**20.** On bamboo; ascomata obpyriform; ascospores narrowly ellipsoid, (9–)10–12(–14) × 2–3(–4) μm, smooth to spinulose ..... *N. minuta*

**21** (19). Ascospores 11–16 × 3–5(–6) μm, ellipsoid–naviculate, spinulose; ascomata orange-brown; on decaying leaves including petioles of deciduous trees and stems of *Rubus* ..... *N. luteola*

**21.** Ascospores averaging longer than 16 μm, ellipsoid to ellipsoid–fusiform, smooth to spinulose; ascomata bright orange to orange-brown or tan; on various herbaceous stems ..... 22

**22** (21). Ascomata orange-brown to tan; ascospores ellipsoid, 16–24 × 3–5 μm; on herbaceous stems especially of *Apiaceae* and *Asteraceae* ..... *N. bloxamii*

**22.** Ascomata bright orange; ascospores ellipsoid–fusiform, 13–20 × 4–5.5 μm; on herbaceous stems, known from *Iris* and *Urtica* ..... *N. dacrymycella*

**NECTRIOPSIS** Maire, Ann. Mycol. 9: 323. 1911, *nom. cons. prop.*

Lectotype, designated by Weese (1913): *N. violacea* (Fr.) Maire (≡ *Sphaeria violacea* Fr.).
= *Dasyphthora* Clem., Gen. Fungi p. 45. 1909, *nom. rej. prop.* — Type: *D. lasioderma* (Ellis) Clem. (≡ *Nectria lasioderma* Ellis), recognized as *Nectriopsis lasioderma* (Ellis) Samuels.
= *Peloronectriella* Doi, Bull. Natl. Sci. Mus. Tokyo 11: 179. 1968. — Type: *P. sasae* Doi, recognized as *Nectriopsis sasae* (Doi) Rossman & Samuels.

Ascomata superficial or immersed in substratum, generally not conspicuously stromatic, generally less than 200 μm diam, nearly white to pale yellow or orange, rarely violet or purple, KOH–. Ascomatal wall less than 20 μm thick, usually of a single region of small, thin-walled, non-descript cells; wall cells at surface forming a *textura epidermoidea*. Anamorph, where known, *Acremonium, Gliocladium*-like, or *Verticillium*-like. On free-living fungi, lichens, and myxomycetes, less frequently on herbaceous substrata.

NOTES.— *Nectriopsis* was established with four species of hypocrealean fungi having ascomata in a byssoid stroma and considered intermediate between *Nectria* and *Hypomyces*. Samuels (1988) presented a thorough account of the genus including 43 species each of which was described and illustrated. In the present work, the species that occur on *Meliola* have been removed to the genus *Dimerosporiella*. Thus, 39 species, including two additional species described below, are recognized in *Nectriopsis*. Clements (1909) placed *Dasyphthora* in the *Hypocreaceae* with only one species, *D. lasioderma*, that was included in *Nectriopsis* (Samuels, 1988). Although *Dasyphthora* provides an earlier name, *Nectriopsis* has been proposed for conservation (Rossman & Samuels, 1998). The unispecific genus *Peloronectriella* was described for a species on bamboo having an elongate, tuberculate stroma with *Nectria*-like ascomata and 1-septate ascospores. The type specimen of *Peloronectriella sasae* was examined and found to be a *Nectriopsis* growing on the surface of overmature stromata of *Shiraia bambusicola* Henn. Thus *Peloronectriella sasae* belongs in the genus *Nectriopsis* and *Peloronectriella* is a synonym of *Nectriopsis*.

**Nectriopsis violacea** (Fr.) Maire, Ann. Mycol. 9: 323. 1911.

≡ *Sphaeria violacea* Fr., Summa Veg. Scand. 2(2): 441. 1823.
≡ *Nectria violacea* (Fr.) Fr., Summa Veg. Scand. 2: 388. 1849.
≡ *Hypomyces violaceus* (Fr.) Tul., Ann. Sci. Nat. Bot. ser. 4, 13: 14. 1860.
≡ *Peckiella violacea* (Fr.) Sacc., Syll. Fung. 9: 945. 1899.
≡ *Hypolyssus violaceus* (Fr.) O. Kuntze, Revis. Gen. Plant. 3 (2): 488. 1898.
≡ *Byssonectria violacea* (Fr.) Seaver, Mycologia 2: 65. 1910.
≡ *Hyphonectria violacea* (Fr.) Petch, J. Bot. 75: 222. 1937.

