

Some new taxa and combinations in the Pezizales

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*Rhodopeziza* Hohmeyer and J. Moravec gen. nov. is proposed for *Rhodopeziza tuberculata* (Gamundí) J. Moravec et Hohmeyer comb. nov., based on *Aleuria tuberculata* Gamundí (1975). Also two other new combinations are made: *Sowerbyella phlyctispora* (Lepr. et Mont. in Montagne) Hohmeyer et J. Moravec comb. nov. based on *Peziza phlyctispora* Lepr. et Mont. in Montagne, and *Sowerbyella unicisa* (Peck) J. Moravec comb. nov., based on *Peziza unicisa* Peck. Diagnosis of the new genus, descriptions, line drawings, SEM photomicrographs and notes on taxonomy accompany the paper.

**Key words:** *Rhodopeziza* gen. nov., *Rhodopeziza tuberculata*, *Sowerbyella phlyctispora*, *Sowerbyella unicisa* comb. nov.

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Nový rod *Rhodopeziza* Hohmeyer et J. Moravec je navržen pro *Rhodopeziza tuberculata* (Gamundí) J. Moravec et Hohmeyer comb. nov., založený na *Aleuria tuberculata* Gamundí (1975). Jsou uvedena další dvě nová přezazení: *Sowerbyella phlyctispora* (Lepr. et Mont. in Montagne) Hohmeyer et J. Moravec comb. nov., založené na *Peziza phlyctispora* Lepr. et Mont. in Montagne, a *Sowerbyella unicisa* (Peck) J. Moravec comb. nov., založené na *Peziza unicisa* Peck. Latinská diagnosa nově navrženého rodu, popisy, kresby mikroznaků a taxonomické poznámky jsou doplněny SEM mikrofotografiemi všech uvedených taxonů.

1. *Rhodopeziza* Hohmeyer et J. Moravec gen. nov.

Apothecia media usque magna, sessilia, cupuliformia, inaequalia, interdum auriculiformia, externe glabra, ad marginem pruinosa; hymenio miniato. Excipulum externum textura globulosa angularis compositum e cellulis latioribus, excipulum internum (medulla) textura globulosa angularis compositum e cellulis angustioribus cum hyphis intermixtis. Asci cylindranei, operculati, octospori, in toto iodo coerulescentes. Ascospores late ellipsoideae, egyptulatae, pallide flavescentes, tuberculatae. Paraphyses filiformes, simplices, septatae, rectae sed apice curvatae, granulis aurantiacis impletatae.

Typus generis: *Aleuria tuberculata* Gamundí, Fl. crypt. Tierra del Fuego (Fungi, Ascom., Pezizales) 10(3): 116, 1975.

≡ *Rhodopeziza tuberculata* (Gamundí) J. Moravec et Hohmeyer comb. nov.

Basionym: *Aleuria tuberculata* Gamundí, Fl. crypt. Tierra del Fuego (Fungi, Ascom., Pezizales) 10(3): 116, 1975.

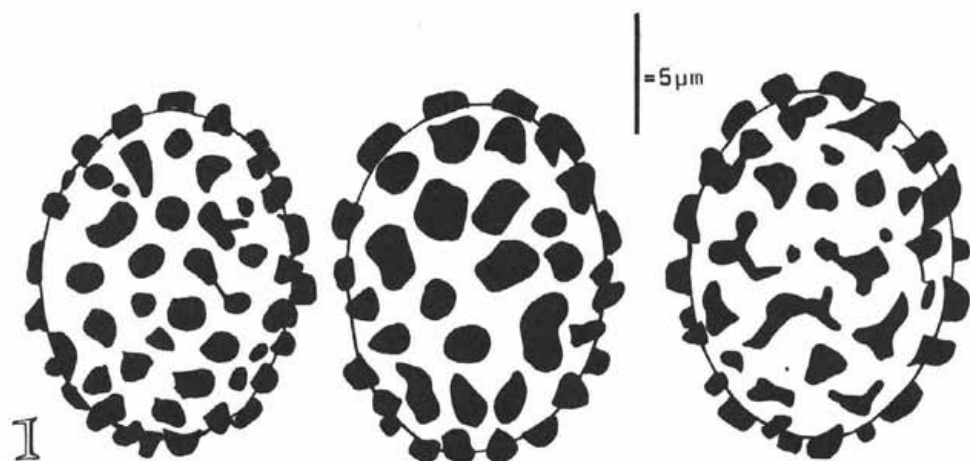


Fig. 1 Ascospores of *Rhodopeziza tuberculata*. (Oil immersion + CB). Holotype LPS.

