

# Type-revision of *Lachnea velenovskyi*, a new species in the genus *Spooneromyces* (Pezizales)

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**Summary:** The revision of the holotype of *Lachnea velenovskyi* confirmed that its microscopic features correspond to those of the genus *Spooneromyces*, i.e. spores ornamentation, type of hairs and excipulum structure. Thus the new combination *Spooneromyces velenovskyi* is proposed. Comparison with some other species belonging to this genus revealed that *Spooneromyces microsporus* is conspecific with *S. velenovskyi* and considered as a posterior synonym.

**Keywords:** Ascomycota, Pyronemataceae, taxonomy.

**Résumé :** la révision de l'holotype de *Lachnea velenovskyi* a confirmé que ses caractères microscopiques correspondaient à ceux du genre *Spooneromyces*, notamment l'ornementation sporale, le type de poils et la structure de l'excipulum. Ainsi la nouvelle combinaison *Spooneromyces velenovskyi* est proposée. La comparaison avec d'autres espèces de ce genre a révélé que *Spooneromyces microsporus* était conspécifique avec *S. velenovskyi* et considéré comme un synonyme postérieur.

**Mots-clés :** Ascomycota, Pyronemataceae, taxinomie.

## Introduction

The genus *Spooneromyces* was published by SCHUMACHER & MORAVEC (1989) to accommodate two European operculate discomycetes characterized by orange apothecia, hairy, with more or less scattered brown straight hairs, with a single "bulbous" or enlarged base, and spores ornamented by small crests or reticula, more prominent at the poles. The type-species is *S. laeticolor* (P. Karst.) T. Schumacher & J. Moravec, a cup-fungus growing on conifer litter. *S. helveticus* J. Breitenb. & F. Kränzl. was the second taxon described in this genus in the same article. Two other species were also published after that, *S. daliensis* (W.Y. Zhuang) W.Y. Zhuang from China (ZHUANG, 2005a, 2005b) and *S. microsporus* Jamoni from Italy (JAMONI, 2008).

In 2011, during a field trip in the French Alps, we collected a discomycete close to *S. laeticolor* but with some divergent microscopic characters and growing on soil under *Alnus alnobetula* (VAN VOOREN, 2012: 52). Since this discovery, we decided to investigate this genus, morphologically and phylogenetically. The present note is a first result of our investigations.

## Material and methods

Observations were made on dried material rehydrated during twenty four hours in water. The following mounts were used to observe microscopic characters: water, KOH 5% and methyl blue in lactophenol. Spore measurements were made in water on 25 items or more from each collection, under the oil immersion lens of an optical microscope, and are given without ornamentation. X represents the average of spore dimensions and Q the ratio between spore length and width, given with the three values: min–average–max.

## Type-revision of *Lachnea velenovskyi*

As a collection of *Humaria velenovskyi* (Svrček) Korf & Sagara was associated with *Spooneromyces laeticolor* in a phylogram proposed by PERRY *et al.* (2007: 559), we decided to revise the type-material of this species to check if microscopic features were in conformity with the genus *Spooneromyces* as defined by SCHUMACHER & MORAVEC (*op. cit.*).

The type-material is housed in the Prague Museum (PRM) under number 178912. The collection was made in Bohemia, Czech Republic, by V. Vacek, in July 1946, on an old burnt place. Here is our revision of microscopic characters:

