***Pseudotrichia mutabilis* (Pers.) Wehm.**
AEB 1068 (= PDD 97385)

Substrate: Dead wood of *Populus*

Collection site: Beside trail behind cabin #4 of the US Forest Service lease lot group, Snowbank Lake, 22 miles NE of Ely, Minnesota, USA

Collection date: 21 August 2008

Collector & Identifier: Ann Bell

Voucher material: Dried herbarium material AEB 1068 (= PDD 97385) accompanied by Ann's three Shear's mounting fluid (SMF) semi-permanent slide mounts; several digitized photos of in-situ ascomata and their water, Melzer's reagent & Shear's mounting fluid (SMF) slide-mounted centrum details; brief description and comments by Dan Mahoney based on his observations of Ann's SMF slides, her field collection notes and his 2008 notes & photos.

Brief description: **Ascomata** abundant, clumped to scattered and superficial on the smooth surface and cracks of downed decorticated Populus tree trunks that had been placed along the walking track; pyriform, black and roughened with a broadly rounded venter and prominent neck; large portions of the lower neck and mid to upper venter clothed with a yellow to yellow-orange or slightly reddish scurfy tomentum; ostiolar pore prominent, rounded to slit-like. **Pseudoparaphyses** numerous, hyaline, septate, seemingly unbranched. **Asci** eight-spored, without bluing in Melzer's, bitunicate, cylindro-clavate with stipes up to ⅓ the total length – whole asci 135–170(–197) × 12.5–17.5 µm with stipes 35–52.5 µm long (n=10). **Ascospores** biseriate apically & uniseriate basally in the ascus, fusoid, tapering to obtuse or acute ends, hyaline or nearly so, usually 3-septate at maturity and otherwise matching the description reproduced in the left column on the next page – including the gelatinous sheath – 27.5–34 × 6–8 µm (n=15).

Brief comments: This collection closely matches the description reproduced from Margaret Barr (1984) on the next page. It was originally described as *Pseudotrichia stromatophila* Kirschst. in Annls mycol. 37(1/2): 125 (1939) as the type species of Kirschstein's new monotypic genus *Pseudotrichia.* Presently (December 2020), 13 species of *Pseudotrichia* are recorded in the Index Fungorum. A recently described 14th species, not yet recorded, is *Pseudotrichia ambigua* A. Bell & D.P. Mahoney (see Bell A. & Mahoney D.P. 2020. *Pseudotrichia ambigua* (Pleosporales): A new species from New Zealand. Ascomycete.org, 12(6):216–220.

No monographic treatment is available and morphological and sequencing variations indicate that some species should be placed elsewhere. A recent discussion of the genus can be found under *Pseudotrichia* in the following: Thambugala K.M., Ariyawansa H.A., Liu Z-Y., Chukeatirote E. & Hyde K.D. 2014. Towards a natural classification of Dothideomycetes 6: The genera *Dolabra, Placostromella, Pleosphaerellula, Polysporidiella* & *Pseudotrichia* (Dothideomycetes incertae sedis). Phytotaxa, 176(1): 055–067.

Photos and their legends were prepared in 2008 by Dan and are provided in this pdf.

BARR M.E. 1984. *Herpotrichia* and its segregates. *Mycotaxon* 20: 1-38.
(Portions of pages 19, 20, 22 & 23 are reproduced below)

Pseudotrichia Kirschstein, Ann. Mycol. 37: 125. 1939.

Ascomata immersed erumpent to superficial, gregarious or scattered; globose, pyriform, or ovoid, with short to somewhat elongated papillate apex, usually flask-shaped in section; apex and pore rounded or apex compressed and pore slit-like; surface black, covered by greenish, yellowish, rusty orange, grayish or brown verruculose hyphae, often including granular pigmented material, apical region glabrous; peridium firm, composed of compressed cells, reddish brown, pigment patchy; ostiolar canal periphysate. Subiculum present or sparse. Asci bitunicate, peripheral, clavate. Pseudoparaphyses trabeculate, in matrix. Ascospores hyaline becoming light brown in age; fusoid, tapered to obtuse or ± acute ends, symmetric, straight or inequilateral or slightly curved; one or several septate, primary septum median, constricted, each hemispore septate in age; contents with one or a few globules; wall smooth or finely verruculose in age, usually surrounded by gel coating; biseriate, partially uniseriate, or parallel in the ascus.

