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The genus Catinella

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The genus *Catinella* was established by Boudier* for a single species, of rather indefinite relationship, which has commonly been identified as *Peziza olivacea* Batsch. While Batsch's plant is indeterminable when tested according to present day standards of specific limitations, the fungus which has gone by that name is well known, being clearly described by Massee,† and nicely figured by Boudier.‡ The synonymy listed below emphasizes not only the truth of Boudier's statement that the species has been included sometimes in one genus, sometimes in another, but that it has been referred by various writers to several different families as well. The inoperculate asci and intense reaction to caustic potash remove it from the Pezizaceae, where the bright color and fleshy consistency of the fresh young plants at first seem to place it, and to which it has been referred by Saccardo, Rehm and others. The somewhat gelatinous nature of the excipulum has suggested the Bulgariaceae to Fries, Karsten and others, but that character is certainly not conspicuous enough to associate the plant with *Bulgaria inquinans* or *Sarcosoma rufum*. Moreover, a truly gelatinous tissue does not become friable on drying. The present writer is inclined to the opinion of Berkeley, Phillips, Massee and Boudier that its affinities are more properly with the Patellariaceae, such, for example, as *Karschia*. The genus may be characterized as follows:

A genus of the Patellariaceae. Ascomata fleshy and somewhat gelatinous when fresh, becoming friable when dry, sessile, attached to the substratum by radiating, dark fibers; excipulum entirely parenchymatous, becoming deep violet with KOH; asci opening by a pore, not blue with iodine; spores eight, continuous, pale brown; asci and paraphyses agglutinated at the tips to form an epithecium.

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* Hist. Class. Disc. Eur. 150. 1907.

† Brit. Fungus-Fl. 4: 94. 1895.

‡ Icon. Myc. 3. *pl. 452.*

Species two, as follows:

Spores 7–11 × 4–5 μ.	1. *C. nigro-olivacea.*
Spores 13–15 × 6–7 μ.	2. *C. elastica.*

1. **Catinella nigro-olivacea** (L. v. S.) Durand, comb. nov.

?*Peziza olivacea* Batsch, Elench. Fung. 127. *pl. 12. f. 51.* 1783.
Peziza nigro-olivacea L. v. S. Syn. Car. 121. 1822.
Patellaria pulla β nigro-olivacea Fr. Syst. **2**: 160. 1822.
Bulgaria nigrita Fr. Elench. **2**: 16. 1830.
Lemalis rufo-olivacea L. v. S. Syn. N. Am. n. 1089. 1834.
Rhizina nigro-olivacea Curr. Trans. Linn. Soc. **24**: 494. *pl. 51. f. 10–12* (*fide* Phillips).
Peziza viridi-atra B. & C. Jour. Linn. Soc. Bot. **10**: 369. 1868.
Patellaria violacea B. & Br. Jour. Linn. Soc. Bot. **14**: 108. 1875 (*fide* Massee *l.c.*).
Patellaria hirneola B. & Br. Jour. Linn. Soc. Bot. **14**: 108. 1875 (*fide* Massee *l.c.*).
Patellaria applanata B. & Br. Jour. Linn. Soc. Bot. **14**: 108. 1875.
Peziza fuscocarpa Ell. & Hol. Jour. Myc. **1**: 5. 1885.
Patellaria olivacea Phill. Brit. Disc. 361. 1887 (Batsch ?).
?*Humaria olivacea* Sacc. Syll. **8**: 148. 1889 (Batsch ?).
Pezicula viridi-atra Sacc. Syll. **8**: 315. 1889.
Phaeopezia fuscocarpa Sacc. Syll. **8**: 474. 1889.
Bulgariella pulla β nigro-olivacea Sacc. Syll. **8**: 638. 1889.
Bulgariella nigrita Sacc. Syll. **8**: 638. 1889.
Patinella violacea Sacc. Syll. **8**: 770. 1889 (*fide* Massee).
Patinella olivacea Sacc. Syll. **8**: 770. 1889 (Batsch ?).
Patinella hirneola Sacc. Syll. **8**: 771. 1889 (*fide* Massee).
Patinella applanata Sacc. Syll. **8**: 771. 1889.
Humaria marchica Rehm, Rabenh. Kypt.-Fl. 1^3: 952. 1894.
Phaeopezia marchica Sacc. Syll. **11**: 415. 1895.
Aleurina marchica Sacc. & Syd. Syll. **16**: 739. 1902.
Humaria fuscocarpa Morgan, Jour. Myc. **8**: 189. 1902.
Aleurina fuscocarpa Sacc. & Syd. Syll. **16**: 739. 1902.
Catinella olivacea Boud. Hist. Class. Disc. Eur. 150. 1907 (Batsch ?).

