

***Ascobolus hawaiiensis* Brumm. – PDD 126768 (= AEB 1421)**

Collected: 3 November 2023; **Incubated in moist chamber:** 6 February 2024

Substrate: Hereford-Galaway cross beef cattle dung

Collection site: NZTM grid ref. E1770110 N5447412 , a residential property surrounded by native bush off Moonshine Hill Road, Upper Hutt

Collectors: Ian Flux & Meryll Park; **Identifiers:** Ann Bell & Dan Mahoney

Voucher materials: no dried herbarium specimen but 3 Shear's mounting fluid (SMF) semi-permanent microscope slides; photos of microscopic detail using an Olympus BX51 compound scope with a DP28 camera and a Samsung Galaxy A70 smartphone; references consulted and Dan's photos & comments.

References consulted:

1. van Brummelen, J. 1990. Notes on cup-fungi—4. On two rare species of *Ascobolus*. *Persoonia - Molecular Phylogeny and Evolution of Fungi*, 14(2), 203–207. **Brummelen's description and illustrations of *Ascobolus hawaiiensis* are reproduced on the next page.**
2. Bell A. 2005. An Illustrated Guide to the Coprophilous Ascomycetes of Australia. CBS Biodiversity Series No. 3, Centraalbureau voor Schimmelcultures, Utrecht, the Netherlands, 172 pages. **Illustrations of *Ascobolus hawaiiensis* from p. 74, Fig. 20 are reproduced on the page after next.**
3. Annotated photos of *Ascobolus hawaiiensis* Brumm. from the online website 'Fungi Outer Hebrides'. **See these on the page after illustrations from Bell 2005.**

van Brummelen, J. 1990. Notes on cup-fungi—4. On two rare species of *Ascobolus*. *Persoonia - Molecular Phylogeny and Evolution of Fungi*, 14(2), 203–207. See pages 205–206 below.

Ascobolus hawaiiensis Brumm.—Fig. 2

Ascobolus hawaiiensis Brumm. in *Persoonia* (Suppl.) 1: 87, fig. 17, pl. 3G, H. 1967.

Apothecia solitary or gregarious, superficial, sessile, 170–450 μm wide, 300–600 μm high. Receptacle at first subglobular to ovoid, then barrel-shaped to cylindrical, finally sometimes obconical, pale brownish to pale pinkish grey, smooth, without margin. Disc flat, then convex, white, dotted by far-protruding violet tips of ripe asci. Hymenium 200–260 μm thick, at maturity often far protruding beyond the receptacle. Hypothecium and medulla not clearly differentiated as layers. Cortical excipulum very thin, 10–15 μm thick, pale brownish to pinkish grey, consisting of one or very few layers of subglobular and angular cells 6–20 \times 6–12 μm (textura globulosa or angularis). Asci clavate, with a rather long narrow base, rounded above, with a large operculum, 210–250 \times 20–30 μm , 8-spored; the wall clearly blue with iodine. Ascospores at first more or less bi-seriate, at maturity irregularly arranged in the upper part of the ascus, ellipsoid (length/width ratio 1.8–2.3, average 2.0), at first hyaline, then purplish violet, purplish brown at maturity, 16.5–21.5 \times 9.2–10.5 μm , without oil-globules or granules, thick-walled (1–1.5 μm), ornamented with a uniform layer of isolated, fine, rounded warts 0.5–1.3 μm wide. Paraphyses abundant, sparsely septate, slender, filiform, simple, hyaline, 1.7–2.3 μm thick, not enlarged at the tip, without mucus. Mycelium especially near the base of the receptacles with numerous rather stout, straight hyphoid elements, arising from the outermost layer of the excipulum and connected with the substratum.

H a b i t a t.—On dung of donkey. Also known from sheep dung in Hawaii.

Specimen examined:—PAKISTAN, Upper Kagahn-Valley, on dung of donkey (comm. Dr Hechler) in moist chamber, 12.IV.1990, *E. Jahn* s.n. (L).