Apothecia cupulate, asymmetrical, occasionally auriculate due to mutual pressure, sessile, 20 – 22 mm in diam. Hymenium concave, sometimes undulate, miniate red. Excipulum in the ectal layer a *textura globulosa angularis*, composed of subglobose to polygonal cells which are larger than those of the medullary excipulum. The medullary excipulum composed of smaller cells (*textura globulosa angularis*) occasionally intermixed with hyphal elements. Subhymenium of a *textura intricata* composed of small irregular hyphae. Asci eight-spored, cylindrical, operculate, turning blue with Melzer's reagent over the whole length, 170-215 (260-300 according to Gamundí's original description) x 12-14  $\mu\text{m}$ . Ascospores uniseriate, broadly ellipsoid, with one small evanescent guttule, pale yellowish, tuberculate, 12.6-15.4 (-16.6) x 9.2-10.5 (-11)  $\mu\text{m}$  (excluding tubercles); the tubercles isolated 0.7-1.5 (-1.8)  $\mu\text{m}$  in diam. and 0.5-1.3  $\mu\text{m}$  high, conical to truncate, rounded at their base or occasionally slightly asymmetrical (see fig. 1 of this paper). Paraphyses simple, septate, slightly clavate and curved towards the apex, 2.5-4  $\mu\text{m}$  thick, filled with orange granules.

Specimen examined:

ARGENTINA: Tierra del Fuego, Depto. Ushuaia, Tierra Mayor, 12. II. 1965, leg. Lasifashaj, Hässel & Gamundí. (LPS 37095 holotype).

The description of the macro-features is based on the original description given by Gamundí – for a detailed illustration of apothecia, their excipular structure, and other features see Gamundí (1975).

My examination of the type material (LPS) confirmed the amyloid asci of *Aleuria tuberculata*, and I considered this taxon to represent an undescribed genus. Five years ago, Dr. Helmuth Hohmeyer (at that time in Liverpool) and I agreed to propose a new genus for this taxon in a paper by Hohmeyer on the genus *Aleuria* Fuckel. Later, in a joint paper on the genus *Aleuria* by Helmuth Hohmeyer and Jürgen Häffner (the final version of the manuscript written in English), the new genus *Rhodopeziza* Hohmeyer and J. Moravec, accompanied by a Latin diagnosis was founded. Also, the new combinations *Rhodopeziza tuberculata* and *Sowerbyella phlyctispora* were proposed. However, this joint paper, supposed to appear in Mycotaxon, has never been published. Surprisingly enough, instead of this joint paper, an almost identical paper, but written in German by Häffner alone appeared (Häffner 1993a). In the paper, the taxa are cited as "*Rhodopeziza tuberculata* (Gamundí) Hohmeyer & Moravec and *Sowerbyella phlyctispora* (Lepr. et Mont.) Hohmeyer & Moravec comb. nov.", but they are treated without a Latin diagnosis and quotations of the basionyms and are thus without any nomenclatural value. These circumstances have forced me to write this present paper, especially the fact that Dr. Hohmeyer, after he had lost interest to continue working on the genus *Aleuria* together with Häffner (see Häffner 1993a), did not answer any of my letters during the last four years. Consequently, as Häffner (1993a) has treated all the taxa proposed by Hohmeyer & J. Moravec mentioned above in his new version of the paper without publishing the names validly, it is necessary to validate these names.

The genus *Rhodopeziza* differs from *Aleuria* in having amyloid asci and tuberculate ascospores which are not regularly biguttulate. It has a special position in the Pezizales and could be considered close to genera *Peziza* [Dill.] L: Fr. and *Iodophanus* Korf in Kimbrough & Korf. It differs, however, from *Peziza* in having carotenoid granules in the paraphyses, which are therefore red ("miniato"), and asci in which the iodine reaction is not restricted to only a ring around the operculum but which turn blue over the whole length. *Iodophanus*, on the other hand, has much smaller apothecia (up to 3 mm in diam.) which are rarely red, a medullary excipulum of a *textura intricata*, and spores without any guttules. Since *A. tuberculata* hardly fits in any of these or other genera, the new genus has been proposed.

