

Typification of *Gyromitra perlata*, type-species of the subgenus *Discina* (*Discinaceae*)

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Abstract: *Peziza perlata* Fr., basionym of *Gyromitra perlata*, is the type-species of the subgenus *Discina*. As many old names attached to supposed well-known species, its type is not clearly defined. Based on a sample from Fries' herbarium, we propose the neotypification of this name to fix the main morphological and microscopic characters of the species.

Keywords: Ascomycota, E. Fries, nomenclature, *Pezizales*.

Résumé : *Peziza perlata* Fr., basionyme de *Gyromitra perlata*, est l'espèce-type du sous-genre *Discina*. Comme beaucoup de noms anciens se rapportant à des espèces supposées bien connues, son type n'est pas clairement défini. Sur la base d'un échantillon de l'herbier Fries, nous proposons la néotypification de ce nom pour fixer les principaux caractères morphologiques et microscopiques de l'espèce.

Mots-clés : Ascomycota, E. Fries, nomenclature, *Pezizales*.

Introduction

Gyromitra perlata (Fr. : Fr.) Harmaja is a widespread vernal cup-fungus, easily determinable thanks to its morphology and microscopic characters, especially its apiculate ascospores (conical-shaped). This species is often cited in mycological literature under this name or under its synonyms (see VAN VOOREN & MOREAU, 2009: 5) since its publication by FRIES (1822: 43, under the name *Peziza perlata*). The species was designated as the type-species of *Discina* when FRIES (1849) raised the latter to the rank of genus ("automatic type", ICN Art. 9.1), now considered as a subgenus of *Gyromitra* (HARMAJA, 1973; ABBOTT & CURRAH, 1997; VAN VOOREN & MOREAU, 2009; METHVEN *et al.*, 2013). This typification was accepted by many authors (ECKBLAD, 1968; HARMAJA, 1969; KORF, 1972; DONADINI, 1985; ABBOTT & CURRAH, 1997; VAN VOOREN & MOREAU, 2009; METHVEN *et al.*, 2013). Unfortunately, as many other old names, *P. perlata* is not clearly typified although it is a sanctioned name. This note proposes the typification of *P. perlata* using a collection made by Fries himself, housed in the UPS herbarium.

Material and methods

Morphology and cytology. — The observations of micro-characters were made on dried material; some small pieces of dried specimens were rehydrated for about twelve hours in water. The following mounts were used to observe microscopic characters: water and Methyl (Cotton) Blue in Lactophenol. Measurements of ascospores were made in water and measured under the 1000× oil immersion lens of transmission light microscopes, excluding the apiculi. X represents the mean value of spore dimensions, and Qm the mean ratio between spore length and width.

Microphotographs were taken using a digital camera mounted directly on a microscope. Line drawings were made freehand to scale.

Nomenclature. — All the references to articles of ICN come from the Melbourne Code (McNEILL *et al.*, 2012). The registration of the neotype was released in the MycoBank Database.

Revision of Fries' material

Although FRIES (1822: 43) designated a putative collection or a "type locality" in the protologue of *Peziza perlata* ("v.v. in silva Bôkeb, prope Femsjö"), there is no collection in the historical herbarium of Fries housed in UPS that could match with these data. As *P. perlata* is a sanctioned name (ICN Art. 13.1), a type can be chosen among all the references cited in Fries' protologue (ICN Art. 10.2). Unfortunately, no reference is cited. So in the absence of a holotype and because a lectotype cannot be designated, a neotype is required.

Luckily enough, there exists a collection made by Fries and housed at UPS (Pl. 1). The label of this voucher is very explicit: "*Peziza* (*Discina*) *perlata* Fr. Upsala. E. collect. E. Fries". It consists of two well-preserved specimens of a discinoid fungus with a dark brown hymenium and a pale yellowish to ochre external surface (Pl. 1). This collection could be the one illustrated in FRIES (1867, pl. LVI) because it was collected in May 1863 in the forest of Alsike, county of Uppsala. In the same time, FRIES (1864) assigns this collection to his son Robert, so it's not possible to be unequivocally affirmative.

An examination of microscopic characters provided the following data: **Asci** cylindrical, 8-spored. **Paraphyses** cylindrical, septate, enlarged at the top, filled by a brown pigment in the upper part. **Ascospores** narrow ellipsoid to subfusoid, sometimes inequilateral,

