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# *Smardaea purpurea* (Pezizales), another new species from Graubünden, Switzerland

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Summary. — *Smardaea purpurea* Dissing sp. nov. is described from Graubünden, Switzerland. The relationship to *Smardaea amethystina* (Pill.) Svrček (syn. *Jafneadelphus amethystinus* (Phill.) Brumm.) is briefly discussed.

## Introduction

In 1979, 1982 and 1984 the author had the opportunity to collect discomycetes in the canton of Graubünden, Switzerland. About 125 species of the order Pezizales were collected. The main purpose of this paper, which is the second in a series (cf. Dissing, 1980), is to describe a new *Smardaea* species which was found at four occasions near the river Inn close to Ramosch in a very rich locality. From this locality the following species may also deserve to be mentioned: *Ascobolus behnitziensis* Kirschst., *Geopyxis alpina* v. Höhn., *Helvella cupuliformis* Diss. & Nannf., *Parascutellinia carneo-sanguinea* (Fuckel) Schum., *Peziza subisabellina* (Le Gal) Moser, *Rhodoscypha ovilla* (Peck) Diss. & Sivert., *Scabropezia flavovirens* (Fuckel) Diss. & Pfister, and *Sowerbyella imperialis* (Peck) Korf.

## Material and methods

Notes on habit and habitat were made on fresh material. Further studies of microscopic characters were made on dried material, revived in tapwater overnight. The revived material was cut in a freezing microtome, sections generally being 15 or 20 µm thick and stained in Cotton Blue. Measurements of spores were made from spores mounted in Cotton Blue. The material is deposited in the Herbarium of the Institut für Geobotanik der Eidg. Technischen Hochschule, Zürich (ZT) with duplicates in the Botanical Museum, Copenhagen (C).

***Smardaea purpurea*** Dissing, sp. nov. – Figs 1, 2, 3a–c

Ascoma 2.5–7 mm latum, disciforme, basi lata sessile, omnino purpureum vel purpureo-fuscum, hymenio laevi, late distincte marginato, extra furfuraceum, carne molli, purpurea. Excipulum exterius 30–40 µm crassum; cellulae parietibus purpu-

rascentibus, infra globulares vel tympaniformes, 10–20 µm latae, ad marginem versus elongatae, claviformes, 15–30 × 6–10 µm magnae, series subparallelas plus minus manifestas formantes, superficiales tincturam Cotton Blue avide captantes, interdum in hyphas piliformes breves prolongatae. Furfur e glomeribus constitutus cellularum globularium vel subglobularium, 10–20 µm latarum, parietibus crassis. Excipulum medullare 150–230 µm crassum, ex hyphis dense intertextis formatum, 3–5 µm crassis, septatis, ramificatis, parietibus purpurascentibus. Subhymenium 50–60 µm crassum, ex hyphis vegetativis densissime intertextis, brevibus, ramificatis et hyphis ascogenibus intermixtis saturate purpureo-rubris contento tincturam Cotton Blue avide captante formatum. Hymenium 300–330 µm altum. Asci 300–330 × 13–15 µm magni, cylindrici, operculati, non amyloides, base pleurorhyncha. Paraphyses supra paulum dilatatae, 3–4 µm latae, ramificatae, septatae, parietibus purpurascentibus.

Sporae 18.8–22.2–23.8 × 9.9–12.5–13.2 µm magnae (ornamento excluso), uniseriatae, ellipsoides vel inaequilaterales, binas guttulas conspicuas et interdum bullam De-Baryanam continentes, juvenes laeves, contento valde cyanophilo, maturae costis vel verrucis purpurascentibus ornatae pervariis, interdum rete crassum paene continuum formantibus, valde cyanophilis.

Holotypus die 26 Augusti anni 1984 circiter 1100 m supra mare in solo fertili, humido, a flumine Inn regulariter inundato, *Alno incani* inumbrato loci a ponte Resgiano regionis Helveticae Graubünden in orientem siti ab H. DISSING sub numero Sch. 84.21 lectus, siccus in Herbario Academiae Technicae Turicensis (ZT) depositus.