Anamorph not known.

On or in old stromata of other ascomycetes or on decaying wood, hypersaprobic.

Type species: *P. stromatophila* Kirschstein = *P. mutabilis*

Petrak erected the genus *Khekia* in the Lophiostomataceae, but his exsiccati specimen (Flor. Boh. et Mor. Nr. 132) was determined as *Calospora ambigua* Pass., and he proposed the combination *Khekia ambigua* (Pass.) Petrak (Hedwigia 62: 284. 1921). Although Petrak's fungus was *Pseudotrichia mutabilis*, Passerini's species was not, and *Calospora ambigua* Passerini is a synonym of *Pseudovalsa longipes* (Tul.) Saccardo in the Diaporthales (Wehmeyer, 1941b). Kirschstein erected *Pseudotrichia stromatophila* based upon Petrak's Nr. 132 (as 123) "*Calospora ambigua* Pass. Forsan nova species?" and observed that *Khekia* was an invalid name. Petrak (1940) repudiated Kirschstein's name and retained *Khekia*. At this time he utilized the earlier epithet and called the species *Khekia mutabilis*. Petrak also considered *Lophiotricha viburni* Richon (Bull. Soc. Mycol. France 32: XI. 1885) as possibly providing an earlier generic name, but concluded that the two taxa differed. Wehmeyer (1941a) accepted *Pseudotrichia*, and at that time used the epithet *aurata*. He reported on some aspects of development in culture. Colonies on oat agar were yellowish green on the surface. Primordia developed on sterilized twigs of *Ulmus*, on both healthy twigs and ones bearing stromata of *Eutypella* sp. Young ascomata contained at first interwoven hyphae. Meristematic cells in the upper regions formed a conic papilla, and others produced down-growing pseudoparaphyses. Asci were not produced in his cultures. Munk (1956) also accepted the genus, but evidently in a different sense according to his description and the position in classification. His *Pseudotrichia minor* seems to be a species of *Massarina*.

Pseudotrichia differs from *Herpotrichia* in several respects. Luttrell (1973) noted under *Herpotrichia* that *Pseudotrichia* lacked a subiculum. The major differences are the rather large ascomata, often with compressed apices, and the peripheral arrangement of asci and trabeculate pseudoparaphyses in *Pseudotrichia*. Petrak was quite correct about the compressed, lophiostomataceous aspect of the fungus, although within a single collection the apices may be rounded or compressed or somewhat triangular. An authentic specimen in Herb. E. Fries (UPS; Smolandia: Femsjö) shows such variation in the apices of ascomata.

Pseudotrichia mutabilis (Persoon: Fries) Wehmeyer, The Fungi of New Brunswick, Nova Scotia, and Prince Edward Island, p. 35 (footnote). 1950. Figs. 29-32

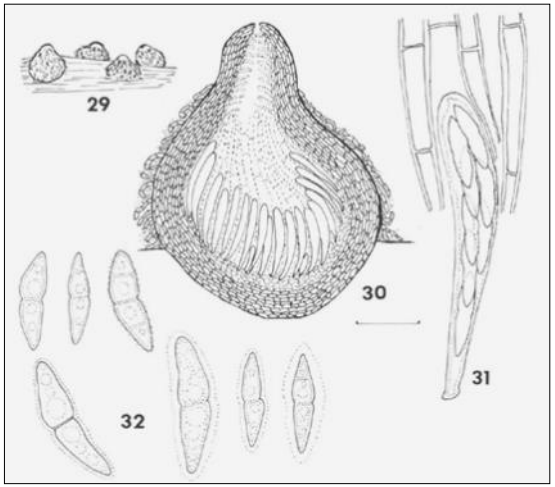
Sphaeria (Villosae) mutabilis Persoon: Fries, Syst. Mycol. 2: 447. 1823.

Ascomata 385-615 µm diam, 440-770 µm high; peridium broad, 32-60 µm wide. Asci (90-)120-155 x 12-20 µm. Ascospores 26-39 x (6-)7-9 µm, 1-3-septate.

