

***Ascobolus minutus* Boud. AEB 1318 (= PDD 120022)**

Collection site: Lower Hutt, New Zealand. Along the Waiwhetu Stream, in grassy areas that border Callaghan Innovation (base of the Wainuiomata Hill Road)

Collection date: 12 November 2017

Substrate: European rabbit (*Oryctolagus cuniculus*) dung

Collector & Identifier: Dan Mahoney

Voucher materials: no dried herbarium material but one Shear's mounting fluid (SMF) semi-permanent slide mount; a number of photos of microscopic detail from water and SMF mounts.

Other fungi also present on rabbit pellets from this collection include the following: *Ascobolus stictoideus*, *Collariella bostrychodes* (\equiv *Chaetomium bostrychodes*), *Delitschia* (*patigonica*?), *Iodophanus carneus*, *Mucor* spp., *Pilaira anomala*, *Podospora curvicolla*, *Saccobolus caesariatus*, *Sporormiella australis*

Dan's brief comments: Apothecia seen beneath a tangle of *Pilaira* and *Mucor* overgrowth on several rabbit pellets. Perhaps more numerous but I had to focus on those more obvious apothecia with protruding asci. In-situ and microscopic-detail photos were taken on the 4th and 5th of December.

Paraphyses numerous, filamentous, uniform throughout (not apically specialized) hyaline, septate. **Asci** seemingly without any bluing in Melzer's reagent mounts. According to Brummelin's 1967 description there was some faint ascus wall bluing. **Ascospores** uniseriate to irregularly overlapping or occasionally biseriate in the asci and ellipsoidal, longitudinally striate, violet (becoming brownish), mostly 14–15 × 8 µm. Overall, a reasonably good match to Brummelin's description – see that description and illustrations on the next 2 pages.

There is one PDD collection of *Ascobolus minutus* on the Systematics Collections Data website (excluding the present collection): PDD 73406 (= AEB 246) identified by Ann Bell from brushtail possum dung on Kapiti Island, New Zealand.

Brummelen J. (van). 1967. A World-monograph of the genera *Ascobolus* and *Saccobolus* (Ascomycetes, Pezizales). Persoonia, supplement, I: 1–260. Pages 118–119.

21. ASCOBOLUS MINUTUS Boud.—Fig. 29; Pl. 8, fig. G

Ascobolus minutus Boud. in Bull. Soc. bot. Fr. **34** (Session Cryptog. 1887): XLVIII *pl. 2 f. 1.* 1888; Boud. in Bull. Soc. mycol. Fr. **4**: XLVIII *pl. 2 f. 1.* 1888; Boud., Icon. mycol., Ser. 3, livr. 12, *pl. 292* (definitive no.: 411). 1907. Boud., Icon. mycol., definitive text, 233. 1911. — Holotype: Boudier on fox dung, Montmorency, France, II.1881 (*A. parvisporus*, PC-A2197). → *Ascobolus parvisporus* Boud.

Ascobolus parvisporus Boud., Icon. mycol., Liste prélim. champ., unnumbered page, 1904 (nomen nudum); not *Ascobolus parvisporus* Renny in Trans. Woolhope Nat. Field Club 1873: 131. 1873. ≡ *Ascobolus minutus* Boud.

Apothecia scattered or gregarious, superficial, sessile on a small base, 0.3–1.2 mm diameter, 0.2–0.4 mm high. Receptacle at first closed and subglobular, then opening and obconical or hemispherical, finally expanding and lenticular or discoid, brownish-yellow to brown, smooth; margin rarely differentiated. Disk flat or slightly convex, brownish-yellow, dotted with the almost black protruding ends of ripe asci. Hymenium about 140 μ thick. Hypothecium not clearly differentiated. Flesh 150–200 μ thick, of isodiametric or oblong cells 5–20 \times 5–15 μ , hyaline. Excipulum 15–20 μ thick; of oblong or isodiametric, more or less angular thin-walled cells 7–24 \times 5–12 μ (textura angularis, the largest cells near the margin), with intercellular, pale brown pigment, especially between the superficial cells. Asci cylindrical-clavate, gradually tapering downwards into a thin stalk, rounded above, 140–170 \times 13–14 μ (according to Boudier, 1888: XLVIII), 8-spored; the wall only pale blue in Melzer's reagent. Ascospores uniseriate to biseriata, ellipsoid, at first hyaline, then violet, finally purplish-brown, 12.5–14.5 \times (6.5–)7–8.5 μ , ornamented with very regular longitudinal striae that only rarely anastomose. Paraphyses simple or branched, cylindrical, about 2 μ thick, slightly clavate above, up to 7 μ thick at the tip, hyaline, embedded in yellow mucus.