Ascomata solitary or two or three together, sessile, attached to the substratum by numerous, radiating, dark brown fibers most

conspicuous in young plants; at first spherically closed, then opening out so as to become successively cup-shaped, saucer-shaped, finally applanate, with a permanently upturned margin; very young plants greenish yellow, becoming deeper and darker green, finally blackish olive when old, fleshy and somewhat gelatinous when fresh, 3–10 mm. in diameter, the majority 3–5 mm. On drying the disk becomes olive-black, the exterior brownish, somewhat furfuraceous or vertically striate, and the texture friable. *Excipulum* about 400 μ thick at the base, entirely parenchymatous, the ectal cells 18–20 μ in diameter, polygonal, with dark brown walls, becoming gradually smaller and yellow toward the hymenium, the superficial cells of the margin and sides projecting to form short, stout, obtuse, septate, flexuous, brown pili causing the surface to appear furfuraceous, those at the base much longer and radiating so as to form a small subiculum covering the substratum 2–3 mm. beyond the margin. On treatment with 1 per cent caustic potash the hymenium or whole flesh becomes deep violet and frequently yields a violet solution. *Hymenium* about 120–140 μ thick. *Asci* narrowly cylindric-clavate, apex rounded, not blue with iodine, 65–90 x 3–6 μ (mostly 70–80 μ). *Spores* eight, uniseriate, elliptic or elliptic-clavate, usually slightly narrowed near the middle so as to appear slipper-shaped, continuous, two-guttulate, pale olive-brown to deep brown, 7–11 x 4–5 μ (majority 8–10 μ); *Paraphyses* cylindric, septate, rarely branched, somewhat longer than the asci, the tips agglutinated with amorphous matter to form an epithecium.

On rotten wood, especially of old, moist, carious, decorticated logs, not abundant but widely distributed in eastern North America and the West Indies; also in Europe and Ceylon.

This is one of our most peculiar and attractive discomycetes. "In its young state it is truly *Peziza*-like, and very beautiful." While easily recognizable at sight when once understood, it has been described as new over and over again until very few fungi have a greater multiplicity of names. While this may be the species to which Batsch applied the name *Peziza olivacea*, his brief description and crude figures are much too inadequate to justify more than surmise, and may apply equally well to numerous other species. The apparent rarity of our plant in central Europe makes it still more improbable that Batsch had seen it. *P. olivacea* is simply one of the numerous names of fungi handed down from the pre-Persoonian period, the mycological stone age, which are absolutely indeterminable according to present taxonomic standards,

and which should therefore be dropped completely and no longer allowed to encumber the mycological literature.