ANAMORPH.— *Acremonium fungicola* (Sacc.) Samuels, Mycologia 65: 404. 1973

≡ *Diplosporium album* var. *fungicola* Sacc., Syll. Fung. 4: 178. 1886.

Mycelium white, becoming violet immediately surrounding each perithecium, dense, covering the surface of the host aethalia. Ascomata immersed in mycelium, becoming collabent when dry, broadly pyriform, (116–)240–275(–390) μm high × (150–)240–260 (–310) μm diam, or globose, (170–)240–260(–340) μm diam, violet to purple; surface cells thin-walled, angular, 7–10 μm diam; papilla acute, of thick-walled, septate, unbranched hyphae; hyphae extending outwardly as hairs, 10–50 μm long, 5 μm wide at the rounded apices, forming a fringe around the papilla; periphyses *ca* 15 μm long, 2 μm wide at the base, rounded apices

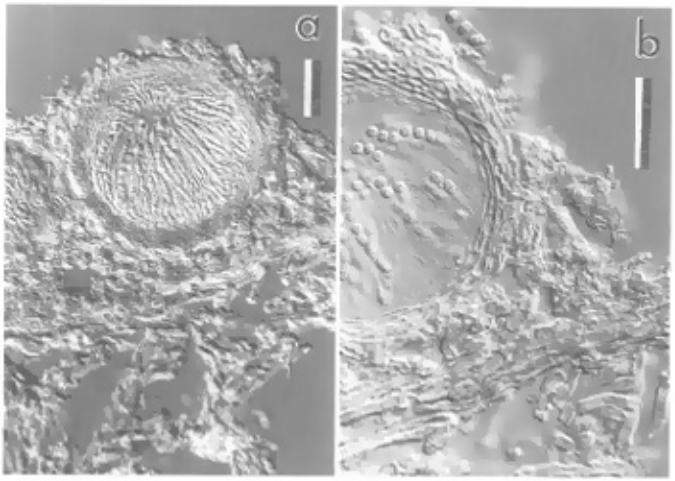


**Plate 9. a–b.** *Nectriopsis queletii*. a. Median section of ascoma on natural substratum. b. Close-up of ascomatal wall. a–b. Holotype – H. Scale bars = 25 μm.

1 μm wide. Ascomatal walls 15–20 μm thick. Asci cylindrical, (40–)50–60(–75) × 3–5 μm, 8-spored, sessile, with an apical ring, ascospores obliquely uniseriate with overlapping ends. Ascospores cylindrical, (5–)7–8 × 2.5–3 μm, equally 2-celled, not constricted, hyaline, spinulose.

Anamorph.— Conidiophores arising from both surface and aerial mycelium, white, unbranched phialides or 2–3 phialides arising from tip of one axis. Phialides aseptate or uniseptate, smooth, 30–50 μm long, from 2 μm at the base tapering to 1 μm at the tip. Conidia unicellular, smooth-walled, hyaline, ellipsoid, 6–9.5(–17) × 2–3 μm, in solitary, slimy, hyaline heads at apices of phialides.

Habitat.— On the myxomycete *Fuligo septica* (L.) Wiggers.

Distribution.— Known throughout temperate North America and Europe.

Holotype.— GERMANY. Bernstadt, on *Fuligo violacea*, 1817 (UPS; herb. E. Fries, as *Sphaeria violacea*).

Illustrations.— Müller & von Arx (1962, Fig. 250); Munk (1957, Fig. 8, as *Nectria violacea*); Plowright (1882, Pl. 157, Fig. 2 a–e, as *N. violacea*); Samuels (1973b, Figs 1, 2, 7–11, as *N. violacea*); Schmid & Schmid (1990: Fig. 32).

Notes.— Samuels (1971) studied the ontogeny of ascomatal development in *Nectriopsis violacea* and *N. candicans* (Plowr.) Maire, a similar myxomyceticolous species, and demonstrated that both had a *Nectria*-type of centrum development.

**Nectriopsis sasae** (Doi) Rossman & Samuels, *comb. nov.*

≡ *Peloronectriella sasae* Doi, Bull. Natl. Sci. Mus. Tokyo 11: 179. 1968.