On dung of fox, hare, and rabbit.

ETYMOLOGY.—From Latin, minutus, small.

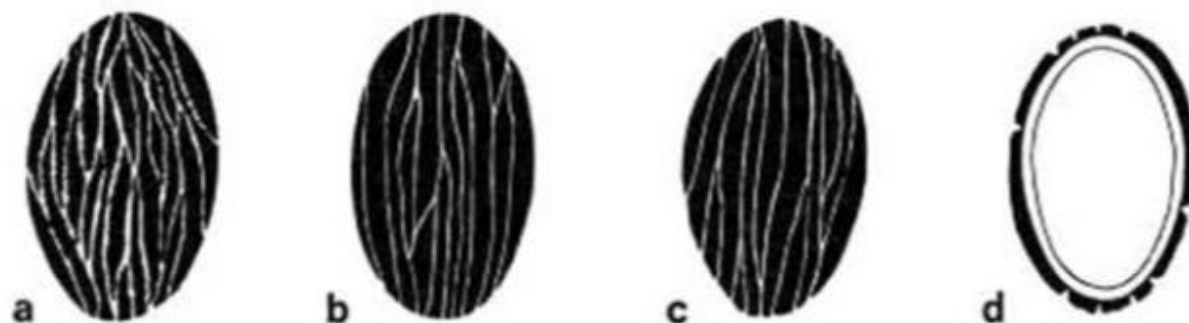


Fig. 29. — *Ascobolus minutus*: a–c, ascospores; d, ascospore in optical section. (All $\times 1600$; from holotype.)

ILLUSTRATIONS.—Boudier in Bull. Soc. bot. Fr., Session cryptog. 1887: *pl. 2 f. 1.* 1888; Boudier in Bull. Soc. mycol. Fr. **4**: *pl. 2 f. 1.* 1888; Boudier, Icon. mycol., Ser. 3, livr. 12, *pl. 292* (definitive no.: 411). 1907.

