

## Sydowia, Annales Mycologici Ser. II.

Vol. 38: 235–240 (1985)

Verlag Ferdinand Berger & Söhne Gesellschaft m.b.H., 3580 Horn, Austria

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### North American Pezizales: *Greletia* and *Marcellina*

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**Summary.** – Several species of operculate Discomycetes from North America with purplish apothecial pigments are discussed. They are placed in the genera *Greletia* and *Marcellina*. A new species of *Greletia*, *G. mülleri* is proposed in recognition of Emil MÜLLER.

#### Introduction

Several infrequently collected members of the Pezizales have been encountered in my collecting and revisions of North American members of the order which, under initial studies, were referred to the genus *Pulparia* KARSTEN. They all have purplish apothecial pigments and spherical ascospores and thus were referred to *Pulparia* as emended by KORF (1972). DONADINI (1976, 1979) suggested that the genus as emended by KORF contained two elements, one of which he named *Greletia*. In correspondence with Professors KORF and DISSING, they suggested that *Pulparia* as typified by *P. arctia* KARSTEN represented a different genus than was assumed by KORF. In discounting *Pulparia* as an available generic name, *Marcellina* BRUMM., KORF & RIFAI is used instead. The genera *Marcellina* and *Greletia* are considered to be members of the family Pyrenomataceae, in the subfamily Ascodesmidoideae CLEMENTS emend. KORF.

Under the generic name *Lamprospora*, SEAVER (1942) reported two species which are discussed here: *L. amethystina* (QUÉL.) SEAVER and *L. planchonis* (DUN. ex BOUD.) SEAVER. The former was reported from a single collection from Iowa, and the latter was reported as "very common in the Bermudas but not known from the mainland of North America." HANLIN (1965) later reported finding *L. planchonis* in Georgia, thus establishing that the species was known in North America. The purpose of the present paper is to call attention to the collections of these species which have come to light in the course of my studies and to describe a new species of *Greletia* from California.

Outside of North America, the species of these genera seem no more commonly collected than in North America but a summary of Western European collections was published by DONADINI (1976, 1979) which elucidates a good deal about the genera.

The characters he used to distinguish *Marcellina* and *Greletia* are both ecological and anatomical. Members of the genus *Marcellina* are more boreal in distribution than *Greletia* species and are also associated with mosses whereas *Greletia* species seem to occur on soil. Ornamented spores occur in both genera. However, those in *Greletia* are lilac in color; those in *Marcellina* are hyaline. Purple pigments are present in the asci of *Greletia* species but not in species of *Marcellina* and the asci in the two genera are formed differently. In *Marcellina* the asci are aporhynchous; in *Greletia* they are  $\pm$  pleurorhynchous. The outer excipulum is composed of globose cells in species of *Marcellina* and there is a medullary layer of dense textura intricata which appears to be smaller diameter textura globosa. The outer excipulum in species of *Greletia* is composed of globose and elongate cells, and the medullary layer is made up of loose textura intricata.

Key to North American species of *Marcellina* and *Greletia*

- 1. Ascospores ornamented . . . . . 2
- 1\*. Ascospores smooth or with low isolated warts seen only under oil immersion . . . . . 2. *Greletia planchonis*
- 2. Ascospores marked with a reticulum or an incomplete reticulum connecting warts . . . . . 1. *Marcellina persoonii*
- 2\*. Ascospores marked with unconnected warts. . . . . 3. *Greletia mülleri*

1. *Marcellina persoonii* (CROUAN & CROUAN) BRUMM., *Persoonia*, Suppl. 1: 233 (1967). – Fig. 1,1

- = *Ascobolus persoonii* CROUAN & CROUAN, Fl. Finistere p. 56 (1867)
- = *Humaria persoonii* (CROUAN & CROUAN) QUÉL., C. r. Ass. franç. Avanc. Sci. (Congres Grenoble, 1885) 14: 451 (1886)
- = *Barlaea persoonii* (CROUAN & CROUAN) SACC., Syll. Fung. 8: 116 (1889)
- = *Plicaria persoonii* (CROUAN & CROUAN) BOUD., Ic. mycol. ser. I, I, livr. 2, liste prelim. champ., unnumbered page (1904)
- = *Barlaeina persoonii* (CROUAN & CROUAN) SACC. & TRAV., Syll. Fung. 19: 140 (1910)
- = *Marcellina persoonii* (CROUAN & CROUAN) BRUMM., *Persoonia*, Suppl. 1: 233 (1967)
- = *Pulparia persoonii* (CROUAN) KORF, PFISTER & ROGERS, *Phytologia* 21: 205 (1971)