**Medullary excipulum** thin, of *textura intricata*, with hyaline hyphae. **Ectal excipulum** of *textura angularis*, with hyaline to yellowish cells in the outer part, measuring 20–50 µm in width, and sometimes with a brownish pigment on the wall. **Marginal cells** more or less parallel. **Hairs** scattered, straight, 105–225 × 13–28 µm (at the base), pale brownish, septate, with a wide, single base, almost bulbous, rather thick-walled (× 1.7–2 µm) and sometimes constricted at the septa. **Anchor hyphae** present, hyaline, hair-like, with an enlarged base, septate, flexuous. **Asci** 160–180 × 9–10 µm, cylindrical, with crozier, 8-spored. **Paraphyses** hyaline, enlarged at the top, × 3.5–5 µm. **Spores** ellipsoid to subfusoid, sometimes inequilateral, (13.5) 14–17 × 7–8 (8.5) µm, X = 15.3 × 7.6 µm, Q = 1.9–2.0–2.3, hyaline, containing very small guttules concentrated at the poles, verrucose, with cyanophilic low warts, isolated or coalescent, rather dense, non-reticulate, on the top view, and more or less echinulate on the side view, warts up to 1 µm, surrounded by a perisporium, showing a crown aspect.

These data are in accordance with the diagnosis proposed by SVRČEK (1948: 51), although the spore ornamentation that we observed is more complex compared to the description and illustration given by the Czech author. This ornamentation matches perfectly with the ornamentation of all the *Spooneromyces* species, except *S. helveticus* which is reticulated. The shape of hairs is also characteristic. In this context, we propose to combine this species in this latter genus:

*Spooneromyces velenovskyi* (Vacek ex Svrček) comb. nov. — MB 808588.

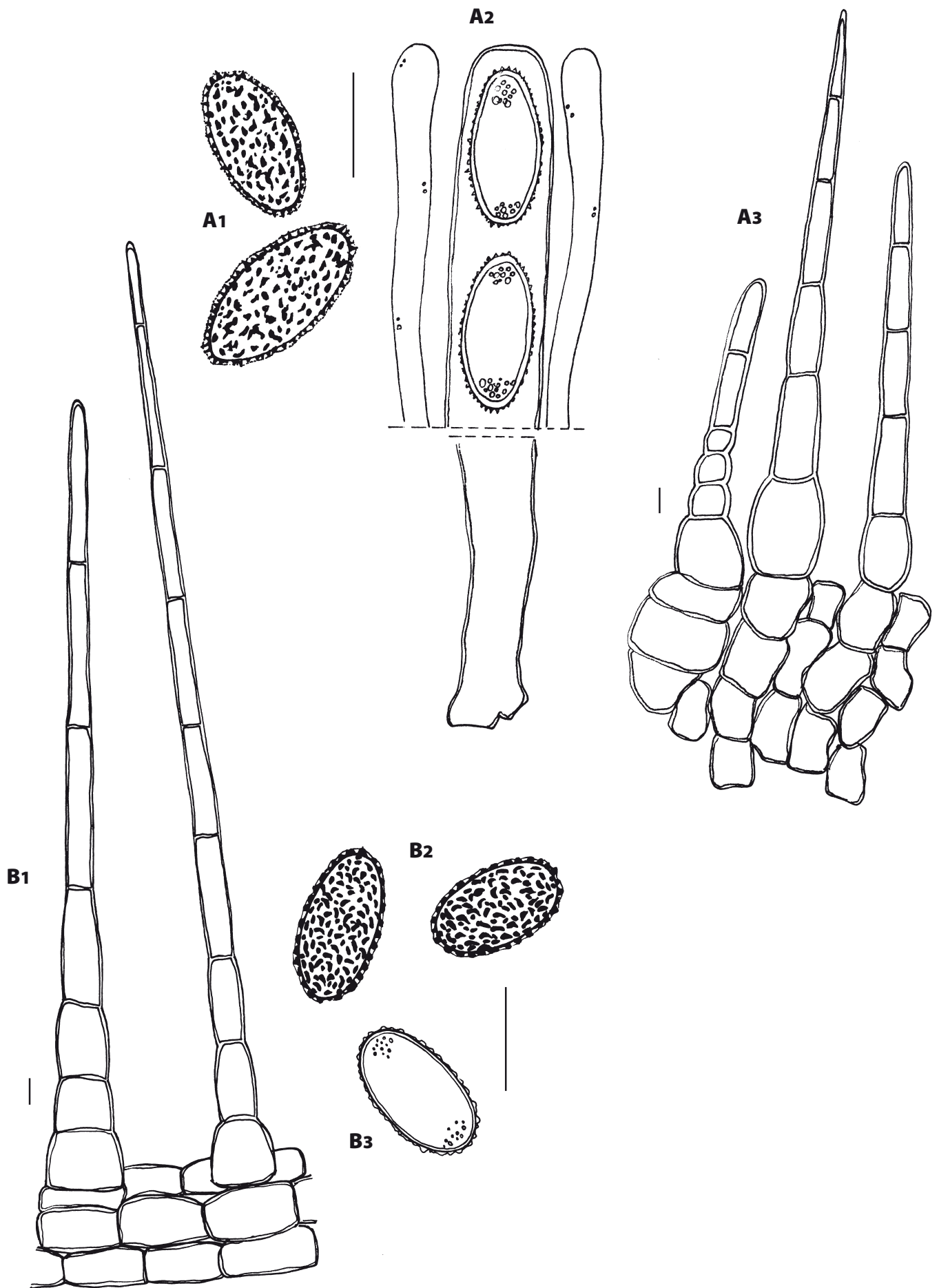
Basionym: *Lachnea velenovskyi* Vacek ex Svrček, *Sborn. Národ. Mus. Praze*, IV B (6): 51 (1948).