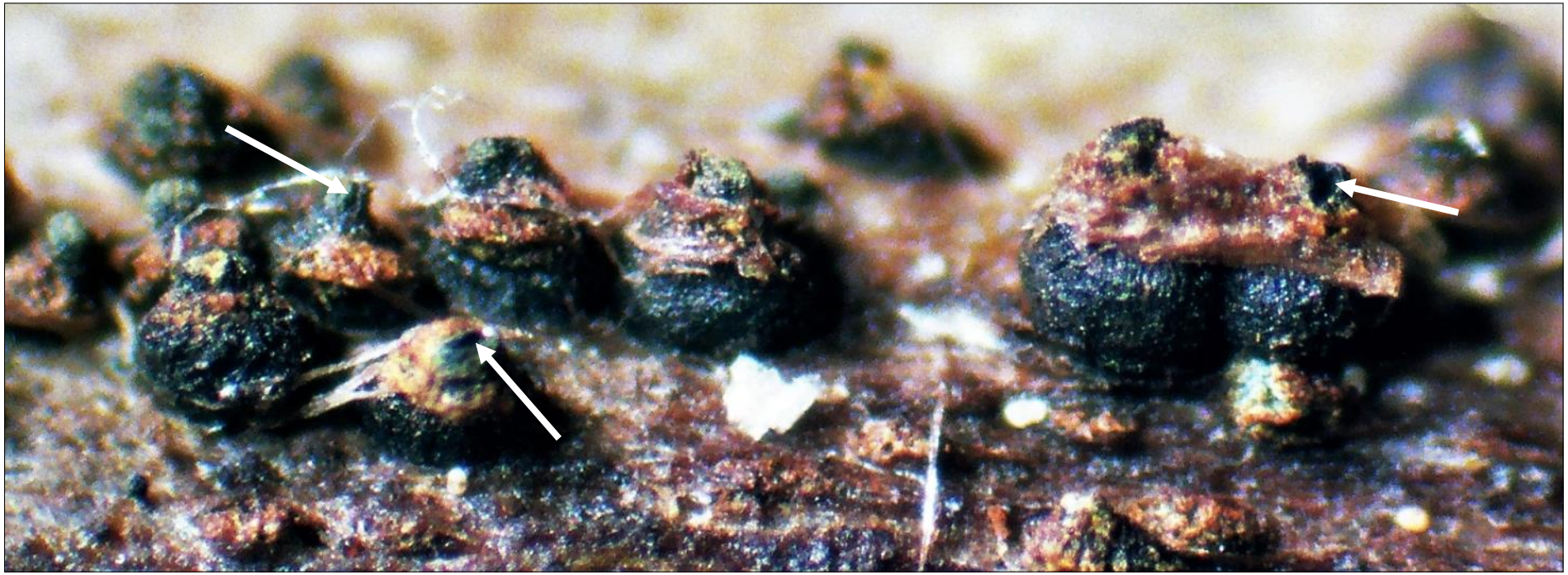
Hypersaprobic in old stromatic ascomycetes or on wood bearing hyphae of other fungi. Temperate Europe and North America.

Material Examined: Numerous collections from eastern North America and from Colorado and Arizona. Type specimens: New York: Sandlake, Oct, C. H. Peck (isotype of *Sphaeria viridicoma*, NYS); Elizabethtown, Sep, C. H. Peck (holotype of *Lophiotrema parasitica*, NYS); Gansevoort, Sep, C. H. Peck (holotype of *Lophiotrema vestita*, NYS).