Fruitbodies 2.5–7 mm broad, disc-shaped, sessile on a broad base, all over purplish to purplish brown, hymenium even, margin distinct, broad, outside-scurfy, flesh soft, purplish. – Outer excipulum 30–40 µm thick, individual cells with purplish pigmented walls, below globose to drum-shaped, 10–20 µm broad, towards the margin becoming elongated, club-shaped, 15–30 × 6–10 µm , tending to form subparallel rows. The scurfy appearence of the outside is due to clusters of globose to subglobose, thick-walled cells, 10–20 µm broad, outermost cells may be elongated in short hair-like hyphae. Outermost cells strongly staining blue in Cotton Blue. – Medullary excipulum 150–230 µm thick, of densely interwoven, 3–5 µm broad, septate, branching hyphae with purplish pigmented walls. Subhymenium 50–60 µm broad, of very densely interwoven, short, branching, septate, vegetative hyphae, mixed with dark purplish red ascogenous hyphae in which the content is strongly staining blue in Cotton Blue.

Hymenium 300–330 µm high. – Asci 300–330 × 13–15 µm, operculate, cylindric, non amyloid, with pleurorhynchous base. – Paraphyses slightly enlarged above to 3–4 µm broad, branching, septate, walls purplish. – Spores 18.8–22.2–23.8 × 9.9–12.5–13.2 µm (exclusive ornamentation), uniseriate, ellipsoid to inequilateral, with two prominent guttules; young spores smooth, with strongly cyanophilic content; mature spores with 1–3 µm high, purplish pigmented ornamentation of strongly varying rigdes or warts, which may form a nearly continuous coarse net. Ornamentation strongly cyanophilic. Occasionally with de Bary bubbles.

Examined Material. – SWITZERLAND: Graubünden; Ramosch, along the river Inn, east of the bridge near Resgia, under *Alnus*

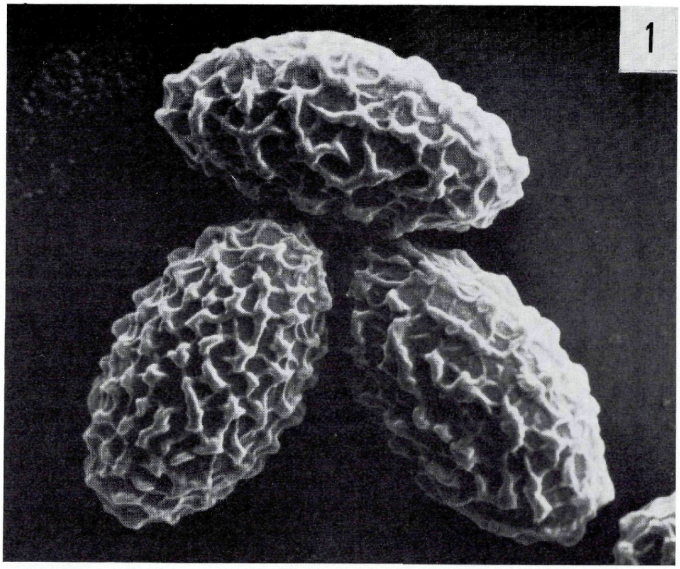


Fig. 1. *Smardaea purpurea:* SEM micrographs of spores, Sch. 84.24, × 2750.

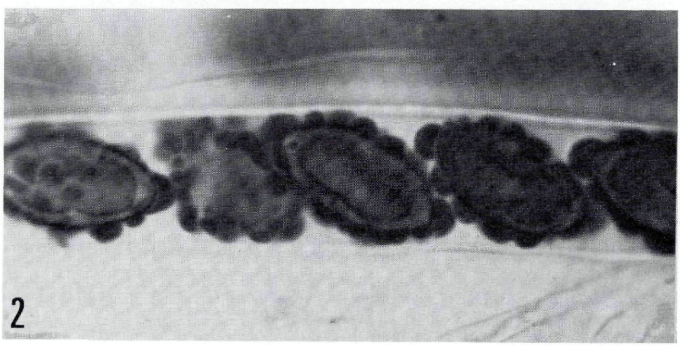


Fig. 2. *Smardaea amethystina:* LM photograph of spores mounted in Cotton Blue, coll. PETERSEN cf. BRUMMELEN (1969), × 1550.

