Paradiscina Benedix – a synonym of Gyromitra Fr.

Harri Harmaja

Botanical Museum, University of Helsinki, SF-00170 Helsinki, Finland

HARMAJA, H. 1976: Paradiscina Benedix – a synonym of Gyromitra Fr. – Karstenia 15: 33–35.

The status of the genus *Paradiscina* Benedix (Pezizales) was studied by examining the holotype of the type species of that genus, *Discina melaleuca* Bres. The type specimen of that species has spores with four nuclei and a persistent strongly cyanophilic perisporium as well as excipulum of the *Gyromitra* type. It is concluded that *Discina melaleuca* (1) is a typical member of the family *Helvellaceae* Dum., (2) belongs to the genus *Gyromitra* Fr. sensu HARMAJA 1973 and (3) is a valid species. Consequently, *Paradiscina* becomes a synonym of the older generic name *Gyromitra*. The results of the study necessitate the transfer of *D. melaleuca* to *Gyromitra*, and the following new combination is made: *Gyromitra melaleuca* (Bres.) Harmaja. A note on the excipular anatomy of *Gyromitra* is also given. The family *Rhizinaceae* Bon. is included in *Helvellaceae*.

The genus *Paradiscina* was created by BENEDIX (1969) to accommodate some species, previously included in *Discina* (Fr.) Fr., which he thought to differ enough from the rest of the species of that genus to warrant the establishment of a new genus. Four species were included by him: *Discina convoluta* Seav., *D. leucoxantha* Bres., *D. melaleuca* Bres. and *Paradiscina intermedia* n.sp., *D. melaleuca* being the type. The criteria used by him to make a distinction between *Discina* and *Paradiscina* are, however, very vague (see BENEDIX 1969: 270–271) and no other taxonomist working with the Pezizales has approved this arrangement. The same applies to the establishment in the same paper of another new genus of Benedix: *Fastigiella* for *Gyromitra (Neogyromitra) caroliniana* (Fr.) Fr. The last-named species I have already commented in two previous papers (HARMAJA 1969 and 1973) and considered it to belong to the genus *Gyromitra* Fr. s. lato, which of course implies that I regard the genus *Fastigiella* Benedix as a synonym of *Gyromitra*. My comment on *Paradiscina* has, however, been delayed since only recently I studied the type specimen of the type species of this genus, *Discina melaleuca*.

My examination on the holotype of *Discina melaleuca* ("Discina melaleuca Bres./imatura!/ Gocciadoro, Martio 1897 sub/Pino silvestri/ Leg G Bresadola"), kindly lent by Naturhistoriska Riksmuseet (S) in Stockholm, yielded the following results. The number of nuclei per spore was studied by heating a thin section of the hymenium in acetocarmine stain. In a certain number of immature spores the nuclei did absorb the dye satisfactorily. A preceding KOH treatment of the tissue (see HARMAJA 1974b) did not improve the staining in this case. The number of nuclei per spore proved to be four. This most important observation partly confirms the position of the species in the family *Helvellaceae* Dum. (in which I now include *Rhizinaceae* Bon., i.e. *Gyromitra* s. lato and *Rhizina* Fr.). Towards maturity the spores become enveloped by a continuous, strongly cyanophilic sheath, or perisporium, which first appears at spore ends. Because of that persistent cyanophilic perisporium, the spores represent the '*Peziza* type' of HARMAJA 1974a, which finally shows that this fungus is a true member of *Helvellaceae*. The outer layer of the spore wall proper is congophilic as in the *Gyromitra* species studied (HARMAJA 1976). Most spores contain oil drops, but gaseous de Bary bubbles are always absent from them as observed in heated cotton blue. The asci represent the most common type in the order Pezizales: they appear operculate,

they mature at different times, and their wall is inamyloid and cyanophobic being rather thin and unspecialized also at the apex. The contents of young asci are somewhat dextrinoid, which is a very common if not constant phenomenon in *Gyromitra*. The excipulum proved to be exactly of the *Gyromitra* type both in young and mature apothecia. This means that it is homogeneous practically throughout being composed of *textura intricata*. In places the hyphae are slightly swollen being rather broad. The hyphal walls are slightly thickened, reviving well in young apothecia and to some extent in the mature ones. Cyanophilic 'septal collars' (see HARMAJA 1973: 55) are usually scattered being narrow and not exceeding 1 µm in breadth; in mature apothecia they may locally be somewhat less scarce. Their occurrence and kind are as in the *Gyromitra* species studied by me; however, the possibility that they, probably due to the slightly thickened hyphal walls, are very slightly broader than in those species cannot be excluded. The outermost hyphae of the excipulum have some tendency toward forming a very narrow zone of *t. prismatica* at the outer surface of the apothecium, in young ascocarps slightly more clearly than in mature ones (whether this kind of tissue is left in truly old apothecia, remains to be studied). No cyanophilic intercellular matter is present in that area. Here and there the outermost cells are ± elongated and projecting – more often in young apothecia, especially (?) towards their margin – but they are not specialized, or 'hairs', as their walls are ± hyaline, cyanophobic, smooth and not thickened or only slightly so.

The fact that I above consider an excipulum at least initially ± distinctly two-layered typical of *Gyromitra* may appear surprising as the current established opinion, strengthened by the study of ECKBLAD (1968), regards the excipulum of *Gyromitra* s. lato (incl. *Discina* s. str. and *Neogyromitra* Imai) as one-layered with only *t. intricata*. However, a neglected but very important detail in the careful studies of MCKNIGHT (1969 and 1971) on *Discina* s. str. and two species of the *Neogyromitra* group is the discovery in at least the young apothecia of some species of a superficial and apparently ephemeral excipular layer with character of *t. angularis-prismatica* and tendency to have projecting cylindrical, ventricose, clavate or capitate end cells. Now my own studies have recently revealed that also the type species of *Gyromitra*, *G. esculenta* (Pers.) Fr., possesses such a layer at least when young. It is possibly in this species even more distinct than in the above mentioned ones, and the clavate end cells form a true palisade in places! This character of *Gyromitra* is very important in showing, beside some others, the close relationship between the genera *Gyromitra* and *Helvella* St.-Amans; both genera are best included in one family, *Helvellaceae*.

Summarizingly it can be stated that *Discina melaleuca* Bres. is a typical member of the family *Helvellaceae* and belongs to the genus *Gyromitra* sensu HARMAJA 1973. As *D. melaleuca* is the type species of the genus *Paradiscina* Benedix, the latter generic name becomes a synonym of the older name *Gyromitra*. As this species is valid, it is herewith transferred to the genus *Gyromitra:* **Gyromitra melaleuca** (Bres.) Harmaja, n. comb. (*Discina melaleuca* Bresadola, Fungi Tridentini II: 74. 1898.).

It may be added, that neither published Benedix the new combination *'Paradiscina melaleuca* (Bres.) Benedix' nor *'Fastigiella caroliniana* (Fr.) Benedix' validly since in both cases he failed to give the appropriate complete reference to the basionym with its original publication (International Code of Botanical Nomenclature, Art. 33).

Acknowledgement. — I wish to thank Prof. Rolf Santesson, the Director of Naturhistoriska Riksmuseet (S) in Stockholm, for arranging the loan of the type of *Discina melaleuca*.

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