**2. *Sowerbyella phlyctispora* (Lepr. et Mont. in Mont.) Hohmeyer et J. Moravec comb. nov.**

Basionym: *Peziza phlyctispora* Lepr. et Mont. in Montagne, Ann. Sci. Nat. IV. sér. 3: 358, 1845.

≡ *Neottiella phlyctispora* (Lepr. et Mont. in Mont.) Saccardo, Syll.Fung. 8: 193, 1889.

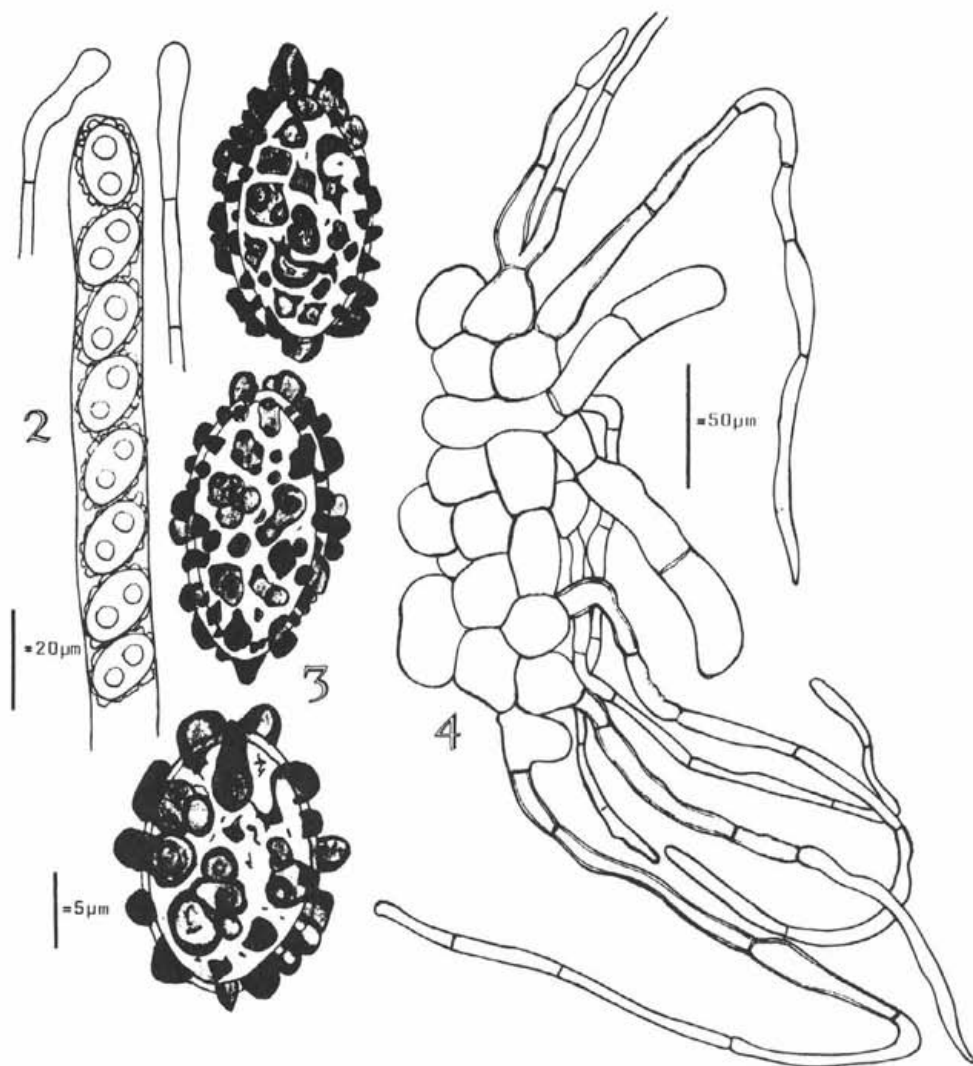


Fig. 2 - 4 *Sowerbyella phlyctispora*: 2. Ascus and paraphyses; 3 Ascospores (oil immersion + CB); 4. Part of the ectal excipulum of the stipe with hyphoid hairs. (Holotype of *Jafneadclphus tectipus*, K).

