***Stilbella fimetaria* (Pers.) Lindau 1905 – PDD 124547 (= AEB 1392) – more recently discussed in Stud. Mycol. 105 (2023) under *Emericellopsis fimetaria* (Pers.) L.W. Hou, L. Cai & Crous, *comb. nov.* The full reference is provided below and its contents summarized on the following pages.**

Substrate: hare (*Lepus europaeus*) dung

Collected: 29 November 2024; **Incubated in a moist chamber:** 2 December 2024

Collection site: NZTM E1744964, N5422591, near Hawkin's Hill Radar Dome (Wellington South Coast) in pasture/scrub; **Collector:** Ian Flux; **Identifier:** Dan Mahoney

Voucher materials: no dried hare pellet herbarium specimen but represented by 2 semi-permanent slide mounts; in-situ photo of fruiting body on the moist chamber incubated hare dung taken 7 December using a Zeiss SV 11 Stereo-zoom dissecting microscope and a MC80 camera; fruiting body detail photos taken 7–9 December using an Olympus BX51 compound scope and a DP28 camera; references consulted and Dan's comments.

References consulted:

1. A Monograph of *Stilbella* and some allied Hyphomycetes

SIM

Studies in Mycology
https://www.studiesinmycology.org › Sim27 › fulltext
by KA SEIFERT · Cited by 250 — Monographic revisions of ***Stilbella***, *Didymostilbe, Rhizostilbella, Polycephalomyces* and *Dendrostilbella* are presented, as well as revisions of **some** species of … See comments on the following pages.

2. Hou L.W., Giraldo A., Groenewald J.W., Rämä T., Summerbell R.C., Huang G.Z., Cai L. & Crous P.W. 2023. Redisposition of acremonium-like fungi in Hypocreales. Studies in Mycology 105: 113–117. See comments on the following pages.

3. Mathur P.N. & Thirumalachar M.J. 1960. A New *Emericellopsis* Species with Stilbella-Type of Conidia. Mycologia 52(5): 694–697. *Emericellopsis synnematicola* Mathur & Thirumalachar, sp. nov. from soil was the first species of *Emericellopsis* with a synnematous (Stilbella-type) conidial stage. All earlier recorded species of *Emericellopsis* had only a *Cephalosporium* stage. The significance of this publication will be included along with my coverage of the Hou et al. 2023 publication.

4. Mycobank & Index Fungorum: *Emericellopsis fimetaria* (Pers.) L.W. Hou, L. Cai & Crous, comb. nov. & *Stilbella fimetaria* Pers. have the same basionym – *Leotia fimetaria* Pers. 1800. Mycobank has the current name for both as *Stilbella fimetaria* (Pers.) Lindau 1905 while in Index Fungorum the current name for both is *Emericellopsis fimetaria*.

Seifert KA (1985). A monograph of *Stilbella* and some allied Hyphomycetes. *Studies in Mycology* 27: 1–235.
Selected portions from A Monograph of Stilbella and some allied Hyphomycetes

A great deal of information on *Stilbella* (and on the classical and enigmatic species *S. fimetaria*) is found in Seifert's monograph. *S. fimetaria* is enigmatic because its type materials have not been located so have not been observed by Seifert or by Hou L.W. et al. 2023. Studies in Mycology 105 (pp. 113–117). Notes by Hou et al. that deal with confusing name changes on p. 117 will be reproduced on the next pages.

Although various details from Seifert's monograph are not relevant here, I have reproduced his Index at the right. By Ctrl-clicking any of the Index headings, anyone can bring up that coverage. For example under 'Synoptic key to fungi described in this paper', the key will appear but also to its left another panel will come up. By Ctrl-clicking '*Stilbella* Lindau' and then Ctrl-clicking 'section *Stilbella*', Seiifert's treatment of *Stilbella fimetaria* will appear. Portions of that description, illustrations & comments (pp. 41–44) are copied in on this page and the next. No teleomorph details are presented because none of the many dung collections labelled *S. fimetaria* (or its synonyms) that Seifert examined had an ascosporic stage.

