5-2  $\mu$ m, not branched, septate, tips to 3  $\mu$ m; asci cylindrical; spores uniseriate, elongate spindle-shaped, 3-septate, (8-)14-22 x 2.5-4.5  $\mu$ m. On wood, mosses, and over granite rocks. Arctic-boreal-alpine.

### **G. geocia**

Thallus pale green-gray, without convolutions, uneven, occasionally somewhat gelatinous; surface thin, matt, pale green-gray, effuse.

Apothecia numerous, scattered to more often closely aggregated and confluent,  $\pm$  immersed to sessile, (0.2-)0.3-0.4(-0.7) mm wide; true exciple well developed, smooth, raised, even, rarely slightly crenate, gray to flesh-pink; disc shallow to deeply concave, yellow-pink when young, often becoming orange to brown. Spores 9-14(-16) x 4-6(-7)  $\mu$ m, 3-septate, with at least a few oblique septa, ellipsoid. On  $\pm$  calcareous or serpentine soils, crumbling rocks, humus and associated mosses, also very rarely on base-rich bark, or on rocks. Massachusetts and Illinois

### **G. herrei**

Apothecia 0.5-0.8 mm wide; margin entire to subcrenulate; discs yellowish-flesh color to brown. Excipulum under the hymenium ca. 30  $\mu$ m high; hymenium hyaline below, I+ blue then red-brown; spores 30-38 x 10-13  $\mu$ m. On bark.

### **G. jenensis**

Thallus thin or rather thick and then uneven, sometimes cracked or effuse, inconspicuous, gray-pinkish or orange-pink, fading in the herbarium.

Apothecia 0.3-1 mm diam., usually numerous, sessile, scattered or occasionally confluent, disc at first pore-like, then concave, often shiny, pale to deep orange; proper exciple well developed, smooth, even to  $\pm$  coarsely radiate-striate, crenate, pinkish. Apothecial margin often radiately prolific in the older ones. Hymenium hyaline to yellow below, with oil droplets, I+ permanently blue; spores (11-)15-25(-40) x 6-10(-16)  $\mu$ m (or larger, in var. macrospora, which does not occur in N. America), 3-septate, muriform when mature. Usually on damp, often sheltered and shaded, calcareous rock or mortar, sometimes spreading to adjacent soil and mosses (var. macrospora occurs on siliceous rock). Vermont to Alabama, and westward to Minnesota; British Columbia.

### **G. kukriensis**

Thallus thin, epilithic, finely powdery granular, pale yellowish gray; in some examples chunky-areolate; reactions negative.

Apothecia small, 0.3-0.5 mm broad, urceolate, sunken in thallus; margin with radiate cracks and orange-red becoming dark brown in old apothecia; disk pale brown; epihymenium granular-inspersed; hymenium 80-100  $\mu$ m; paraphyses clearly septate, 1.5  $\mu$ m with tips thickened

3-4 um; asci weakly I+ blue becoming wine-red or brownish; spores uniseriate or biseriate, muriform with the middle thick and tips characteristically attenuated, 4-6-septate transversely, 1-2-septate longitudinally, but with only very few of the central sections longitudinally divided, 13-25 x 5-8 um. On shales or schists. Arctic.

### **G. peziza**

Thallus crustose, indefinite, finely granular, greenish or olive-gray to yellowish white; reactions negative. Apothecia to 2 mm broad, round or angular, deeply concave; margin inrolled, usually coarsely divided into radiate sections and paler than disk; exciple radiate, with abundant algae, hyaline; disk pale orange-brown to brown; hypothecium pale yellowish; hymenium 60-90 um, with yellow-brown granules in epihymenium, hyaline, I+ blue, sometimes turning violet-red; paraphyses 1.5-2 um, tips thickened to 2-4 um; asci irregularly cylindrical, as the spores may be uniseriate, partly biseriate, or biseriate; spores 3-septate, 15-21 x 4-5 um. On humus and moss, arctic, boreal-alpine.

### **G. truncigena**

Thallus inconspicuous, thin to scurfy, glaucous, greenish or gray.

Spores without conical elongations on the ends, with 6 or more cells visible in optical view, (14-)17-28(-31) x 5-9 um; sometimes with cross septa only; ellipsoid-ovoid or elongate-ovoid. Apothecia 0.3-0.7 mm wide, scattered to aggregated, usually immersed; disc pale yellow-brown to pale orange or dark brown, not rarely secondarily almost black, deeply concave, to 0.25 mm diam.; proper exciple thick, smooth, usually even, creamy to brownish or yellowish pink. Usually on bark, nutrient-rich.

## **Literature**

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