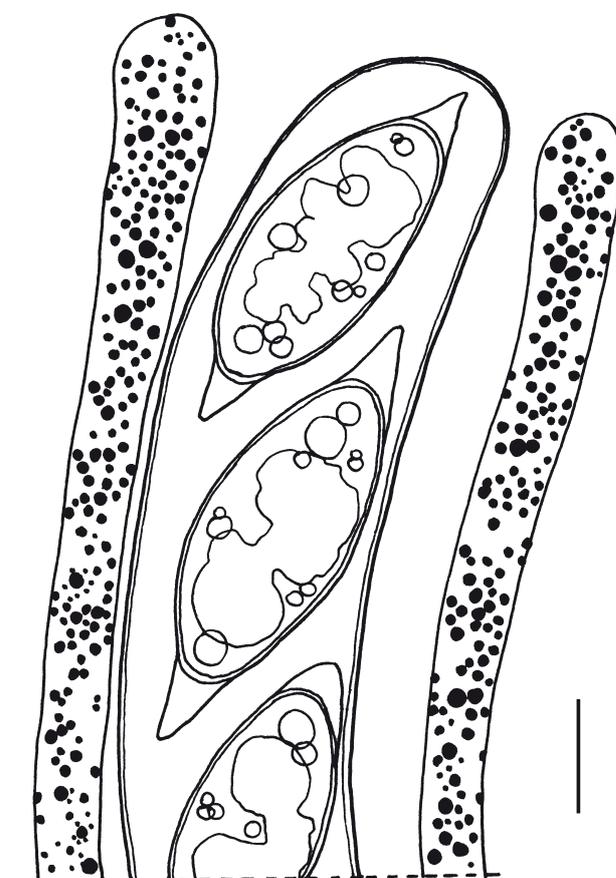


Fig. 1 – *Peziza perlata*. Microscopic characters of the neotype. Tips of paraphyses and ascus, in water. Scale bar = 10 µm. Drawing N. Van Vooren

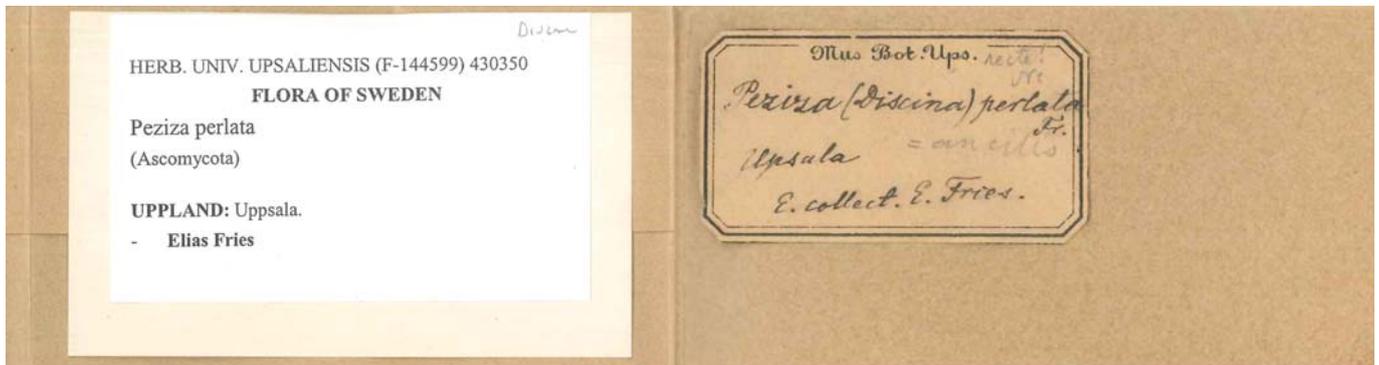


Plate 1 – *Peziza perlata*. Fries' collection F-144599 from UPS. Photo I. Olariaga (with the agreement of UPS herbarium).

40–46 × 13–17 (19.8) μm on free spores [X=43.7 × 15.8 μm, Qm=2.8, n=10], and 25–30 × 12.5–14 μm in asci [X=27 × 13.3 μm, Qm=2.0, n=24], hyaline, smooth or ornamented by very thin and low lines, irregular and difficult to see, containing oil drops (partially fused on this rehydrated material), with conical apiculi at each pole, reaching 9 μm in length.

Designation of a neotype

These characters, especially the typical shape of the apiculi, are in agreement with our modern concept of *Gyromitra perlata*, even if the spore length (for free ascospores) is rather important in comparison with data found in literature or in our own collections (reaching 40 μm in length). Such a length could be interpreted as more in accordance with the spore dimensions of *G. fluctuans* (Nyl.) Harmaja or *G. macrospora* Bubák, two species generally considered as synonyms (see VAN VOOREN & MOREAU, 2009: 6), with ascospores reaching 45 μm in length. ABBOTT & CURRAH (1997) considered these spe-

cies to belong to the *G. perlata* complex. METHVEN *et al.* (2013) considered also *G. macrospora* as a synonym of *G. perlata* based on their phylogenetic analyses, but we think this result has to be confirmed with analyses of European material. It is also very important to note that *Gyromitra* species have a slow process of maturity, often requiring several weeks to provide fully mature ascospores (with their correct ornamentation and size). We have also observed spontaneous spore-prints on some collections of *G. perlata* with "immature" ascospores! In this context, it is not surprising that the spore dimensions of this species are given with a large range in literature, and were at the origin of several names. Another hypothesis is that *G. perlata* represents a complex of species. Deeper investigations, including phylogenetic analyses, will be necessary to answer this question.

As the samples presented above agrees with Fries' protologue of *Peziza perlata* and our modern concept of this species, we designate here the collection F-144599 (UPS) as neotype of *Peziza perlata* Fr.; **MBT 374876**.