Apothecia up to 1 cm broad, shallow cupulate. – Hymenium violet. Outside lighter in color. – Flesh of apothecium composed of encrusted hyphae which are globose in the outer layer and within are composed of textura intricata which is densely packed and large in diam. so that they appear as globose cells in section. – Asci 190–225  $\times$  11–12  $\mu$ m without pigments. – Ascospores globose, in-

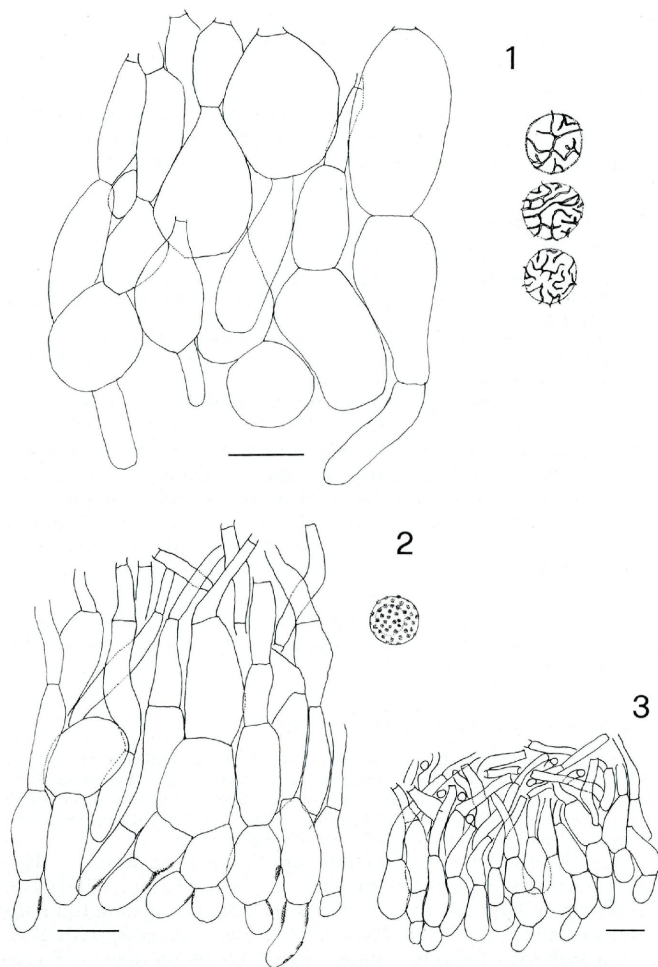


Fig. 1: 1. *Marcellina persoonii*: Ascospores and cells of the outer excipulum. Figured from D. H. PFISTER (mn 120). – Scale equals 25  $\mu$ m. – 2. *Greletia planchonis*: Cells of the outer excipulum. Figured from material from California (SFSU). – Scale equals 12.5  $\mu$ m. – 3. *Greletia mülleri*: Cells of the outer excipulum and an ascospore. Figured from the holotype. – Scale equals 25  $\mu$ m.

distinctly guttulate, 7–9  $\mu\text{m}$  covered with warts and ridges which form an incomplete reticulum. – Paraphyses agglutinated with amorphous material.

On mossy soil.

Specimens examined. – A series of specimens collected by PFISTER (mn 103, 120, 129, 130) at the University of Minnesota's Biological Station at Lake Itasca in July and August 1980 (FH).

2. *Greletia planchonis* (DUN. ex BOUD.) DONADINI, Bull. Soc. Mycol. France 95: 184 (1979). – Fig. 1, 2

= *Plicaria planchonis* DUN. ex BOUD., Bull. Soc. Mycol. France 3: 92 (1887).

= *Pulparia planchonis* (DUN. ex BOUD.) KORF, PFISTER & ROGERS, Phytologia 21: 205 (1971)

= *Marcellina atroviolacea* BRUMM., Persoonia, Suppl. 1: 233 (1967)

= *Peziza atroviolacea* DELILE ex de SEYNES, Rech. Veget. Inf. III. p. 84 (1886), non *Peziza atroviolacea* BRES. (1882)

Apothecia up to 1.5 cm in diam, shallow cupulate. – Hymenium purple to nearly black when fully mature. – Flesh of apothecia composed of interwoven hyphae toward the inside and globose or angular cells are present in the cortical layer. The hyphae of the excipulum are encrusted with bluish-purplish pigments. – Asci 215–225  $\times$  11–12  $\mu\text{m}$ , the cytoplasm of the ascus is filled with pigment granules. – Ascospores globose uniguttulate, 8–10  $\mu\text{m}$  diam, smooth. – Paraphyses are straight and barely expanded above.