The collection cited is the second record of *Ascobolus hawaiiensis*. The above description is based on a specimen sent by Mr E. Jahn and agrees well with that of the type specimen (van Brummelen, 1967).

The smaller measurements of the asci in the specimen from Pakistan are certainly due to the absence of high turgor in the ripe asci. On the other hand the hymenium as a whole has swollen considerably and is protruding far beyond the margin of the receptacle. This is a rather common feature among members of *Ascobolus* sect. *Dasyobolus*, where the excipulum shows only a very restricted growth.

The species is readily recognized by the very small fruit-bodies and the finely round-warted ascospores.

Ascobolus hawaiiensis must have been overlooked because of its minute fruit-bodies and will probably be found again from tropical regions on a closer examination of dung samples.

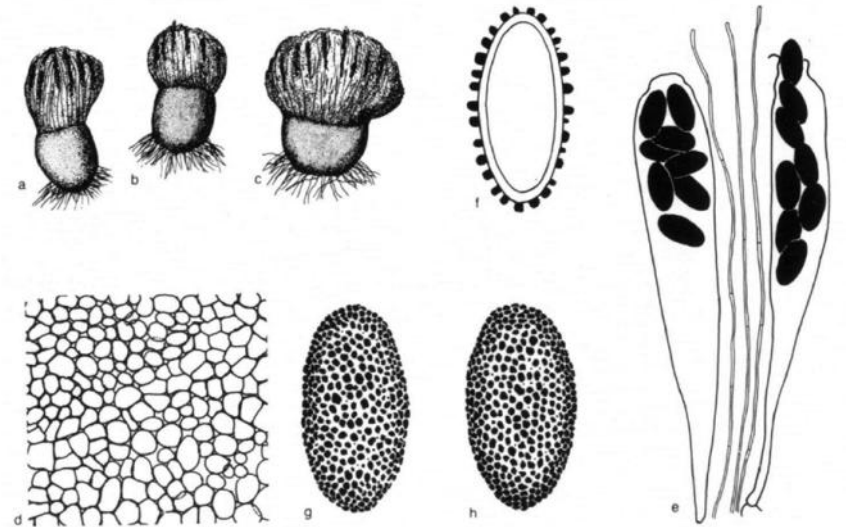


Fig. 2. *Ascobolus hawaiiensis*. — a–c. Habit of fruit-bodies in lateral view, $\times 40$. — d. Texture of excipulum seen from outside, $\times 400$. — e. Asci and paraphysis, $\times 400$. — f. Ascospore in optical section, $\times 1600$. — g, h. Ascospores, $\times 1600$. (All from *E. Jahn*, 12.IV.1990.)

Bell A. 2005. An Illustrated Guide to the Coprophilous Ascomycetes of Australia. CBS Biodiversity Series No. 3, Centraalbureau voor Schimmelcultures, Utrecht, the Netherlands, 172 pages. **Illustrations of *Ascobolus hawaiiensis* on p. 74, Fig. 20 are reproduced below.**