≡ *Scutellinia phlyctispora* (Lepr. et Mont. in Mont.) Le Gal, Prodr. Fl. mycol. Madag. 4: 159, 1953.

≡ *Aleuria phlyctispora* (Lepr. et Mont. in Mont.) Schumacher, Mycotaxon, Ithaca, 33:175, 1988.

= *Jafneadelphus tectipus* Spooner in Reid, Pegler et Spooner, Kew Bull. 35: 852, 1981.

≡ *Aleuria tectipus* (Spooner) W.-y Zhuang & Korf, Mycotaxon 26: 382, 1986.

The results of our examination of the type (K) of *Jafneadelphus tectipus* (type locality: Galapagos Is.) well agree with the detailed description and line drawings given by Spooner (1981).

T. Schumacher (1988) has revealed that *Peziza phlyctispora* Lepr. et Mont. in Montagne, which was described from French Guiana in 1845, is identical with the recently described *Jafneadelphus tectipus* Spooner (1981), and we, after our examination, have fully accepted his conclusion. Regarding the generic position, Schumacher (1988), at his recombination of *P. phlyctispora* in the genus *Aleuria*, has followed W.-y Zhuang & Korf (1986) who previously transferred *J. tectipus* to *Aleuria*. However, our examinations have revealed features which agree well with the present sense of the genus *Sowerbyella* Nannf. (J. Moravec 1985a, 1985b, 1986, 1988a and 1988b). These are particularly the colour and shape of the stipitate apothecia, and the excipular structure, in which the medullary layer is composed of a *textura intricata*, whilst the ectal layer is composed of a *textura globulosa-angularis* with hyaline hyphae and hyphoid hairs arising from the outermost cells of the ectal layer of the excipulum. We have found that the typical tomentum is also present on the surface of the stipe. The hyphoid hairs are 6-11 (-15)  $\mu\text{m}$  thick and up to 600  $\mu\text{m}$  long, with walls 0.3-1.2  $\mu\text{m}$  thick (see fig. 4). Also all the other features fit well within the generic concept of *Sowerbyella*, especially the biguttulate ascospores bearing a perisporium covered by a cyanophilic ornamentation. Consequently, after our examinations, we excluded it from the genus *Aleuria* and transferred it to *Sowerbyella* in the above mentioned manuscript of Hohmeyer & Häffner's paper on the genus *Aleuria*.

Our generic concept has been followed by Häffner (1993a), who has simultaneously cited our combination of *P. phlyctispora* as "*Sowerbyella phlyctispora* (Lepr. et Mont.) Hohmeyer et Moravec comb. nov." from the original English version of the unpublished manuscript of his joint paper with Hohmeyer mentioned above (see also the remarks on *Rhodopeziza tuberculata*). However, although Häffner has cited our names and views in his slightly modified version of the manuscript translated by himself into German, this combination was without correctly cited basionym and so not validly published. Moreover, Häffner continued such treatment of taxa in his last paper (Häffner 1993b) too. In that paper, without any quotation of the authors and our proposal, he has included this

taxon as "*Aleuria*" *phlyctispora* in a key of *Sowerbyella* compiled from a previously published key (J. Moravec 1988b). Therefore, the combination is formally made here. It is also necessary to note that Häffner's line drawings of ascospores of "*Aleuria phlyctispora*" in the compiled key (Häffner 1993b) show quite a different ornamentation and represent another discomycete as they were probably taken from *Scutellinia phlyctispora* (Lepr. et Mont. in Mont.) Le Gal (1954) – a misinterpreted name, which represents *Scutellinia badioberbis* (Berk. ex Cooke) O. Kuntze (teste Rifai 1968 and Schumacher 1990). The ascospore perisporium of *Sowerbyella phlyctispora* was examined by me on ascospores of the holotype of *J. tectipus* and on the holotype of *P. phlyctispora* too. The perisporium is covered by very large tubercles which are up to 4.5 (-5)  $\mu\text{m}$  in diam. and up to 4  $\mu\text{m}$  high (see the line drawings in fig. 3, and SEM photographs figs. 9-10).