Ascomata basally to almost totally immersed in a stroma covering overmature stromata of the *Shiraia* host; *Nectriopsis* stroma readily differentiated from that of *Shiraia*, evident when sectioned; stroma of *Nectriopsis* 100-500 μm thick, prosenchymatous to pseudoparenchymatous, with hyphal hairs on the surface, in section often of two regions: lower region 0-270 μm thick, of thin-walled cells 2-6 μm diam, forming a prosenchyma; upper region 150-380 μm thick, of thin-walled cells forming a *textura prismatica*, cells 8-14 μm × 2.5 μm. Hairs on stromatal surface and upper portions of ascomata, 12-40 × 3-6 μm, thin-walled, septate, flexuous, apex rounded. Ascomata globose to broadly pyriform, 200-250 μm high × 175-200 μm diam, collapsing when dry or not, ochraceous to umber, becoming pale ochraceous when dry, KOH–, ascomatal wall of one 20-25 μm thick region, cells thin-walled, 6-10 × 3-4 μm, forming a *textura prismatica*, toward the apex becoming *textura angularis*, cells 4-6 μm diam, with walls slightly thickened up to 1.5 μm. Ostiole lined with periphyses. Apical paraphyses seen in immature ascomata, of thin-walled, inflated cells. Asci cylindrical with truncate apex, 77-87 × 5.5-6 μm, apical ring barely visible, ascospores uniseriate. Ascospores ellipsoid, 8.5-10 × 3-4.5 μm, 1-septate, hyaline, spinulose.

Habitat.— Parasitic on stromata of *Shiraia bambusicola*.

Distribution.— Japan, known only from the type specimen.

Holotype.— JAPAN. Iwate Pref.: Mt. Hayachine, Ohazamacho, 18 July 1967, Y. Doi, D-304 (TNS-F-199660). Culture CBS 333.69.

Illustration.— Doi (1968, l.c.), as *Peloronectriella sasae*.

Notes.— All ascomata on the type specimen were slightly immature, thus ascospores were measured inside the ascus. *Nectriopsis sasae* is placed among the mostly fungicolous species of *Nectriopsis* and appears to be similar to those species of *Nectriopsis* that occur on large clavicipitaceous stromata on grasses, namely *N. epichloë* and *N. macroepichloë*. The anamorph described for *N. sasae* is similar to the *Acremonium*-like anamorphs known for other species of *Nectriopsis*.

One species is described below in addition to those included above and in Samuels (1988).

**Nectriopsis queletii** (P. Karst.) Samuels, *comb. nov.* — Plate 9, a–b.

≡ *Hyponectria queletii* P. Karst., Hedwigia 21: 34. 1882.
≡ *Nectriella queletii* (P. Karst.) P. Karst., Acta Soc. Fauna Fl. Fenn. 2: 15. 1885.

ANAMORPH: *Acremonium* sp.
Ascomata superficial, effused stroma of *Nectriopsis* intermixed with host hyphae, densely gregarious to caespitose with a sparse basal fringe, subglobose, 60–78 × 75–82 μm, yellow to orange, KOH–, becoming cupulate, smooth, apex not differentiated. Cells at surface angular to *textura epidermoidea*. Ascomatal wall 7–10 μm thick, of a single region of compressed cells, cells 3–7 μm diam, walls slightly thickened. Asci cylindrical, 53–75 × 6.5–9.1 μm, apex simple, sessile, 8-spored. Ascospores oblong to subglobose, 3–4.5 × 2–3 μm, 1-septate, hyaline, smooth.
ANAMORPH.— Conidiophores 23–36 × 2.5–4.5 μm at the base, apex not thickened, not flared, smooth-walled. No conidia seen on the type.
HABITAT.— On hymenium of *Phlebia albida*.
DISTRIBUTION.— Finland and Sweden.

HOLOTYPE.— FINLAND. Near Mustiala, in hymenium of *Stereum subcostatum* P. Karst. [host identified as *Phlebia albida*], on fallen stems of *Betula* in shady places, 10 Oct 1881, ex Herb. Karsten 1367b (H).

ILLUSTRATION.— Eriksson *et al.* (1981, Fig. 553, as *Nectriella queletii*).