On soil.

Specimens examined. – On soil, under fallen piece of *Yucca*, San Diego Co., Ca, 21. III. 1978, CUTLER (SFSU); Natural Bridge, Va, VII. 1896, THAXTER (3707) (FH).

3. *Greletia Mülleri* PFISTER, sp. nov. Fig. 1, 3

Apothecia non profunde cupulata, usque ad 1 cm diam. Hymenia badia – atra. Asci 220–230  $\times$  17.8–20  $\mu\text{m}$ . Ascospores globosae, verrucatae, 12–14  $\mu\text{m}$  diam. Paraphyses usque ad 10  $\mu\text{m}$ , brunneolae, conglutinatae. *Greletiae verrucisporae* affinis sed majoribus ascosporibus distincta. Ad terram. Holotypus: Del Valle Regional Park, Livermore, Alameda Co., Ca, 17. I. 1974, SCHOLAAS (SFSU).

Apothecia shallow cupulate up to 1 cm in diam. – Hymenium, when fresh, brown to black. – Excipulum, on the inside, of interwoven hyphae; on the outside, of angular or longitudinally elongated cells. – Asci 220–230  $\times$  17.8–20  $\mu\text{m}$ . – Ascospores globose, marked with discrete isolated warts, 12–14  $\mu\text{m}$  diam. – Paraphyses about 5  $\mu\text{m}$  at the base, expanded to 10  $\mu\text{m}$  above, walls brownish, glued together with brownish material.

On soil.

Specimen examined. – Del Valle Regional Park, Livermore, Alameda Co., Ca, 17. I. 1974, SCHOLAAS (SFSU).

Note. — This collection was initially referred by me to *Greletia verrucispora* (DONADINI & MONIER in DONADINI) DONADINI, but by comparing it with topotype material provided by H. DISSING, it was concluded to be distinct. *G. verrucispora* has smaller ascospores, 9–12  $\mu\text{m}$ ; in addition the spore markings on *G. verrucispora* are larger and more pronounced than on these ascospores. The field identification by the collector was as *Pseudoplectania nigrella* which would indicate that the hymenium must have appeared to be black.

4. *Lamprospora amethystina* (QUÉL.) SEAVER, Mycologia 6: 16 (1914)

= *Humaria persoonii amethystina* QUÉL., Assoc. Fr. Av. Comp. Sci. Rendu 14: 451 (1886)

= *Barlaea amethystina* (QUÉL.) SACC., Syll. Fung. 8: 116 (1889)

= *Pulparia amethystina* (QUÉL.) DONADINI, Rev. Mycol. 40: 261 (1976)

No material of SEAVER'S single collection from Iowa could be located at NY. The following description is taken from SEAVER (1928): "Apothecia gregarious, at first subglobose, expanding and becoming discoid, externally pale, whitish or purplish, reaching a diameter of 2 mm.; hymenium becoming plane or a little concave, purplish, a little darker than the outside of the apothecium, bordered by a whitish fringe-like margin; asci cylindric or sub-cylindric above, gradually tapering below; spores 1-seriate, at first smooth, hyaline, reaching a diameter of 12  $\mu$ , becoming sculptured; spore-sculpturing consisting of small warts similar in size and general appearance to those of *L. tuberculatella*; paraphyses slender, slightly enlarged at their apices."

On the ground among mosses.

Note. — The fungus described here should not be confused with that described by van BRUMMELEN (1969) as *Jafneadelphus amethystinus* (PHILL.) BRUMM. This fungus, based on *Ascobolus amethystinus* PHILL., has not, to my knowledge, been collected in North America.

### Acknowledgements

I wish to thank both H. DISSING and R. KORF for looking at the manuscript in early stages and for their helpful suggestions. I am particularly indebted to H. THIERS for allowing me to study the material in the San Francisco State University Herbarium. Financial support was provided through National Science Foundation Grant No. DEB 80-23018.

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Zeitschrift/Journal: [Sydowia](#)

Jahr/Year: 1985/1986

Band/Volume: [38](#)

Autor(en)/Author(s): Pfister Donald H.

Artikel/Article: [North American Pezizales: Greletia and Marcellina. 235-240](#)