

Peziza euchroa assigned to the genus *Rhodotarzetta* after 150 years

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Abstract: In 2008 type specimens of *Peziza euchroa* were examined by Benkert, resulting in the combination *Anthracobia euchroa*. In the course of a recent investigation, questions arose and the original descriptions of *P. euchroa* were consulted. It became clear that *P. euchroa* in fact does not belong to the genus *Anthracobia* or any of the other genera to which it was previously assigned. *P. euchroa* is conspecific with *Rhodotarzetta rosea* in every respect and the new combination *Rhodotarzetta euchroa* is proposed.

Keywords: Ascomycota, Pezizales, Pyronemataceae, pyrophilous fungi, *Rhodotarzetta rosea*.

Introduction

In the course of a study on the pyrophilous species *Anthracobia macrocystis* (Cooke) Boud. (BRONCKERS, in prep.), a literature examination was conducted. BENKERT (2008) investigated the identity of *Peziza euchroa* P. Karst., regarded as an older name for *A. macrocystis*, and combined it as *Anthracobia euchroa* (P. Karst.) Benkert. His article raised several questions and the original descriptions of *P. euchroa* by KARSTEN (1870, 1871) were compared. It became clear that this species does not belong to the genus *Anthracobia* Boud., nor *Humaria* Fuckel and *Octospora* Hedw. to which it was previously assigned by SACCARDO (1889) and BERTHET (1965) respectively. In our opinion, KARSTEN (*op. cit.*) described a cup fungus with all the characteristic features of *Rhodotarzetta rosea* (Rea) Dissing & Sivertsen, and the new combination *Rhodotarzetta euchroa* (P. Karst.) Bronckers is therefore proposed.

The aim of this publication is to compare Karsten's species with more contemporary descriptions, providing a more complete picture of the variability that *R. euchroa* exhibits.



Fig. 1 – Petter Adolf Karsten ca. 1915. Source: FINNA.FI

Description of *Peziza euchroa*

The Finnish mycologist P.A. Karsten (Fig. 1) found this species in 1869. He first published it in 1870 under the name "*Peziza euchlora* Karst. Exs. 817" and a year later as "*Peziza euchroa* Karst. Exs. 816", the latter most likely a correction of a *lapsus calami*, which later led to ambiguity regarding the labelling of his exsiccata (BENKERT, 2008) in the herbaria of Helsinki (H) and Stockholm (S). His species descriptions also reveal several differences and the inconsistency spawned by Karsten came to puzzle mycologists, especially Benkert, many years later.

The exsiccata of *Peziza euchroa* have already been extensively studied (KHARE, 2003; BENKERT, 2008) and as there is only limited material, we decided not to sacrifice any more. In dried material many of the distinctive features are also lost and the descriptions provided by KARSTEN (*op. cit.*) are more than adequate. A translation and combination of his Latin disquisitions gives the following result:

Apothecia abundantly growing and more or less gregarious, at first closed, spherical, then hemispheric, finally horizontally expanding, flat, occasionally radially split, sessile, covered below by a web-like structure, margin often unequally subcrenulate, finally remaining intact, almost orange to reddish pink, exterior pale and spread out, 1–12 mm diameter. **Asci** cylindrical, 12–13 μm wide, inamyloid. **Spores** uniseriate, ellipsoid, biguttulate, 14–18 \times 8–9 μm . **Paraphyses** branched, filled with a chrome yellow-coloured content, 4–5 μm wide, becoming slightly larger towards the top and 5–8 μm wide.

Habitat: burnt soil in a wet, shady place in a meadow in the vicinity of Pellinsuo and Isoniittu near Mustiala, August–September, very common.

Comparison

Given the taxonomical classification at that time, the assignment of *Peziza euchroa* to the genus *Humaria* by SACCARDO (1889) is understandable. Karsten's species lacks the stiff brown hairs now held to be characteristic of *Humaria* and this assignment can therefore be excluded. BERTHET (1964, 1965) combined *P. euchroa* in the genus *Octospora*, although the examined specimens grew on charcoal and no association with moss was reported, a feature essential for *Octospora* species.

BENKERT (2008) only compared the ascospore size and apothecium diameter of 40 collections of *Anthracobia macrocystis* with 8 collections of *P. euchroa* and found them all to be in accordance. The spore size is indeed nearly the same but apothecia of *A. macrocystis* exceeding a diameter of 5–7 mm (a maximum of 9 mm according to Benkert) have never yet been recorded.