Nomenclatural synonyms: *Humaria velenovskyi* (Svrček) Korf & Sagara, *Phytologia*, 24 (1): 1 (1972); *Mycolachnea velenovskyi* (Svrček) Candoussau, *Munibe*, 27 (3-4): 189 (1975); *Trichophaea velenovskyi* (Svrček) Häffner & Christan, *Z. Mykol.*, 57 (1): 162 (1991).

## Type-revision of *Spooneromyces microsporus*

Before revising the type-specimen of the previous species, we had the opportunity to study an isotype of *Spooneromyces microsporus*, no. 2567, a recently described species from the Italian Alps, from the locality of Pila (VC), alt. 700 m (JAMONI, 2008).

Here is the revision of the microscopic characters from type-material:



**Fig. 1 — Microscopic features of revised material**

A1. Spores of *Lachnea velenovskyi* (in CB). A2. Ascus and paraphyses of *L. velenovskyi* (in water). A3. Marginal hairs of *L. velenovskyi*. B1. Marginal hairs of *Spooneromyces microsporus*. B2. Spores of *S. microsporus* (in CB). B3. Spore of *S. microsporus* (in water). Scale bars = 10 µm.



Fig. 2 — *Spooneromyces velenovskyi*. Collection HB 7932

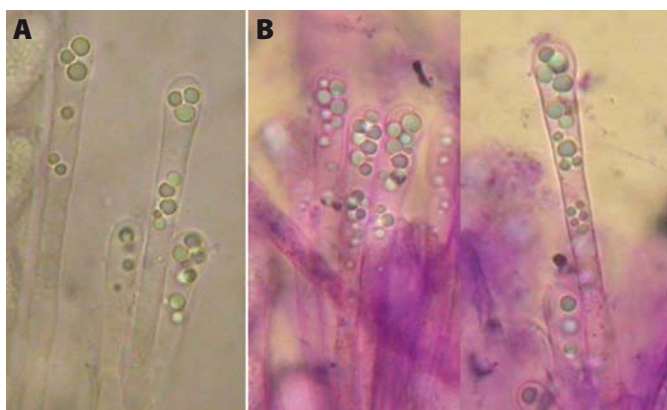


Fig. 3 — Paraphyses of *Spooneromyces velenovskyi* from collection HB 7932. A. Vacuolar bodies (in water). B. Vacuolar bodies (in CRB).