### 3. *Sowerbyella unicisa* (Peck) J. Moravec comb. nov.

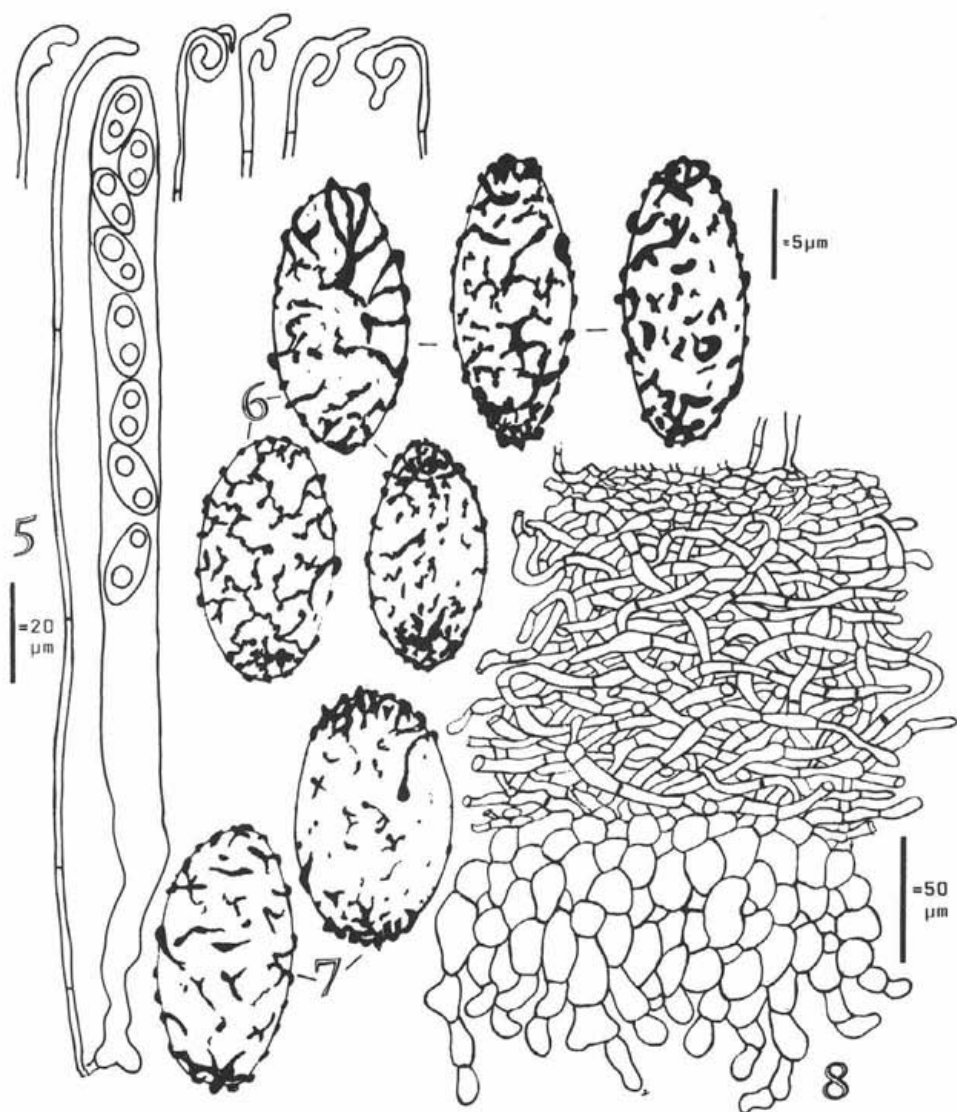
Basionym: *Peziza unicisa* Peck, New York St. Mus. Rep. 26:81, 1874.

$\equiv$  *Otidea unicisa* (Peck) Harmaja, Karstenia 26:43, 1986.