Synnemata solitary, scattered, gregarious or crowded, cylindrical, subulate-capitate, clavate or nearly stipitate-discoid, slender to robust, smooth to villose, sometimes with a villose "halo" below conidial mass, unbranched, proliferating percurrently in some collections, white, off-white, sometimes slightly yellow or light brown at base, (100–)250–625(–1000) µm tall, (25–)50–150(–250) µm wide. Hyphae of stipe (1.5–)2–2.5(–5) µm wide, cell walls thin or slightly thickened, smooth to sparsely verrucose. Conidiophore branching once or twice monochasial, metulae 12.5–18 x 1.5–2 µm. Phialides cylindrical to subulate, straight or curved, lateral and terminal, in terminal whorls of 3–6, (15–)20–34 µm long, 1–1.5 µm wide, collarettes not flared, periclinal thickening inconspicuous. Conidial mass globose, hemispherical, turbinate or discoid, pink to orange, sometimes becoming pallid yellow with age, (50–)100–400(–500) µm diam. Conidia ellipsoidal to obovoid-ellipsoidal, (3–)3.5–5(–6) x (1.5–)2–3, with slightly thickened walls.
Habitat: Dung, recorded here from dung of birds, cat, dog, mouse, rabbit, sheep, and wombat. Comments & illustrations continued at the right and on the next page.

Stilbella fimetaria can be recognized by the white synnemata which are usually villose when fresh, the pink to orange conidial mass, the almost random branching of the conidiophores, the obovoid to ellipsoidal conidia, and the coprophilous habitat. It can be collected in quantity in the wild, or will develop on dung kept in damp chambers. *S. aciculosa* is the only other species of *Stilbella* known to occur on dung; it forms smaller synnemata with yellow conidial masses, and has longer conidia.

Numerous herbarium collections & living cultures of *S. fimetaria* that were examined and also a list of its synonyms can be found in Seifert's monograph.

Seifert's illustrations of *Stilbella fimetaria* – p. 43

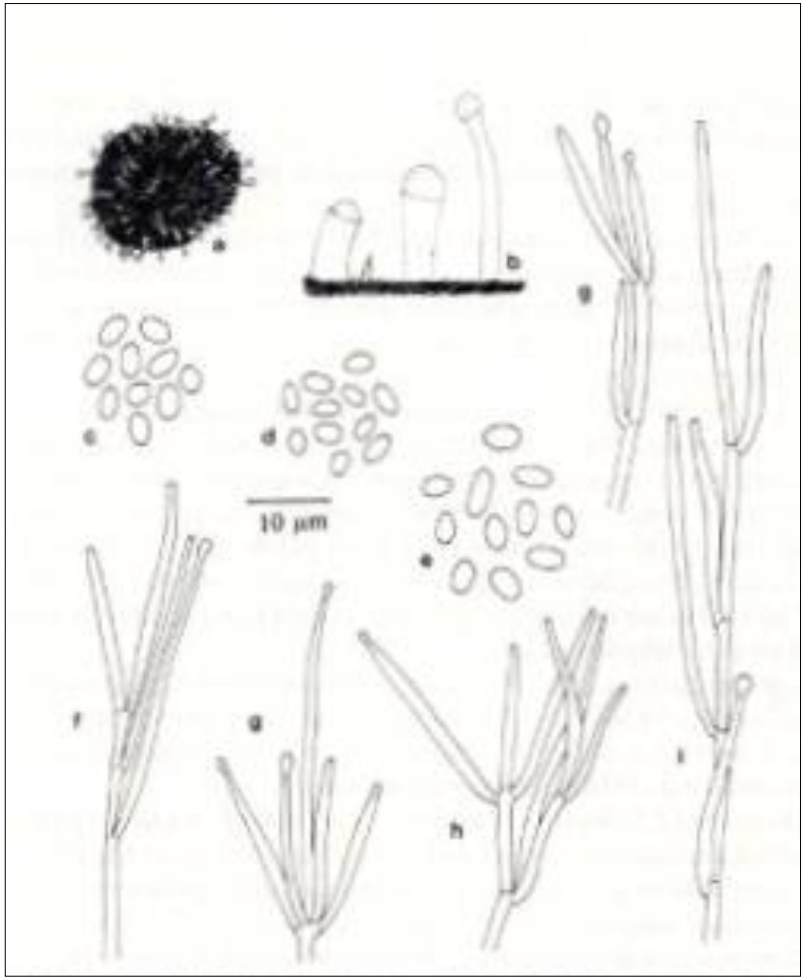


Fig. 8. *Stilbella fimetaria.* a. Habit of colony on rabbit dung, ×2.5; b. synnemata, ×30; c–e. conidia; f–i. conidiophores (c. Holotype *Helotium fimetarium*; d, IMI 181553; e, f, CBS-H 3450; g. C.T.R. 75-210; h, IMI 34195b; i, CBS-H 3451).