**Medullary excipulum** of *textura intricata*. **Ectal excipulum** of *textura angularis*, with cells measuring 20–50  $\mu\text{m}$  in width, brownish pigment sometimes present on the wall. **Marginal cells** looking like a *textura prismatica*, pale brownish, 12–25  $\mu\text{m}$  in width, with emerging hairs from the outermost cells. **Marginal hairs** scattered, straight, 165–365  $\times$  17–35  $\mu\text{m}$  (at the base), brownish, septate, with a wide, single base, rather thick-walled and sometimes constricted at septa. **Asci** cylindrical, about 150–170  $\mu\text{m}$  in height, with crozier, 8-spored. **Paraphyses** hyaline, enlarged at the top,  $\times$  3–4  $\mu\text{m}$ . **Spores** ellipsoid to subfusoid, sometimes inequilateral, (12.2) 12.5–14  $\times$  6.8–7.5  $\mu\text{m}$ ,  $X = 13.2 \times 7.1 \mu\text{m}$ ,  $Q = 1.7\text{--}1.9\text{--}2.0$ , hyaline, with very small guttules at the poles, sometimes merged to form two oil-drops, ornamented by cyanophilic low warts, isolated or elongated, often coalescent, on the top view, and more or less echinulate on the side view, warts up to 0.7  $\mu\text{m}$ , surrounded by a perispodium, showing a crown aspect.

Our microscopic revision is in accordance with the original description and confirms that this species belongs to the genus *Spooneromyces*. All the features are close to the description of *S. velenovskyi* (including our revision), although the spores are a bit smaller. This data fits also well the description provided by HÄFFNER & CHRISTAN (1991)<sup>1</sup> and CANDOUSSAU (1975). Concerning the color of ascospores, *S. velenovskyi* is originally described as “ochracea usque pallide fusco-ochracea”<sup>2</sup> (SVRČEK, 1948), but fresh collections are given as greyish white by HÄFFNER & CHRISTAN (1991), becoming gray-brown to light orange in dry state. BILLEKENS (1995) indicates that

fruitbodies are pale yellowish, and CANDOUSSAU (1975) describes its specimens as pinkish orange to ochraceous; this latter also precise “certains exemplaires se trouvant sous les aiguilles de *Picea* étaient presque entièrement décolorés”. *S. microsporus* is described with a yellowish color — “giallo-cera o giallo-crema sbiadito” — but having also greyish part — “con zone grigio-livide” (JAMONI, 2008). BARAL (in BARAL & MARSON, 2005, coll. HB 7932 under the name *Trichophaea velenovskyi*) shows microphotographs of paraphyses containing numerous refractive vacuolar bodies (Fig. 3) which are faintly yellowish and stain pale turquoise in Cresyl Blue. The other characters of this collection, as presented by Baral, are congruent to original data. Our hypothesis is that this species contains a carotenoid pigment (as the other species in this genus), but its expression deeply depends on its exposure to the light. Thus we are convinced that *S. velenovskyi* and *S. microsporus* are the same species, the latter becoming a posterior synonym.

These results seem to be confirmed by our first phylogenetic analysis on LSU rDNA gene, although we decided to investigate the different taxa with more genes to precise the position of the genus *Spooneromyces* into the *Aleuria* lineage (see HANSEN *et al.*, 2013). Our results will be published in an upcoming article.

## Acknowledgments

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<sup>1</sup> Strangely the spore drawing (*op. cit.*: 164, fig. e) is provided as “spores without ornament”.

<sup>2</sup> The rehydrated specimen I examined was pale greyish.

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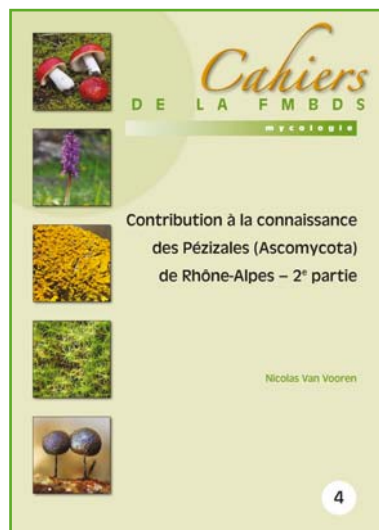
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