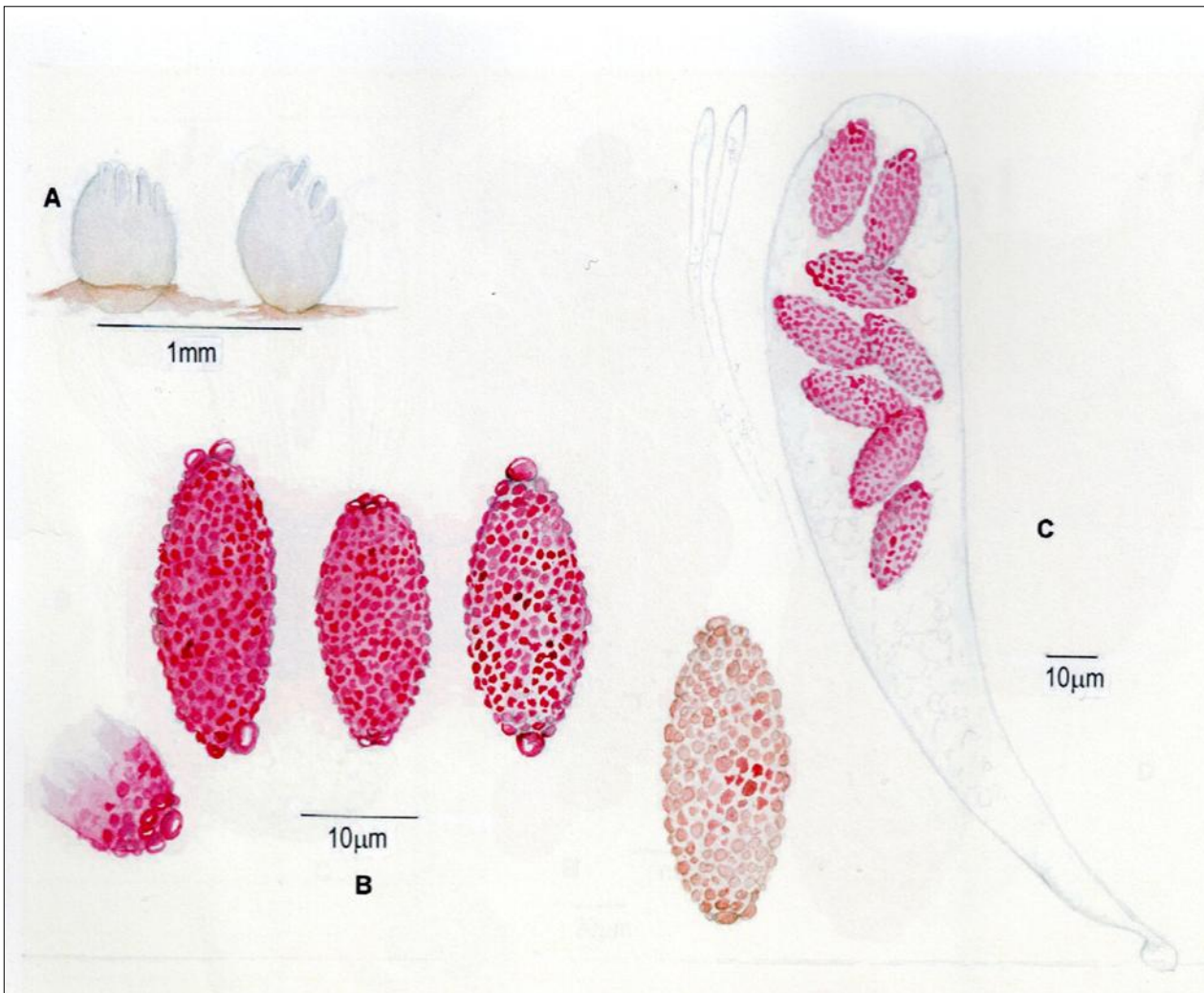


Fig. 20. *Ascobolus hawaiiensis*. A–C. A. Two mature apothecia. B. Mature ascospores showing episporic ornamentation. C. Mature ascus containing ascospores & accompanying paraphyses.

There are 6 records on PDD that emphasize *Ascobolus hawaiiensis* (as of 29 March 2026)

The 6 reproduced below were identified by Ann

[PDD 73238 : *Ascobolus hawaiiensis* Brumm. 1967](#) – Ann sent part of the specimen to J. van Brummelen who verified her identification.