Hou L.W. et al. 2023. Redisposition of acremonium-like fungi in Hypocreales. Studies in Mycology 105. Selected portions from pp. 113–117.

Notes provided in the introduction to the genus *Emericellopsis* pp. 113,114

Emericellopsis J.F.H. Beyma, Antonie van Leeuwenhoek 6: 264. 1940.
Synonyms:
Stilbella Lindau, in Engler & Prantl, Nat. Pflanzenfam., Teil. I (Leipzig) 1: 489. 1900.
Peyronellula Malan, Mycopathol. Mycol. Appl. 6: 173. 1952.
Saturnomyces Cain, Canad. J. Bot. 34: 136. 1956.

Notes: The genus *Emericellopsis* was established to accommodate the soilborne species *E. terricola* (Van Beyma 1940). *Emericellopsis* is characterised by the production of globose cleistothecia with globose or subglobose asci that fill the cavity, always 8-spored, and ellipsoid, ovate and brown ascospores, initially with a wide hyaline sheath, which collapses at maturity to leave several longitudinal wings (Van Beyma 1940, Gams *et al.* 1971). Species of *Emericellopsis* commonly have conspicuous acremonium-like conidial morphs, but rarely have stilbella-like synnemata (Gams *et al.* 1971). This study revisits the taxonomy of the five "*Acremonium*" names that cluster within the *Emericellopsis* clade based on both phylogenetic analysis and morphological characters (Fig. 2, clade 028, pp. 40,41). The genus *Stilbella* was originally introduced by Engler & Prantl in 1900. It is well known among field biologists and amateurs by its special habitat and the morphological characters (producing stilbella-like synnemata). Although the generic name *Stilbella* is list as conserved name, it only against *Botryonipha* (Rossman *et al.* 2013). In the present study, the genus *Stilbella* (Engler & Prantl 1900, published in 1900) is synonymous with another conserved genus *Emericellopsis* (Van Beyma 1940, published in 1940) based on the lectotype of *Stilbella*, *S. erythrocephalum*, now regarded as *S. fimetaria*. In the present study, the ex-neotype culture of *S. erythrocephalum* (CBS 558.84) falls within the *Emericellopsis* clade (clade 028, pp. 40,41). This *S. erythrocephalum* culture is closely related to the ex-type culture of *E. synnematicola* (CBS 176.60), which was found to be connected to *S. emericellopsis* by single ascospore and single conidium isolations.

See the next page for notes under *Emericellopsis fimetaria* (Pers.) L.W. Hou, L. Cai & Crous, comb. nov. MycoBank MB 845860 – pages 115–117.

Notes: This species was originally introduced as *Leotia fimetaria* (Persoon 1800). The taxonomic history of this species is complex and has been addressed by multiple authors (Persoon 1801, Fries 1822, Berkeley & Broome 1850, Kuntze 1891, Lindau 1905, Höhnel 1916). Seifert (1985) examined and designated a neotype for *S. erythrocephala*, a synonym of *E. fimetaria*, which was selected as lectotype of *Stilbella* by Clements & Shear (1931). Although type materials of *S. fimetaria* were not located and could not be examined in this study, phylogenetic analysis based on the extype cultures of its synonyms *S. erythrocephala* (CBS 558.84) and *Stilbum coprophilum* (CBS 117.84) places this species in a highly supported clade within the *Emericellopsis* clade (Fig. 2, clade 028, pp. 40,41), and is therefore recombined as *E. fimetaria*.

Most recorded *Emericellopsis* species have only the *Cephalosporium* (currently *Acremonium*) conidial type. *Emericellopsis synnematicola* was the first species described that is characterised by producing the stilbaceous type of conidiophores in its asexual morph, a feature that is peculiar to *Emericellopsis* (Mathur & Thirumalachar 1960). However, according to the Shenzhen code, *E. synnematicola* is invalid because the type material was not been indicated in the protologue, which only left an "ex-type culture" deposited in CBS culture collection (Mathur & Thirumalachar 1960). In the present study, the ex-type culture of *Cephalosporium incoloratum* (CBS 146.62), which was isolated from the same country and same substrates as *E. synnematicola*, proved to be genetically identical to "ex-type culture" of *E. synnematicola* (CBS 176.60). Both types were placed in a highly supported clade together with cultures of *E. fimetaria*. Morphologically, *E. fimetaria* and *E. synnematicola* are exactly the same. The size of synnemata tends to vary among specimens from a variety of dung, but can be influenced by external factors. Additionally, *E. fimetaria* was observed only to produce an acremonium-like asexual morph in vitro or, in some retrogressed cultures that had lost the capacity to produce synnemata, then having asexual morphological characters matching those of *C. incoloratum* (Sukapure & Thirumalachar 1965). Therefore, we concluded that these types are conspecific, with *E. fimetaria* having priority.