Apothecia scattered to gregarious, 2-3 cm in diam. and 3-5 cm high, cupulate, substipitate to shortly stipitate, with a continuous margin or often split on one side to the base, receptacle surface brownish-yellow with a reddish tinge, rugulose and minutely granulose and powdered, hymenium yellow to pale yellow, slightly tinged with pink. Excipulum in the ectal layer a *textura globulosa angularis* composed of globose to angular or elongated thick-walled cyanophilic cells 8-30  $\mu\text{m}$  in diam.; from these cells hyaline, thin-walled, articulated, short, 6-9(-15)  $\mu\text{m}$  thick hyphae arise. The medullary excipulum composed of interwoven, hyaline, septate, thin-walled, occasionally inflated (3-) 10-15  $\mu\text{m}$  thick hyphae. Asci 200-225 x 7-10.5  $\mu\text{m}$ , cylindrical, eight-spored, inamyloid, gradually attenuated towards the bilobed base. Paraphyses filiform, 1.5-2.8  $\mu\text{m}$  thick, with a more or less enlarged (up to 4  $\mu\text{m}$ ) and curved or hook-like apex which is often with one or two dents or short branches turned in an obtuse angle upwards like fingers, with yellowish contents. Ascospores 12-15(-16.5) x 6-7.5 (-8)  $\mu\text{m}$ , ellipsoid, containing two guttules and bearing a perisporium covered by cyanophylic ornamentation which consists of elongated warts, ribs and crests forming an irregular reticulum; the ribs are 0.2-1  $\mu\text{m}$  thick and 0.1-0.8  $\mu\text{m}$  high, the highest ribs are on the ascospore poles (see the line drawings figs 6-7, and the SEM photographs in figs 11-12).

Material examined:

NORTH AMERICA: USA, New York, Lewis Co. Croghan Jelt House, IX. leg. C.H. Peck. (Holotype, NYS); USA, Tennessee, Great Smoky Mts. Nat. Park, Big Creek Ranger Station, about alt. 400 m., on the ground of a mixed forest, 16. VI. 1991 leg. Vladimír Antonín, det. J. Mor. (BRNM).



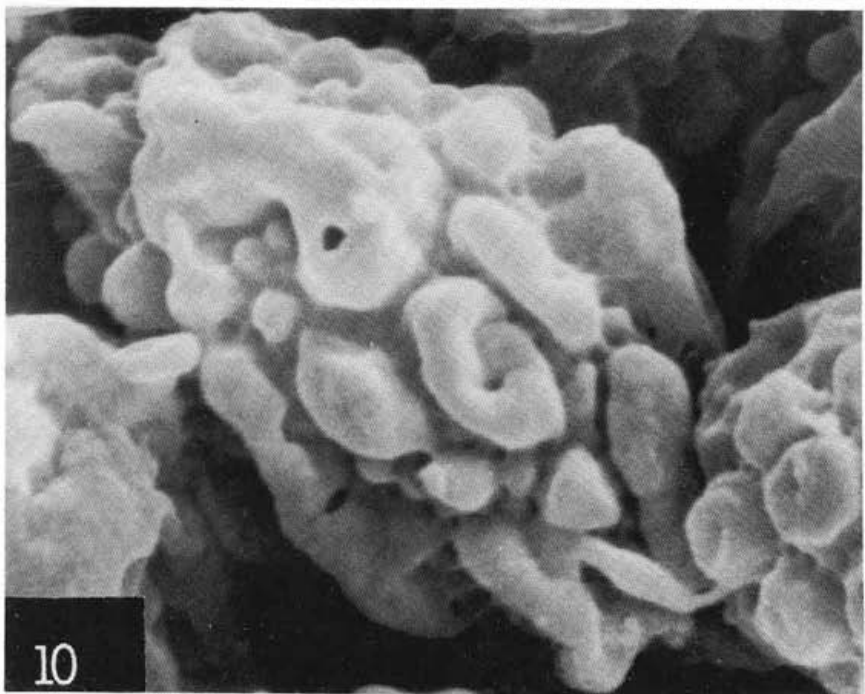
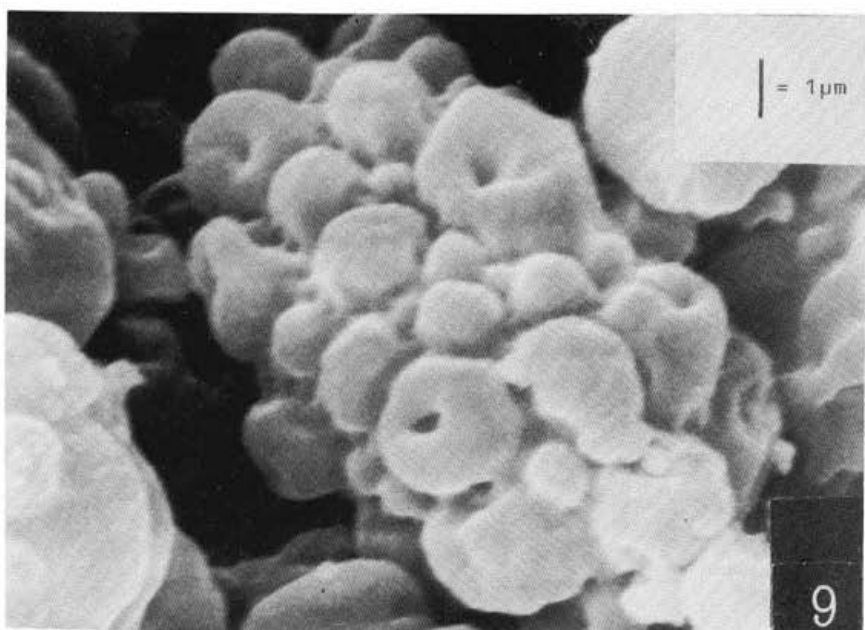
Figs. 5 - 8 *Sowerbyella unicisa*: 5. Ascus and paraphyses; 6-7. Ascospores (oil immersion + CB); 8. Apothecial structure (part of section). (Figs. 5-6 from BRNM; 7-8. from Holotype NYS).