Table 1 – Comparison of descriptions of *Rhodotarzetta rosea*

Apothecia	Ascospores	Paraphyses	Substrate	Author(s)
4–14 mm wide, reddish pink or pale pink, sessile, hemispherically expanded-concave or flat, delicately felt-like; margin whitish crenulate	15–17 × 9 µm, hyaline, elliptic, obtuse, 1–2 large guttules	Hyaline, internally filled with pink granules at the top, 180–190 × 3 µm, increasing to 5–7 µm at the top, simple or forked, septate	Bare soil, often under <i>Epi-lobium angustifolium</i> (Fireweed)	REA (1924) <i>Pustularia rosea</i>
–	–	–	Charcoal	BERTHET (1964) <i>Octospora euchroa</i>
20–40 mm diameter, smooth, purplish pink, covered with a fine felt, whitish in young specimens, with first an intact, later a torn margin	15–18.8 × 8.3–10.7 (12) µm, rarely with one instead of two large guttules	4–8 µm wide, equally wide at the top or even somewhat narrowed, 6–7 µm, hyaline, but densely filled with reddish yellow granules towards the top	Burnt peat	MAAS GEESTERANUS (1967) <i>Pustularia rosea</i>
Up to 1.5 cm diameter, permanently cup-shaped, brittle, the margin splitting slightly, bright pink throughout, the exterior minutely downy with loose hyaline hyphae	17–20 × 9–11 µm, broadly elliptical, with two large oil drops	Cylindrical, very slightly enlarged towards the top but not clavate, about 6 µm thick, with pinkish granules in the upper parts	Burnt ground	DENNIS (1978) <i>Tarzetta rosea</i>
0.4–1.2 cm wide, at first hemispherical, with a small circular opening, then cup-shaped to disc-shaped, with a prominent margin; hymenium pinkish, sometimes with a purplish tinge, becoming pale orange when mature; outside glabrous, concolorous with hymenium or whitish; sessile on a broad base	16.5–17.9–19.8 × 7.6–8.7–9.9 µm, uniseriate, smooth, ellipsoid, with two guttules	Septate, slightly enlarged to 5 µm wide towards the top, uppermost cell with many small, reddish guttules	Burnt area	DISSING & SIVERTSEN (1983) <i>Rhodotarzetta rosea</i>
–	†16–20 × 7.5–9.5(11) µm	–	–	YAO & SPOONER (2002) <i>Rhodotarzetta rosea</i>
†3–6 mm diameter, shallowly cupulate, sessile, pale yellow; externally smooth, concolorous with the hymenium	†15–22 × 8–10 µm, ellipsoid, smooth, uniseriate, straight or obliquely arranged	†Hyaline, straight, septate, usually once to twice branched near the base, up to 5 µm wide at the top	Soil (Karsten's description 1871)	KHARE (2003) <i>Octospora euchroa</i>
–	† (14)15–20 × 7.5–9 µm	–	Burnt ground, exs. mention "på kärrjord" = peat (fire)	BENKERT (2008) <i>Anthracobia euchroa</i>
<i>Geopyxis</i> -like bend inwards, cupulate, finally flattening as well and up to 16 mm wide, conspicuously pure pink-coloured on both sides	16–19 × 8.5–9.5 µm, ellipsoid, smooth, most with 1 (rarely 2) large guttules, accompanied by numerous small ones	Straight, slightly clavate and up to 9 µm wide at the top	Burnt site	BENKERT (2010) <i>Rhodotarzetta rosea</i>
Sessile, cupulate with slightly involute sinuous margin, partially embedded in substrate, uniformly bright pink with a slight lilac tinge at the centre, diameter 3–7 mm; external surface smooth, concolorous	†14.7–17.7 × 7.6–8.7 µm, mean 16.1 × 8.1 µm (n = 20), ellipsoid, smooth, hyaline, with several guttules when immature, ripe with two guttules or one large central guttule	†Filiform, same length as asci, occasionally branched in the lower third, enlarged to 4–6 µm wide in the upper part, with orange vacuolar pigment (in the rehydrated exsiccatum)	Burnt sites	FILIPPOVA <i>et al.</i> (2016) <i>Rhodotarzetta rosea</i>

A variform representation of *Rhodotarzetta rosea*, visible to the naked eye, is provided by J. Korhonen (Fig. 2). The most distinguishing feature is the predominantly pink colour of the apothecia, with an orange, reddish or purplish tinge. The margin of some apothecia is split in several places, a common feature of this species. J.H. Petersen (Fig. 3) photographed two fruit bodies, showing the delicate web-like structure of interwoven hyphae on the outside, which is sometimes reduced to a minimum or even absent. As far as is known, there are no species in the genera *Humaria*, *Octospora* and *Anthracobia* displaying these features.