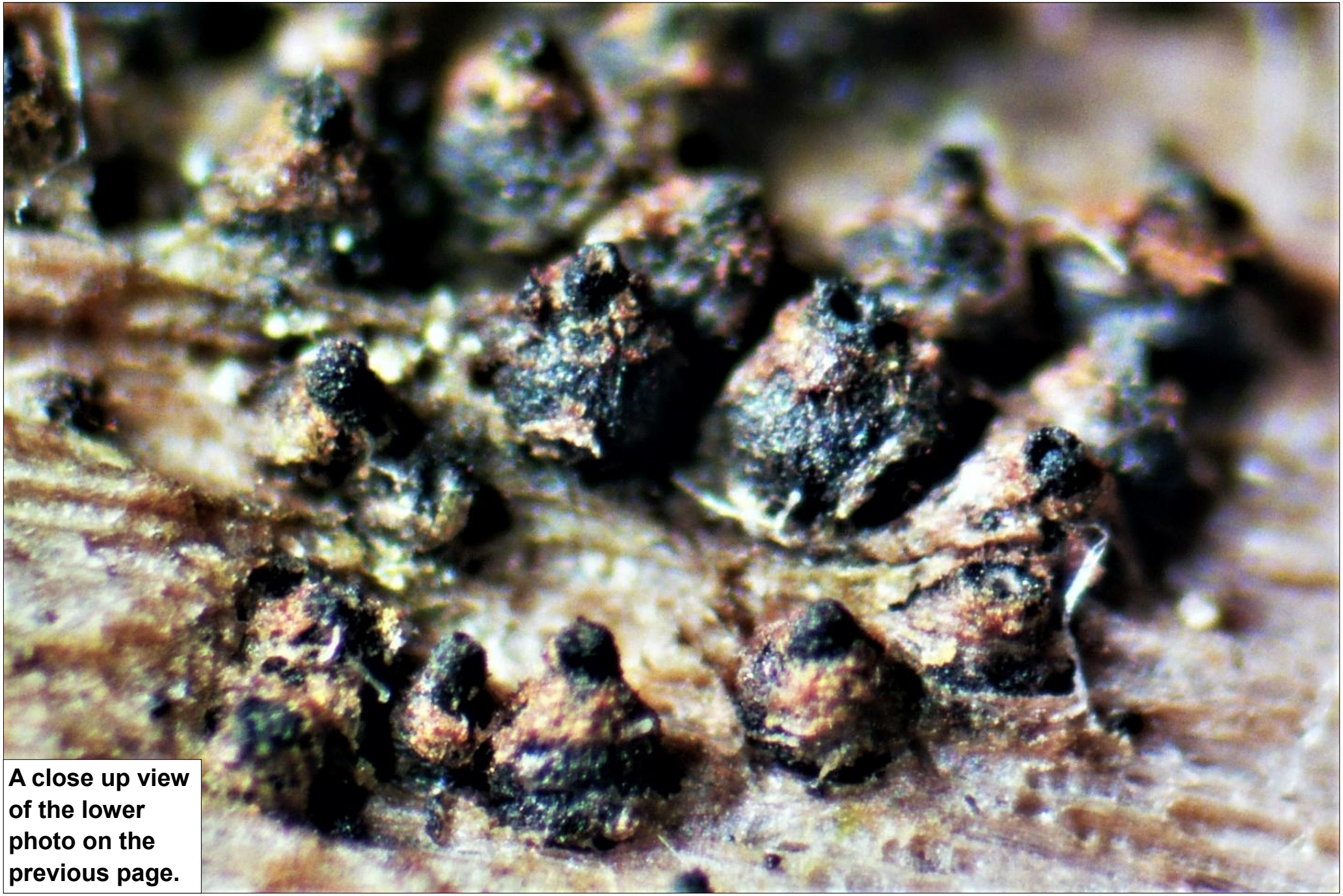
Pseudotrichia in temperate regions is represented by *P. mutabilis*, a species that shows variation in rounded or compressed papillate apices and in pigmentation of the tomentum clothing ascomata. Two species known from Venezuela add to the genus more conspicuous apices that are broad and short beaklike, and tomentum that forms a basal subiculum on the substrate. Although the ascospores differ, the following two species are obviously closely related. Both present a spectacular appearance under the dissecting microscope, the broad apical papilla contrasting strongly to the tomentose body of the ascoma, and seated in a weft of gray or brown subiculum. The ascospores of *P. mamillata* are much like those of *P. mutabilis*, whereas those of *P. pachnostoma* are considerably longer and have more septa.