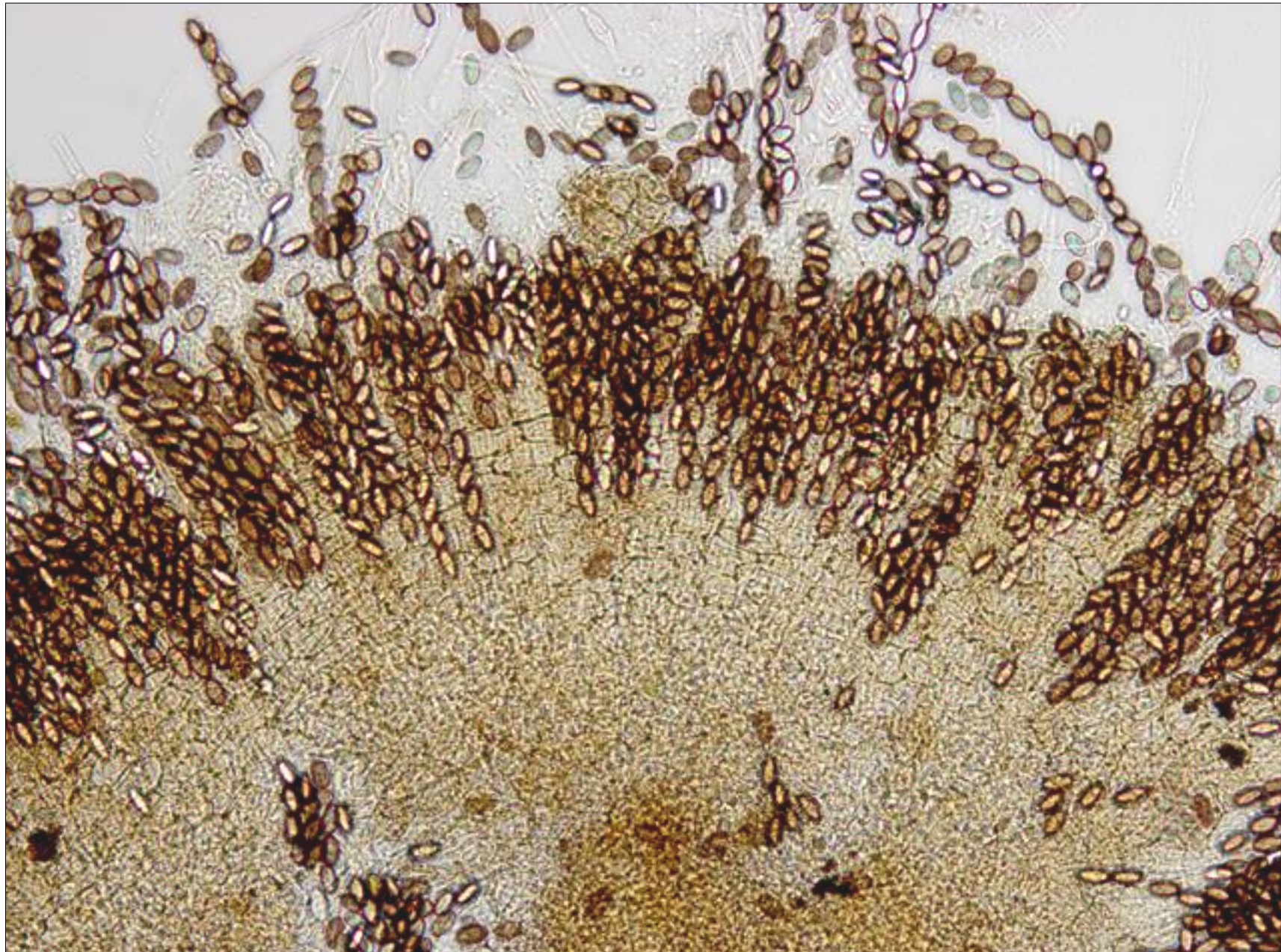
SPECIMENS EXAMINED.—**Great Britain**: *Travis*, on rabbit dung, Walton, Liverpool, 15.II.1930 (BM-A3035).

France: *Boudier*, on fox dung, Montmorency, II.1881 (“*A. parvisporus* Boud.”, holotype of *A. minutus*, PC-A2197); *Crouan*, on dog dung, *s. loc.*, 22.II.1867 (CONC-A2409).