This taxon was compared to *Otidea onotica* (Pers.: Fr.) Fuckel in a note in the cited original paper by Peck (1874) with the description of *Peziza unicusia*. Seaver (1928) covered both taxa under *Scodellina leporina* (Batsch: Fr.) S.F.Gray = *Otidea leporina* (Batsch: Fr.) Fuckel. The differences between these taxa, particularly in the shape and colour of the apothecia and the ornamented ascospores, as well as the generic delimitation of *Otidea* (Pers.) Bonorden, *Tarzetta* (Cooke) Lamb. and *Sowerbyella* Nannf., were briefly mentioned by Harmaja (1986). He has nevertheless transferred *P. unicusia* to the genus *Otidea*.

My examination of the type material (NYS) and of the recent collection (BRNM) made by Dr. Vladimír Antonín (Moravian Museum, Brno) in the USA has revealed that this taxon fits in the genus *Sowerbyella* Nannf. Almost all the features well agree with the generic concept of this genus: the excipular structure, the paraphyses which are hooked and occasionally shortly branched at their apex, but especially the biguttulate ascospores possessing a perisporium covered by cyanophilic ribs and crests which form an incomplete reticulum. The hyaline thin-walled articulated hyphae arising from the outermost cells of the ectal excipulum are rare and very short and thus the ectal excipular layer may resemble that of the genus *Otidea*. However, there also exist differences in several other species of *Sowerbyella* as to these outgrowths [see also the discussion on the delimitation of *Otidea* and *Sowerbyella* in Eckblad (1968)]. The outermost excipular cells in *S. unicusia* are thick-walled with coloured walls and give a minutely granulated brownish appearance to the surface of the apothecia. Such surface may also resemble that of apothecia in the genus *Otideopsis* (Liu et Cao 1987), which, however, possess brownish cells forming large brown pustules (see also J. Moravec 1988a, 1988b). Moreover, the apothecia of *S. unicusia* as well as of the two known species of *Otideopsis* are split towards the base and thus more resemble those of *Otidea*. However, such split margins may occasionally also occur in apothecia of *Sowerbyella* species, and, conversely, there are species in the genus *Otidea* having apothecia with unsplit margins, such as *Otidea indivisa* Velen. and *O. integra* (Bres.) Harmaja (1986). The discussed *S. unicusia* possesses rarely also apothecia with entire margins. This indicates that the delimitation of these three genera (but also of *Flavoscypha* and *Tarzetta*) may be complicated by certain limited features of individual species of each genus. Notwithstanding, I do not agree with Harmaja's recombination of *P. unicusia* in the genus *Otidea*, particularly for the ornamented perisporium of the ascospores of *S. unicusia* - a feature which is unknown in any other species of *Otidea*.

In my opinion (J. Moravec 1988b), the position of *Sowerbyella* in the family *Pyronemataceae* Corda em. Korf is in the subfamily *Otideoideae* Korf, and the same place should also have the above mentioned genera. However, the classification of all members of the subfamily *Otideoideae* into tribes needs, in my opinion, further investigation.





Figs. 9 - 10 SEM of ascospores of *Sowerbyella phlyctispora*. (Holotype of *Jafneadelphus tectipus* K).

## A c k n o w l e d g e m e n t s

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