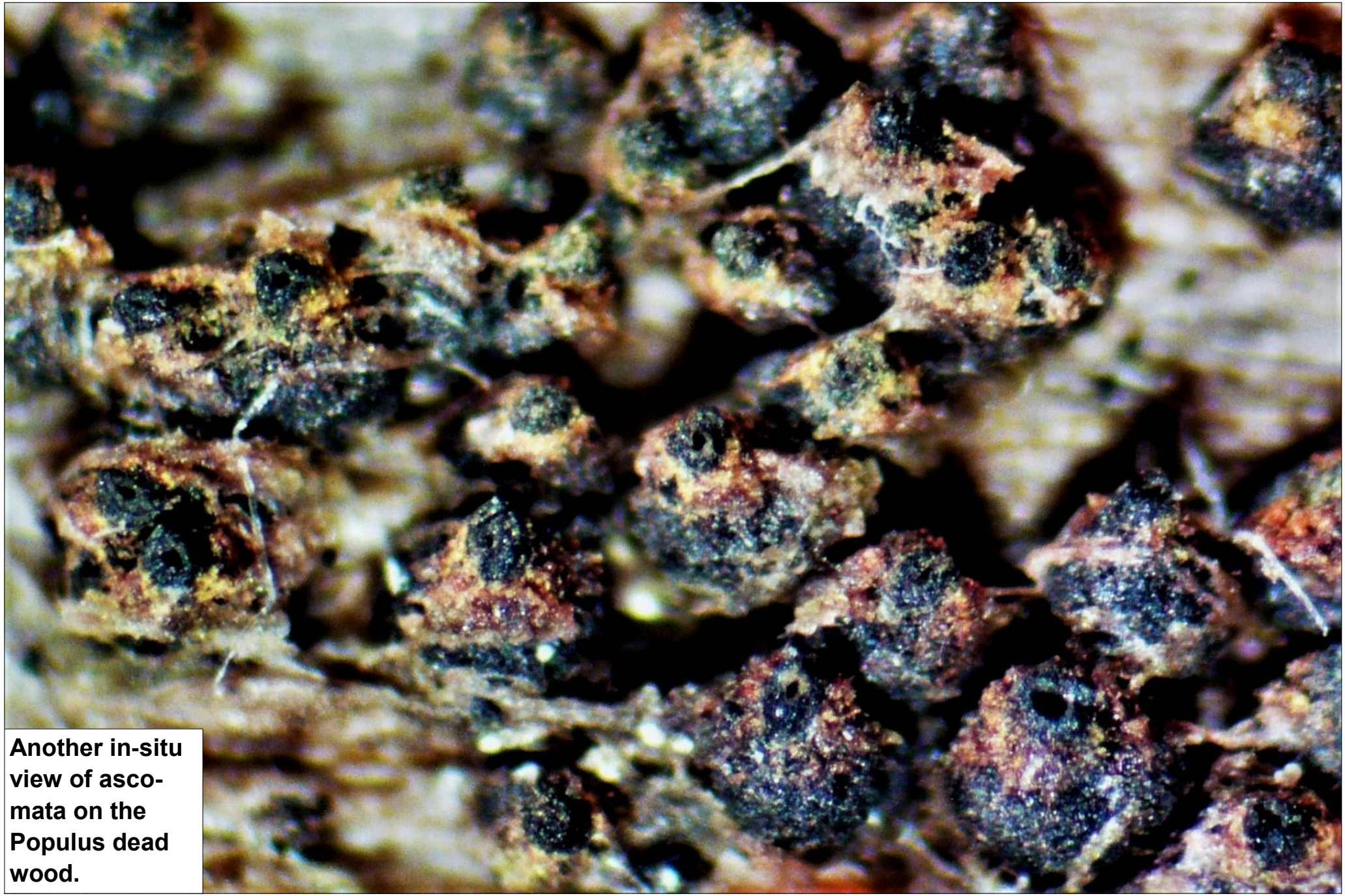
Figs. 29-37. Species of *Pseudotrichia*: 29-32. *P. mutabilis*. 29. Habit sketch of ascomata. 30. Ascoma in section. 31. Ascus and portions of pseudoparaphyses. 32. Ascospores. 33-35. *P. mamillata*. 33. Habit sketch of ascomata. 34. Portions of rough-walled hyphae. 35. Ascospores. 36-37. *P. pachnostoma*. 36. Habit sketch of ascomata. 37. Ascospores. Standard line = 150 µm for fig. 30; 15 µm for figs. 31, 32, 34, 35, 37.