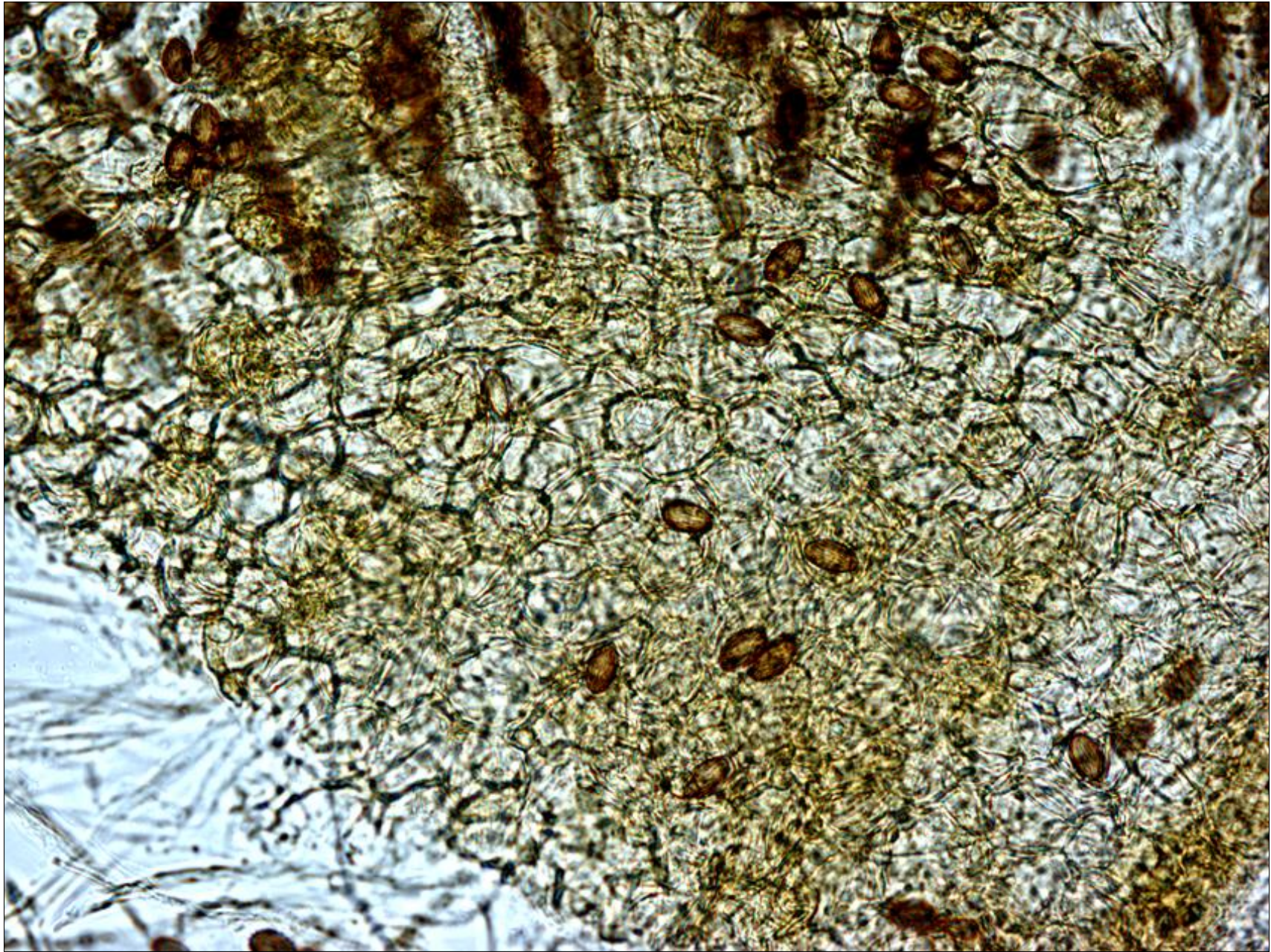
Czechoslovakia: *Bubák*, on hare dung, Radotin, near Praha, Bohemia, IX.1899 (S-A668).

U.S.A.: New York: *B. O. Dodge*, on dog dung, Columbia University, New York, 5.X (NY-A1091).