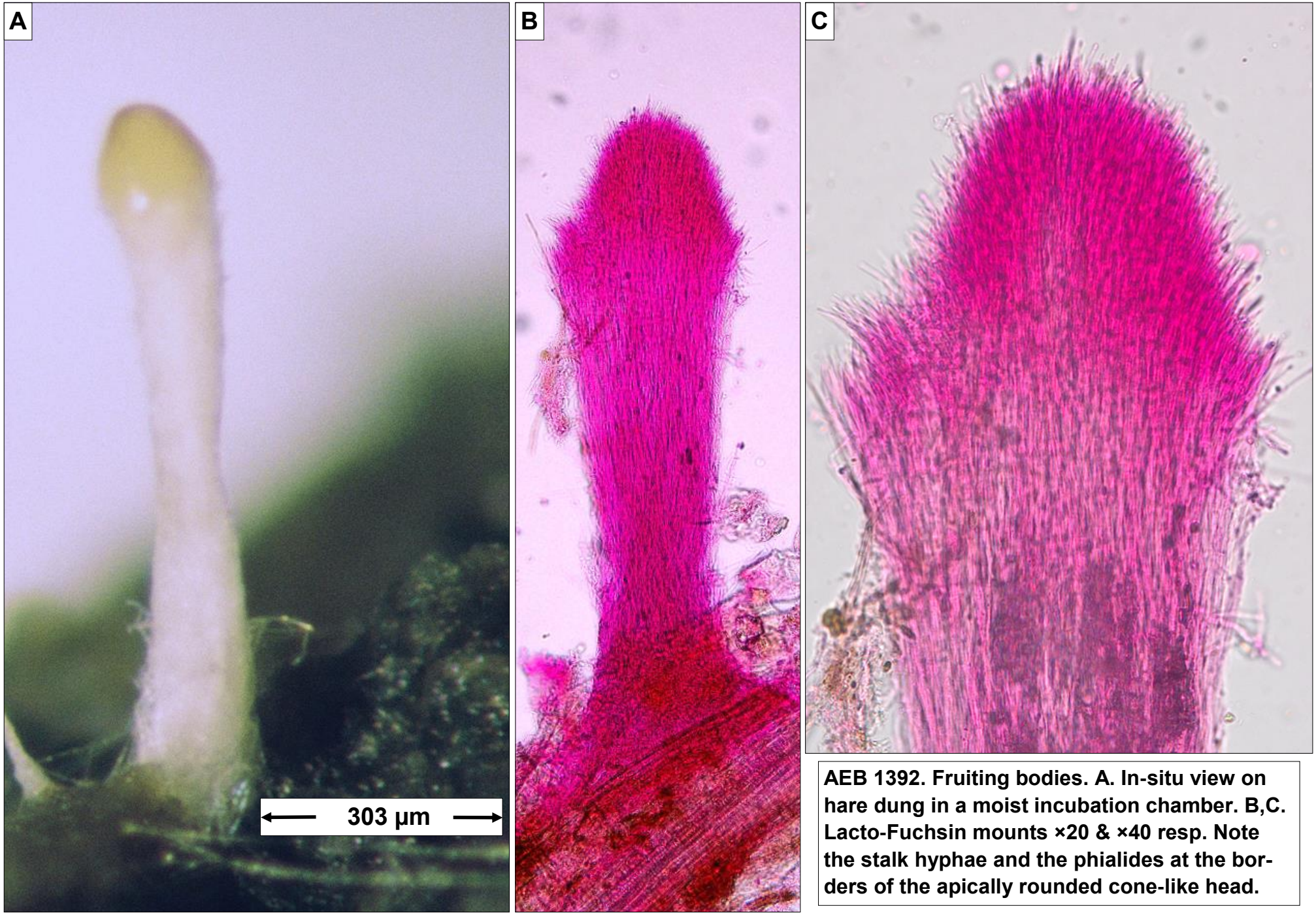
The culture CBS 382.62 was originally recorded as *E. salmosynnemata*, but is phylogenetically distinct from the extype culture of *E. salmosynnemata* but clustered together with *Emericellopsis fimetaria* (Fig. 2, clade 028, pp. 40,41). This culture is morphologically comparable to *E. salmosynnemata* and differs from the latter by the production of larger ascospores (5.5–8.5 × 3.7–5.5 µm vs 5–5.5 × 3–3.5 µm) and conidia (3.3–4.8 × 2.3–2.9 µm vs 3–4 × 1.5–2 µm).