The first certainly identifiable name applied to the plant under consideration is the one adopted in the present paper. While Schweinitz's type, from North Carolina, is missing from his herbarium, there is a specimen marked "rotten wood. Beth." under the name "*Lemalis pulla β nigro-olivascens* Schw. No. 1089." This label involves a curious switching of names and an error in spelling as follows: *Peziza nigro-olivacea* L. v. S. was included by Fries in his Systema as "*Patellaria pulla β nigro-olivacea.*" In 1834, Schweinitz transferred the species to the genus *Lemalis*, and changed the specific name so that it appeared as "1089. 4. *L. rufo-olivacea*, L. v. S., Syn. Car. 1220, *Peziza nigro-olivacea;* Salem et Bethlehem differt specifice a priori [*L. pulla* Fr.]". At a later date, Dr. Michener, in mounting and arranging Schweinitz's fungi, restored the original specific name (*nigro-olivacea*) to the label, but misspelled it "*nigro-olivascens.*" The presence of numbers and references in each case leaves no doubt that the specimen now in the Schweinitzian Herbarium is the one referred to in 1834 as from Bethlehem.

Although Fries stated that he had seen a specimen of *Peziza nigro-olivacea*, there seems to be no Schweinitzian material so labeled in the Friesian Herbarium, at Upsala. However, there is a specimen called "*Lemalis rufo-olivacea* Schw.," from Curtis, as well as one marked "*Peziza applanata* ex herb. Schweinitz." While both are typical *Catinella nigro-olivacea*, the latter is quite different from the specimen in Schweinitz's own herbarium called *P. applanata.*

In 1830, Fries described as *Bulgaria nigrita* a plant collected in Russia by Weinmann. So far as the writer can discover, no more recent collection has been referred to this species, which has remained practically unknown for nearly a century. In the Friesian Herbarium is a specimen marked "*Bulgaria nigrita*, Petersburg," in Elias Fries's own hand, which is in all probability the original type. When the writer saw it, in 1904, he was at once impressed with its gross resemblance to the American plant. Subsequent microscopical examination removed all doubts as to their specific identity.

During the Berkeleyan period this species was collected occasionally in various parts of the world, and almost as often described as new. Material from Cuba (Wright, No. 369) was given the name *Peziza viridi-atra* B. & C. Examination of the type, at Kew, shows it to be identical with the Schweinitzian plant. Saccardo placed it in *Pezicula*. Specimens from Ceylon were called *Patellaria applanata* B. & Br. The writer has not seen the type, but Massee, on examination, declared it to be *Patinella olivacea* (*C. nigro-olivacea*). On the basis of the same evidence the same writer included *P. violacea* B. & Br. and *P. hirneola* B. & Br., also from Ceylon, as synonyms. In the original description of *P. applanata* the authors mentioned a "United States specimen." Material so labeled in the herbaria of Fries and the Philadelphia Academy of Science, collected in South Carolina, by Curtis, has been examined, and certainly belongs here. Additional collections reported from Connecticut (Wright), Pennsylvania (Michener), and North Carolina (Curtis) have not been seen.

No specimen of *Rhizina nigro-olivacea* Curr. has been available to the writer. But since both Phillips and Massee (the latter after examination of the type) place it as a synonym of *P. olivacea*, there seems to be no doubt of its identity with *C. nigro-olivacea*.

Peziza fuscocarpa Ell. & Hol. was described from material collected in Iowa by Holway. It has been referred to *Phaeopezia* by Saccardo, to *Humaria* by Morgan, and to *Aleurina* by Saccardo & Sydow, and by Rehm. This specific name is the one under which the plant here considered has commonly been reported or distributed in America. The type is identical with *Peziza nigro-olivacea* L. v. S. The writer has received it from many localities and has had abundant opportunity to study it in the fresh condition in all stages of development.

Of all the references of the present species made by Saccardo, the most curious is that where *Peziza nigro-olivacea* L. v. S. is made a synonym of *Mollisia umbonata* (Pers.) Sacc. To Persoon's specific description are appended verbatim Fries's observations comparing Schweinitz's plant with *Patellaria pulla* Fr., a totally different plant from Persoon's. This confusion may be due to a mixing of notes.

Finally, the plant here considered was described as *Humaria marchica* by Rehm, from German material distributed by Sydow and examined by the writer.

While it has been demonstrated that *Catinella nigro-olivacea* has passed under about thirty different names, it may well be that others have escaped the writer's attention.