NOTES.— The small, pallid, superficial ascomata and mycoparasitic habit place this species in *Nectriopsis* as defined by Samuels (1988), unlike the immersed ascomata on decaying herbaceous or lignicolous substrata characteristic of *Nectriella*. *Nectriopsis queletii* is similar to *N. oropensoides* in having very small ascospores and occurring on basidiomycetes in temperate regions; however, the ascospores of *N. queletii* are among the smallest in *Nectriopsis*, even smaller than those of *N. oropensoides*. Eriksson *et al.* (1981) noted that *N. queletii* occurs in both Finland and Sweden.
For a comprehensive account and a key to the remaining species of *Nectriopsis*, see Samuels (1988).

## OCHRONECTRIA Rossman & Samuels, *gen. nov.*

Type: *Ochronectria calami* (Henn. & E. Nyman) Rossman & Samuels (≡ *Nectria calami* Henn. & E. Nyman).

Ascomata superficialia, vulgo aggregata super stromate bene effecto, subglobosa vel globosa vel ellipsoidea, alba vel luteola, KOH–, parietes > 45 μm crassi, cellulae strati exterioris hyalinae, globosae; cellulae strati medii guttulis aurantiis oleaginosis interspersae. Asci 4–8-spori. Ascosporae fusiformes, pluriseptatae, hyalinae, laevigatae vel striatae.

Ascomata superficial, solitary to gregarious on a thin subiculum. Ascomata subglobose to globose, cupulate when dry, pale yellow to yellow-orange, KOH–, ascomatal surface smooth to slightly roughened, walls more than 45 μm thick, of three regions: outermost region of hyaline, thin-walled, globose cells; middle region of angular to globose, thin-walled cells, with abundant, orange, oily droplets between the cells; inner region of hyaline, thin-walled, elongate cells. Asci narrowly clavate, 4–8-spored. Ascospores fusiform, multiseptate, hyaline, smooth to faintly striate. Anamorph *Acremonium*-like. On dead woody, often monocotyledonous, also dicotyledonous substrata.

NOTES.— This unispecific genus is similar to *Hydropisphaera* recognized for members of the *Nectria peziza*-group in which the relatively thick ascomatal wall is composed of large, thin-walled, inflated cells resulting in a cupulate collapse when dry. The characteristic wall structure consists of three regions with orange oil droplets in the middle region. Recent unpublished molecular studies of the *Bionectriaceae* suggest that the type species, *O. calami*, is distinct from species of *Hydropisphaera*. *Ochronectria calami* is relatively common in tropical regions.

**Ochronectria calami** (Henn. & E. Nyman) Rossman & Samuels, *comb. nov.* — Plate 4, b (see page 25).

≡ *Calonectria calami* Henn. & E. Nyman, *in* Warburg, Monsunia 1: 163. 1899.
≡ *Nectria calami* (Henn. & E. Nyman) Rossman, Myxotaxon 8: 494. 1979.
= *Calonectria blumenaviae* Henn., Hedwigia 41: 6. 1902.
= *Calonectria oödes* Petch, Ann. Roy. Bot. Gard. (Peradeniya) 7: 135. 1920.
= *Calonectria ignota* Chardón, Scientific Survey of Porto Rico and Virgin Islands 8: 41. 1926.
= *Calonectria kampalensis* Hansford, Proc. Linn. Soc. Lond. 153: 34. 1941.

Anamorph: *Acremonium*-like.

Ascomata solitary to gregarious, superficial on a thin subiculum of hyaline, thin-walled, 2–3 μm wide hyphae. Ascomata pale yellow to orange, becoming darker when dry, KOHN-, globose to subglobose, cupulate when dry, 185–240 μm high × 175–260 μm diam, with small, pointed papilla 10–20 μm high, ascomatal surface smooth to slightly roughened. Ascomatal wall 45–60 μm thick, of three regions: outer region of one layer of hyaline, globose, thin-walled cells, 7.5–10 μm diam; middle region 15–30 μm thick, widest near ascomatal apex, of angular to globose, thin–walled cells, 3–10 μm diam, with abundant, orange oily droplets formed between the cells; inner region 10–25 μm thick, thickest near the apex, of hyaline, thin-walled, elongate, 5–10 μm long cells. Asci unitunicate, 47–63 × 8–12 μm, narrowly clavate, without specialized apical discharge mechanism, 8-spored, ascospores obliquely uniseriate. Ascospores 24–38 × 4–5.5 μm, fusiform, sometimes curved or sigmoid, with narrowly rounded