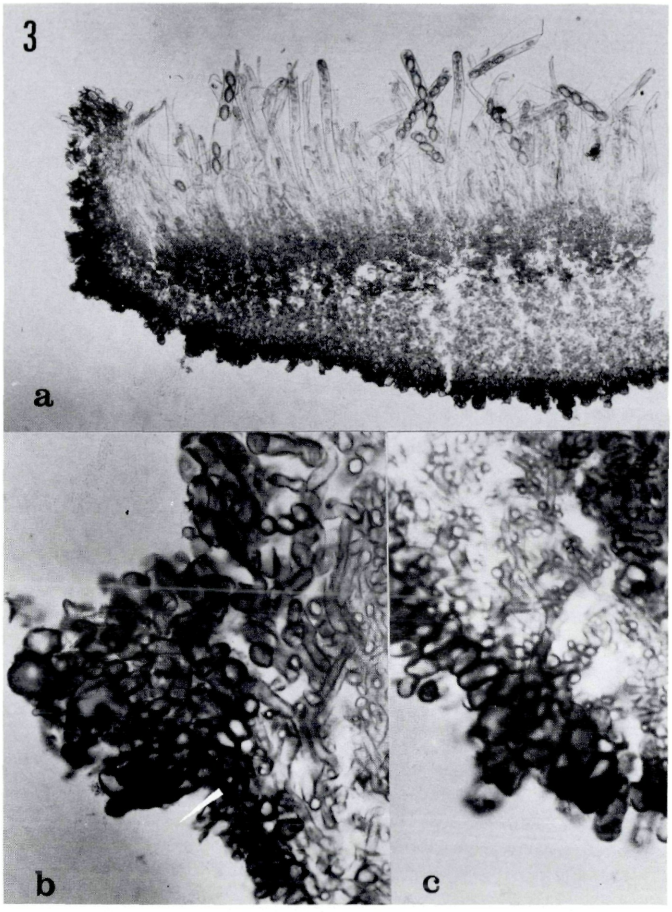


Fig. 3. *Smardaea purpurea:* LM photographs. a: section of fruitbody. – b: detail from margin. – c: detail from lower part, a–c. Sch. 79.160; a: × 113.85, b–c: 455.

*incana,* in shadowed, rich, moist soil, which is regularly inundated from the river, alt. env. 1100 m, 6 September 1979, Sch. 79.160.– ibid., 7 September 1982, Sch. 82.144.– ibid., 26 August 1984, Sch. 84.21 (Holotype, ZT). – ibid., 26 August 1984, Sch. 84.24.– DDR: Nebra, Naturschutzgebiet „Spitze Hutz" bei Bad Bibra auf Fichtennadelstreu über Muschelkalk, leg. BENKERT, HUTH & SCHMIDT-SEIFERT, 29 September 1977, det. BENKERT as *Smardaea amethystina* (C).

## Discussion

The purplish pigmentation of the spore ornamentation and vegetative structures, the non-amyloid asci, and characters of the distinctly two-layered excipulum naturally place the above described taxon in the genus *Smardaea* erected by SVRČEK (1969) with *Ascobolus amethystinus* PHILL. as the type species. It is uncertain whether SVRČEK studied authentic material but he described and depicted material from Czechoslovakia (l. c., Fig. 4).

Van BRUMMELEN (1969) studied the type material of *Ascobolus amethystinus* PHILL. At the same time fresh material of this taxon was available for him from Denmark. Van BRUMMELEN (l. c.) excellently described and depicted the material but transferred it to the genus *Jafneadelphus,* a disposition which was never accepted by the present author.

Fig. 3 shows spores from the above mentioned Danish material. It is difficult to imagine these spores to be identical with the spores depicted by SVRČEK (l. c., Fig. 4, 3), but even if a re-examination of the Czech material reveals a taxon differing from *Ascobolus amethystinus* PHILL., the genus *Smardaea* is formally correctly erected with reference to the English material.

*Smardaea purpurea* with a spore ornamentation of irregular ridges and warts (Fig. 1) is easily distinguished from *S. amethystina* with a regular ornamentation of prominent, rounded warts.

BENKERT (1980, Abb. 1–4) described and depicted *Smardaea amethystina* from DDR. A sample of his material, which has kindly been placed at my disposal, shows that the German material is identical with *Smardaea purpurea* as described above.

Finally it should be mentioned that preliminary studies of the three species referred to the genus *Greletia* (DONADINI, 1979) have shown that these species contain the same purplish pigments as species referred to the genus *Smardaea* (cf. also NARDI, 1982). Also the three *Greletia* species have the same distinct two-layered excipulum.

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L. CHRISTIANSEN prepared the photographs, and J. FUGLSANG NIELSEN operated the scanning electron microscope. Their co-operation is greatly appreciated.

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