In the citation of specimens the following abbreviations have been used: CU, Herbarium of Cornell University; D, Durand Herbarium; F, Fries Herbarium; K, Kew Herbarium; Mo, Herbarium of the Missouri Botanical Garden; NY, Herbarium of the New York Botanical Garden; Phil, Philadelphia Academy; S, Schweinitz Herbarium.

MATERIAL EXAMINED

RUSSIA: Petersburg (F, type of *Bulgaria nigrita* Fr.).

GERMANY: Brandenburg, *Sydow* (NY, cotype of *Humaria marchica* Rehm, in Sydow, Myc. March. *2958*); Moravia, *Petrak* (D, as *Aleurina olivacea* [Batsch] v. Höhn.).

ONTARIO: Carleton Place, *Macoun* (NY); London, *Dearness* (CU, D, E. & E. N. Am. Fungi *2325*).

NEW HAMPSHIRE: Warren, *L. W. Riddle* (D).

NEW YORK: Ithaca, *Atkinson* (D); Varna, *Reddick* (D); Honeoye, *Durand* (D); Adirondack Mountains, Catskill Mountains, Old Forge, Kasoag, Big Indian, South Pond, Elisabethtown, *Peck* (A, as *Patellaria olivacea*).

PENNSYLVANIA: Bethlehem, *Schweinitz* (S); Springtown, *Witte* (NY); Mauch Chunk (Phil); Chester County, *Michener* (Phil).

NORTH CAROLINA: Blowing Rock, *Durand* (D).

SOUTH CAROLINA: *Curtis* (F, Phil).

LOUISIANA: Cloutierville & Abita Springs, *Langlois* (NY).

ARKANSAS: Camden, *C. J. Humphrey* (D).

OHIO: Preston, *Morgan* (NY).

MINNESOTA: Lakeville (D); St. Louis River, *Holway* (NY, Mo).

NORTH DAKOTA: Fargo, *Seaver* (NY, Mo, N. Dak. Fung. *28*, as *Phaeopezia fuscocarpa*).

IOWA: Mt. Pleasant, *Seaver* (D); Decorah, *Holway* (NY, type of *Peziza fuscocarpa*).

CUBA: *Wright 369* (K, type of *Peziza viridi-atra*)

2. **Catinella elastica** (Pat. & Gail.) Durand, comb. nov.

Phaeopezia elastica Pat. & Gail. Bull. Soc. Myc. Fr. **4**: 99. 1888.

Aleurina elastica (Pat. & Gail.) Sacc. & Syd. Syll. **16**: 739. 1902; Rehm, Ann. Myc. **1**: 515. 1903.

Ascomata sessile, solitary or in groups, 1–3 mm. in diameter, rich dark brown externally, black within, attached at the base by radiating brown fibers consisting of septate hyphae; margin thickened. *Excipulum* parenchymatous, of polygonal cells, the ectal ones with brown walls, those at the sides of the cup giving rise to short, septate, flexuous, brown pili, those at the base to stout, brown, radiating hyphae. *Asci* cylindric-clavate, apices rounded, not blue with iodine. *Spores* eight, uniseriate, elliptic, or elliptic-clavate, or slipper-shaped, continuous, brown, two-guttulate, 13–15 x 6–7 μ. *Paraphyses* cylindric, hyaline, septate, tips agglutinated with amorphous matter.

MATERIAL EXAMINED

VENEZUELA: on dead wood, Mapire, May, 1887, *A. Gaillard 6* (NY).

This species seems to differ from the preceding only in the larger spores. In the herbarium of the New York Botanical Garden is a specimen of what appears to be the original and only collection. The above description is that of the authors supplemented by notes drawn from the above mentioned specimen. In the original description the tissue is spoken of as elastic, somewhat like that of *Bulgaria*. The dried material is friable. It breaks up so that no complete ascus has been seen. The material becomes deep violet on treatment with KOH.

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