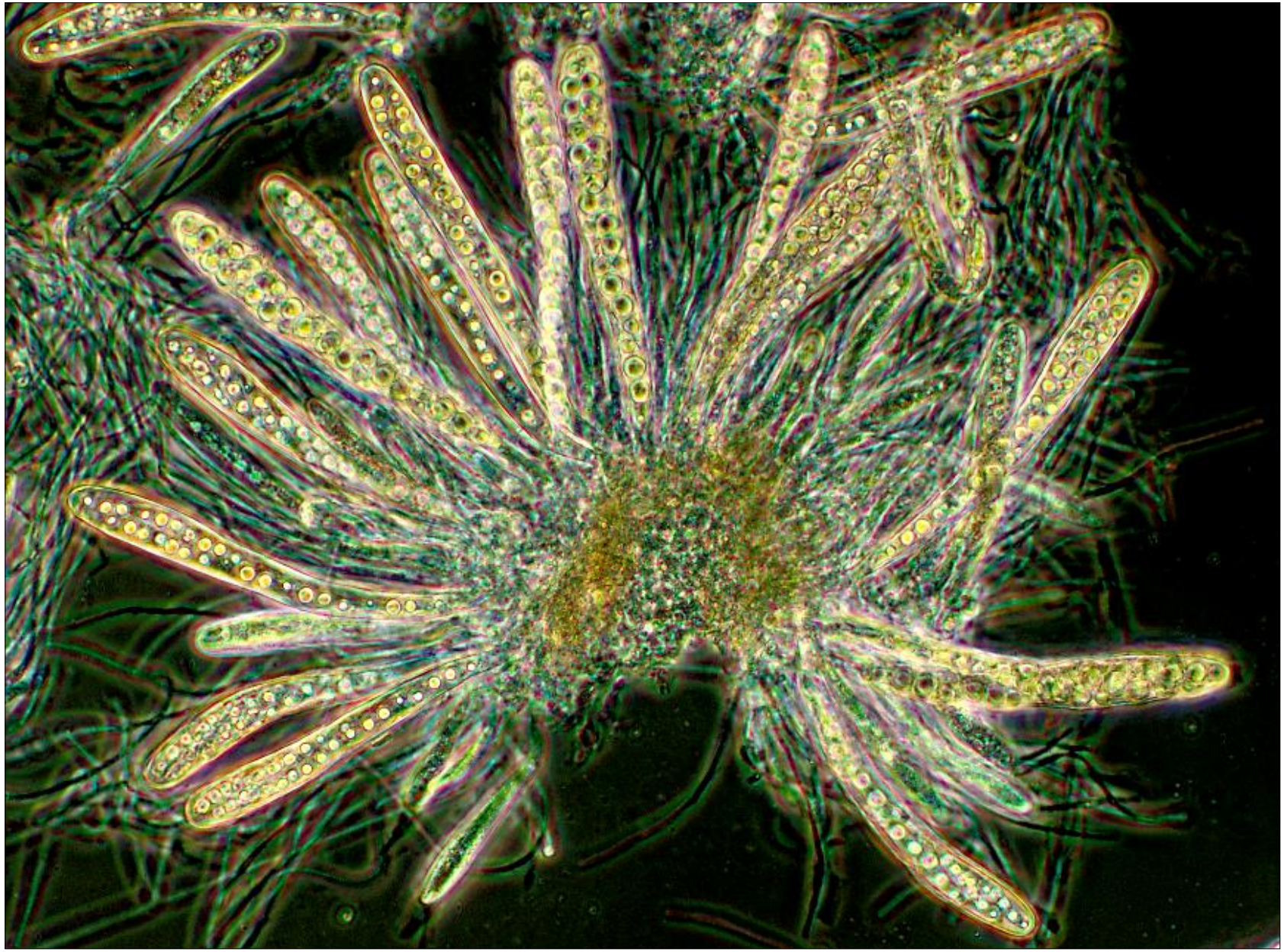
In-situ views of ascomata on the Populus dead wood. Note the roughened black surface and the yellowish rather scurfy tomentum that clothes portions of the neck and venter. Arrows indicate the ostioles: slit-like (solid white – upper photo) and rounded (dashed white – lower photo).



A close up view of the lower photo on the previous page.



Another in-situ view of asco-mata on the Populus dead wood.



Young asci and surrounding pseudoparaphyses from a water squash of an ascoma centrum – X20 objective, phase microscopy

A–D. Centrum squashes. A. Mature asci & pseudoparaphyses, Melzer's mt., X40 obj., brightfield. Note ascospore shapes, tapered extremities & septal indentations. B–D. Single asci, water mts. B. Ascospores still immature, X20 obj., phase. Note globules. C,D. X40 obj., brightfield. C. Mature ascospores. Note the single large globule/cell. D. Ascospores, similar developmental stage as C.