Comparing *Peziza euchroa* with other pyrophilous discomycetes shows that this species is conspecific with *Rhodotarzetta rosea*. BENKERT (2010) cited a collection of *R. rosea* made in 1986 but nevertheless failed to see the resemblance 22 years later. The synopsis (Table 1) lists the similarities and variabilities of several macro- and microscopical characteristics, using the original description of some of the synonyms.

Note that *Pyropyxis rubra* (Peck) Egger is also pyrophilous and quite similar to *Peziza euchroa* in the field, but there are several differences (e.g. eguttulate mature ascospores). See FILIPPOVA *et al.* (2016) for more details.

Nomenclature

We can conclude from the above that *Peziza euchroa* and *Rhodotarzetta rosea* are conspecific. As *Peziza euchroa* was published prior to *Pustularia rosea* Rea, nomenclatural rules lead me to propose the following new combination:

Rhodotarzetta euchroa (P. Karst.) Bronckers, *comb. nov.* – MB 831639

Basionym: *Peziza euchroa* P. Karst., *Not. Sällsk. Fauna et Fl. Fenn. Förh.*, 11: 228 (1870).

Homotypic synonyms: *Humaria euchroa* (P. Karst.) Sacc., *Syll. fung.*, 8: 131 (1889); *Octospora euchroa* (P. Karst.) Berthet, *Bull. mens. Soc. linn. Lyon*, 34: 228 (1965); *Anthracobia euchroa* (P. Karst.) Benkert, *Z. Mykol.*, 74 (2): 261 (2008).

Other synonyms: *Pustularia rosea* Rea, *Trans. Worcestershire Nat. Club*, 8: 20 (1924); *Tarzetta rosea* (Rea) Dennis, *Brit. Ascom.*, 30 (1978); *Rhodotarzetta rosea* (Rea) Dissing & Sivertsen, *Mycotaxon*, 16 (2): 456 (1983).

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Fig. 2 – Apothecia of *Rhodotarzetta euchroa* in situ. Photo Jarkko Korhonen.

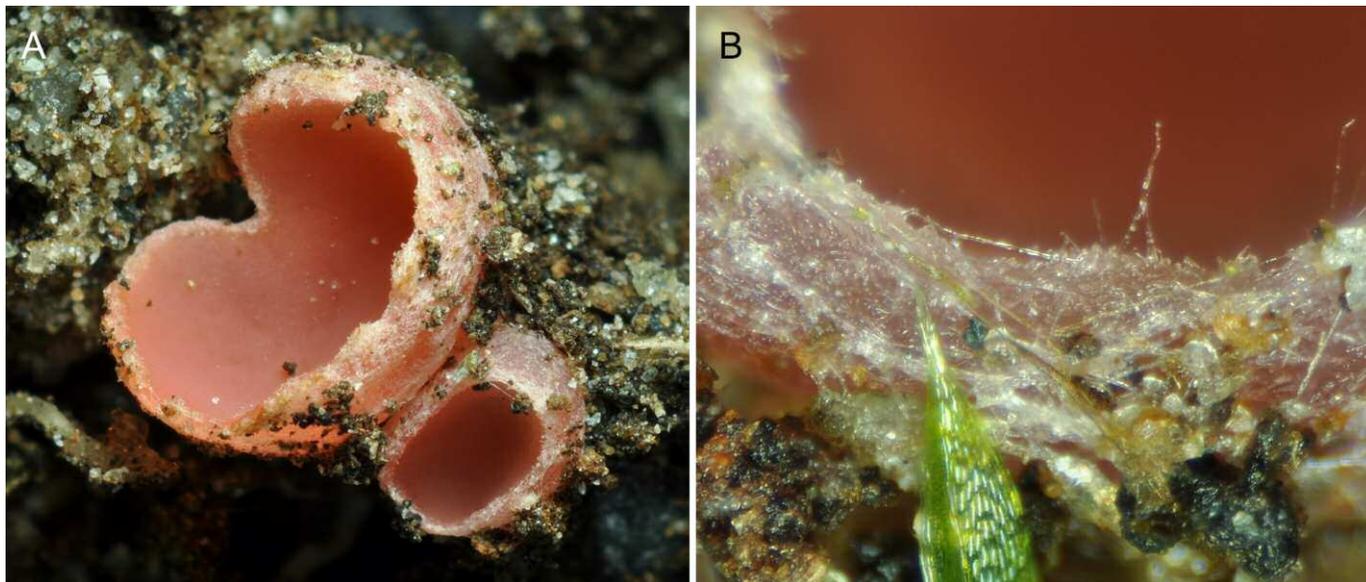


Fig. 3 – A: *Rhodotarzetta euchroa* with the web-like structure on the outside. B: Close-up of the margin showing the delicate interwoven hyphae. Photo Jens H. Petersen/MycoKey.

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