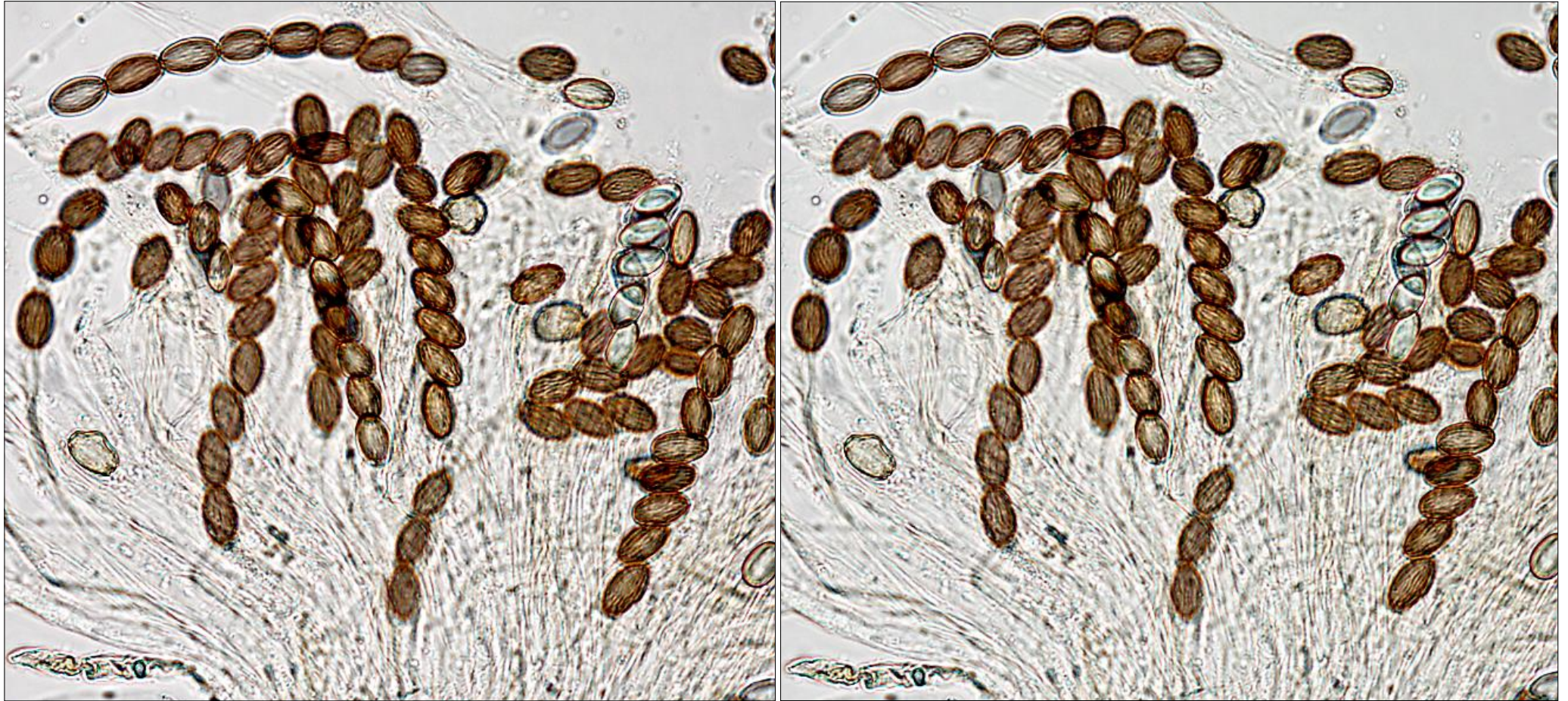
A rare species, related to *A. crenulatus*, from which it may be distinguished by the completely smooth, immarginate receptacle, the brownish-yellow colour, and the slightly larger ascospores.