My comments: The taxonomic history of *Emericellopsis fimetaria* is truly complex. Although the changes have been recognized by Index Fungorum, they have not been accepted by Mycobank. According to Seifert's *Stilbella* monograph, no teleomorphiic stage has been associated with any species of *Stilbella.* Also, the only other *Stilbella* species he records from dung (more frequently from soil) is the morphologically distinct *S. aciculosa*.

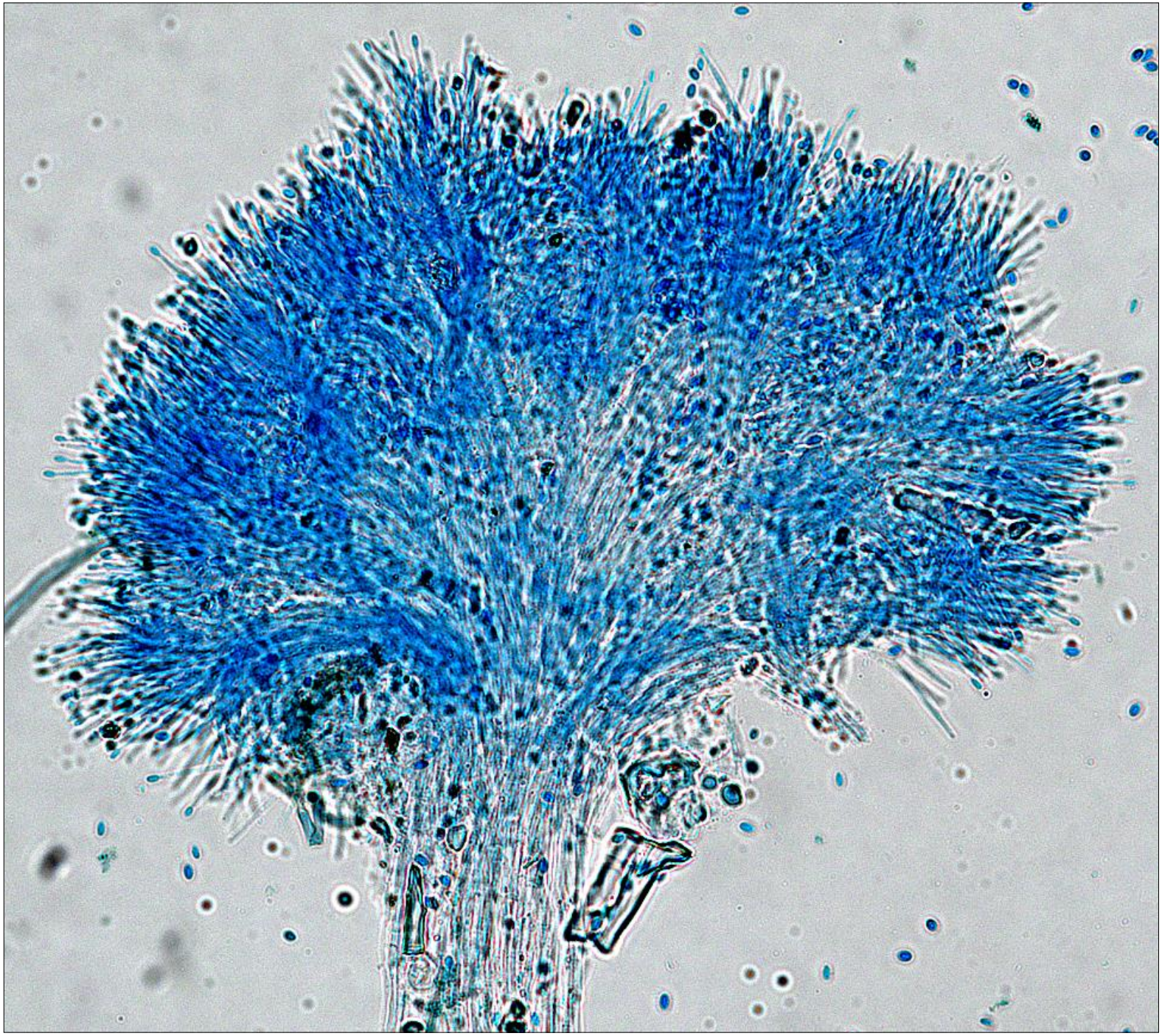
Whether the binomial *Emericellopsis fimetaria* replaces the commonly collected *Stilbella fimetaria* remains to be seen. Its teleomorph presence, at least in culture, and its sequencing relationship to other species of *Emericellopsis*, however, will be of interest to others in the future. For now, I will label the present PDD 124547 collection *Stilbella fimetaria*.