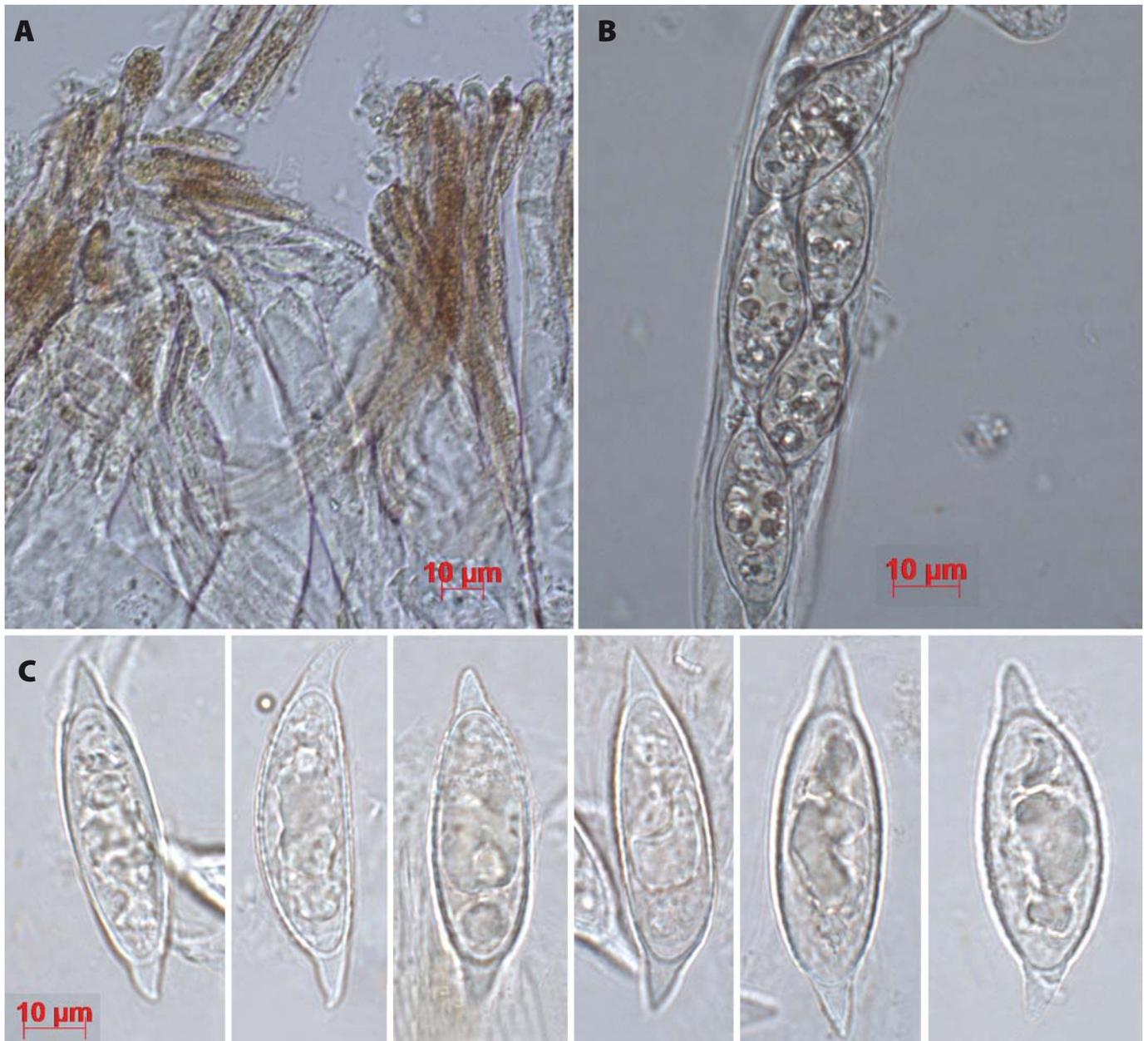


Plate 2 – *Peziza perlata*. Microscopic characters of the neotype.
A: Tips of paraphyses. B: Ascospores in an ascus. C: Sporogram. Photos I. Olariaga.

Perspectives for the future

The attempts to extract ribosomal DNA from small pieces of this neotype failed, although the material appears in good condition. The label of the voucher does not indicate any date but we suppose that the sample was collected in the first middle of the 19th century, probably causing this failure. In those conditions, it could be useful to find a more recent collection of *Gyromitra perlata*, from Sweden, in the area around Femsjö, and compliant with the designated neotype. This collection may serve to obtain some reference sequences, and designated as an epitype (ICN Art. 9.8).

Finally the typification of *Peziza perlata* could also be useful to engage a process of conservation of this name against *Peziza ancillis* Pers., which is considered by some authors (REHM, 1896; KREISEL, 1984; BEUG *et al.*, 2014) as a prior synonym, an opinion that we do not share (see VAN VOOREN & MOREAU, 2009). Note that the mention “= ancillis” on the label (Pl. 1) was not written by Fries and cannot be used as an evidence of the synonymy between those two names.

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