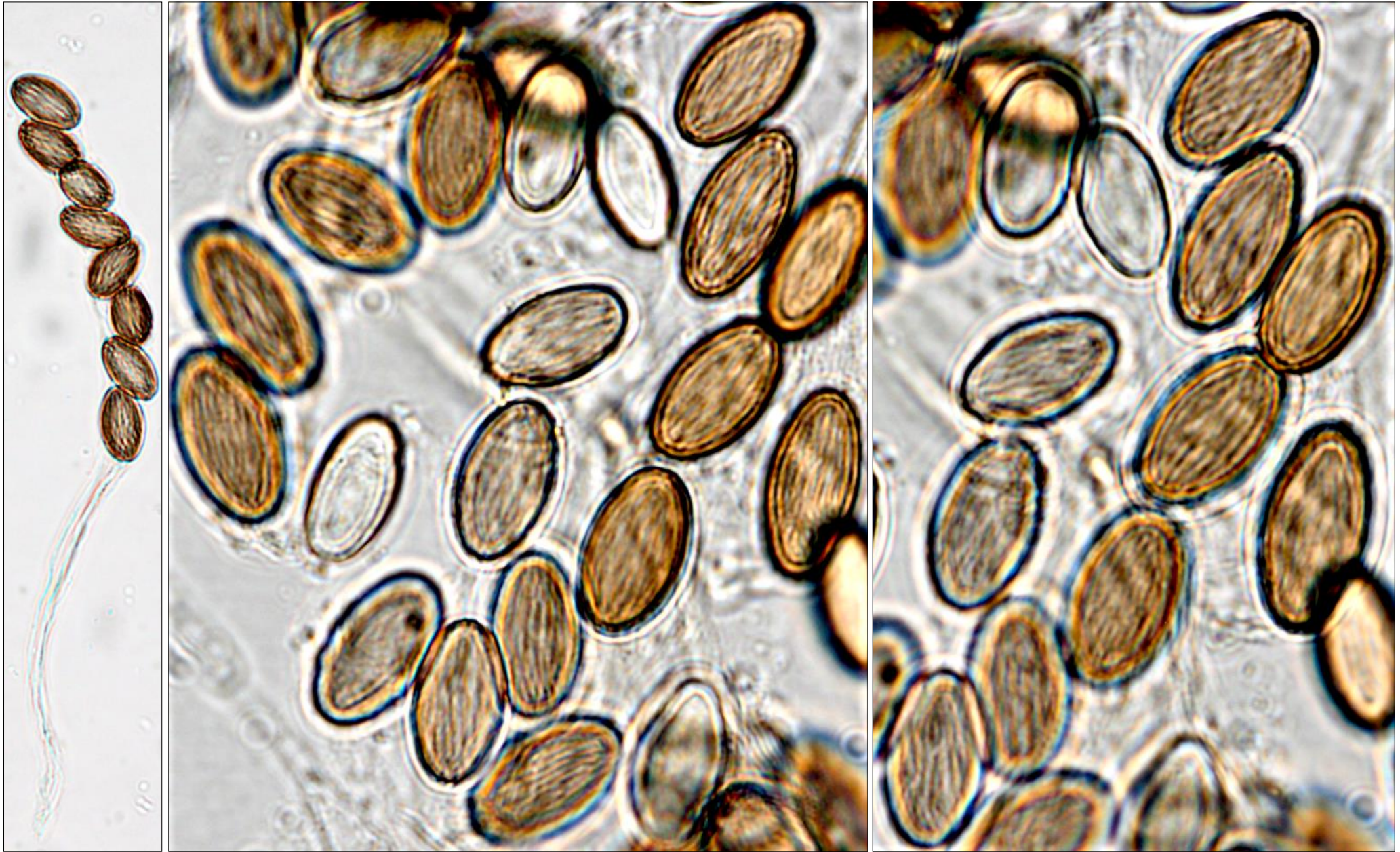
***Ascobolus minutus* hymenial squash. Note the asci, brownish ascospores and, in the background the horizontal rows of oblong excipulum cells. Water mount, X20 objective & brightfield microscopy.**



Ascobolus minutus hymenial squash. A higher magnification view of the previous page with emphasis on large textura angularis cells of the lower receptacle excipulum. Water mount, X40 objective, brightfield microscopy.



***Ascobolus minutus* hyemal squash. Two slightly different foci & lighting of the same asci and ascospores. Water mount, X40 objective (enlarged) & brightfield microscopy.**



Ascobolus minutus hyemal squash. Left photo single ascus: ascospore portion 77.5 μm long, stipe portion 75 μm . Water mount, X40 objective (enlarged), brightfield microscopy. Right two photos: slightly different foci & lighting of the same longitudinally striate ascospores. Shear's mounting fluid mounts (heated), X100 objective, brightfield microscopy.