Mycobank: Summary (accessed 18 December 2024))

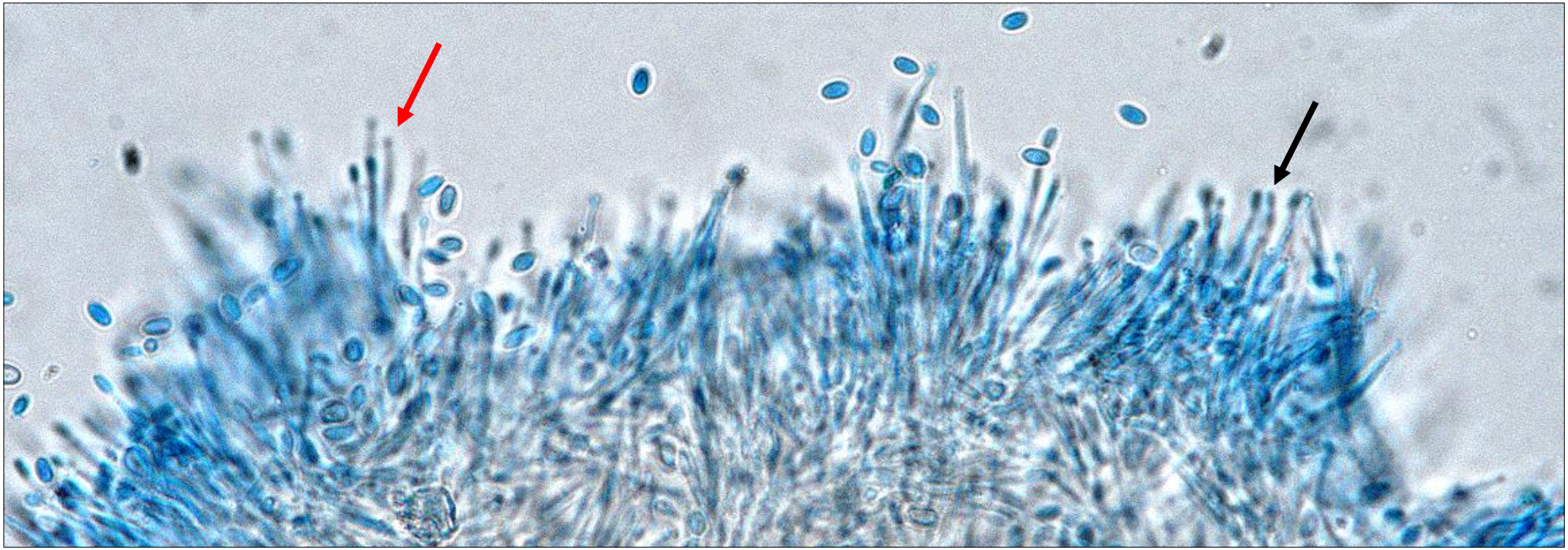
Emericellopsis fimetaria (Pers.) L.W. Hou, L. Cai & Crous, Stud. Mycol. 105: 115 (2023) [MB#845860]
Current name: *Stilbella fimetaria (Pers.) Lindau, Verh. Batav. Genoot. Kunsten 47: 75 (1905) [MB#122495]*
Basionym: *Leotia fimetaria Pers., Observationes mycologicae 2: 21, t. 5:4-5 (1800) [MB#215673]*
Taxonomic synonym(s): Many, but including *Emericellopsis fimetaria (Pers.) L.W. Hou, L. Cai & Crous, Stud. Mycol. 105: 115 (2023) [MB#845860]*

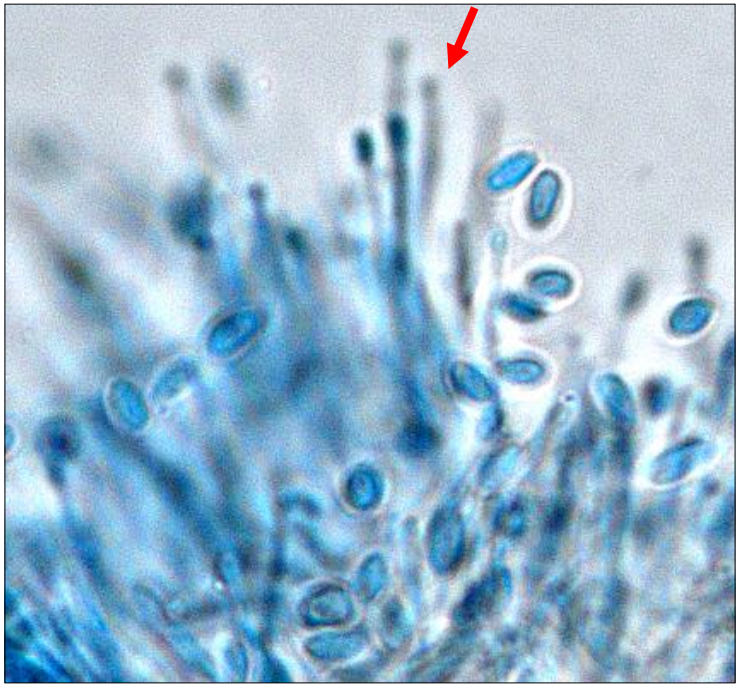


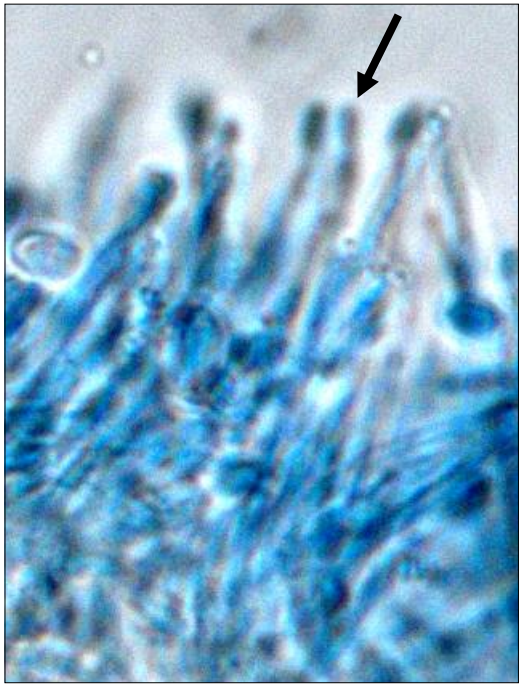
AEB 1392. Fruiting bodies. A. In-situ view on hare dung in a moist incubation chamber. B,C. Lacto-Fuchsin mounts ×20 & ×40 resp. Note the stalk hyphae and the phialides at the borders of the apically rounded cone-like head.



AEB 1392. Aniline blue lactic acid (ABLA) slide mount using the ×40 objective. Note the conidiogeny at the apex of the synnema where bordering phialides reveal conidia forming at their tips. The next page provides a closeup view of the philades, their developing conidia and mature free-floating conidia.







AEB 1392. ABLA slide mount using the ×100 objective. All photos from the same field of view – the 2 at the bottom left are enlargements from the upper photo. Red arrows and black arrows point to the enlarged areas. Note the closeup views of the philades, their developing conidia and the mature free-floating conidia. Mature conidia are 3–4 × 1.5–2 µm.

An in-situ view of fresh synnemata whose white stalks bear apical masses of orangish conidia. Smaller white clumps (red-circled) represent the *Verticillium* synanamorph.

This *Stilbella fimetaria* – MIN 0974540 is a 1984 collection from rabbit dung in S. California by a student in my Mycology class at CSULA. The photograph is mine with its identification confirmed by Keith Seifert. I later deposited the collection at the University of Minnesota. Its full details & photos are available online in the Minnesota Biodiversity Atlas.

The fruiting here was massive compared with the more meager fruiting on the NZ hare dung presented in this pdf. However, the conidiogeny details presented in photos here were not done in 1984.