[PDD 73349 : *Ascobolus hawaiiensis* Brumm. 1967](#)

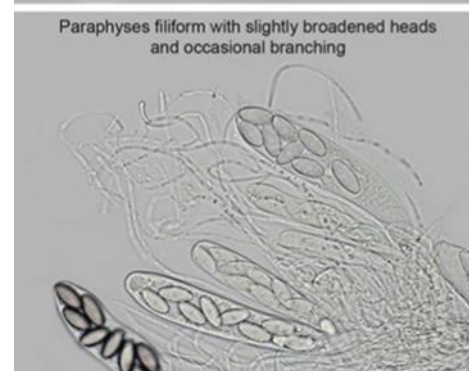
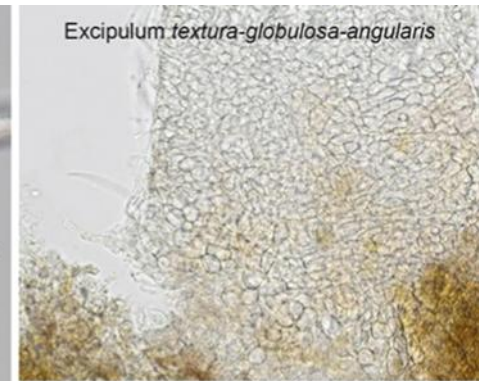
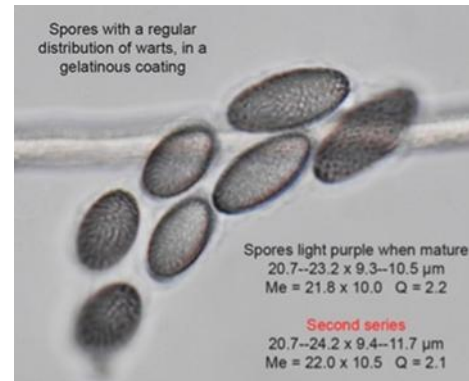
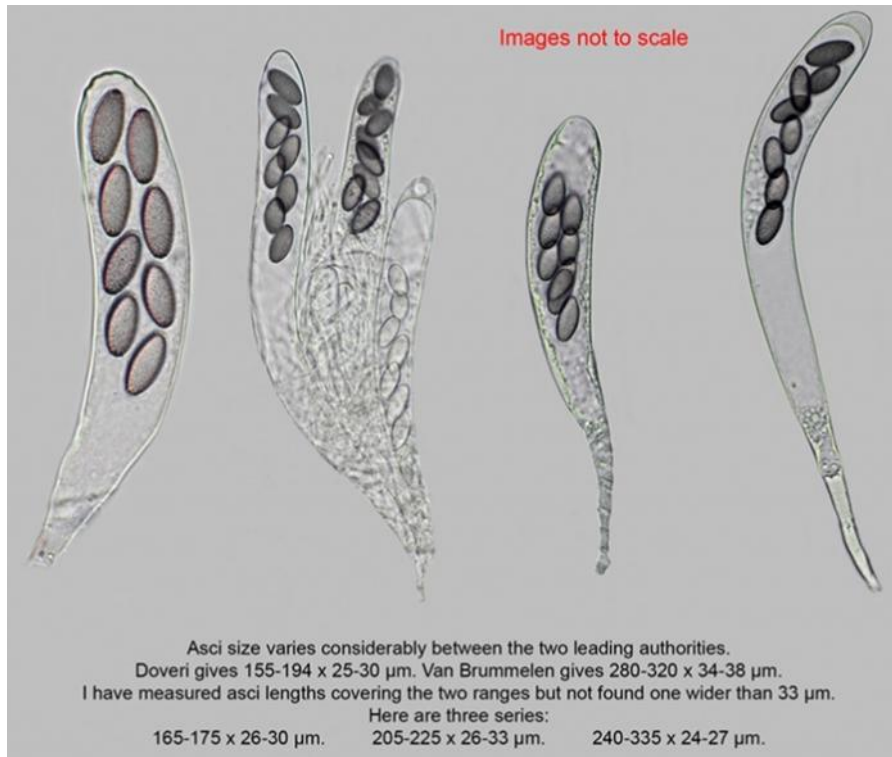
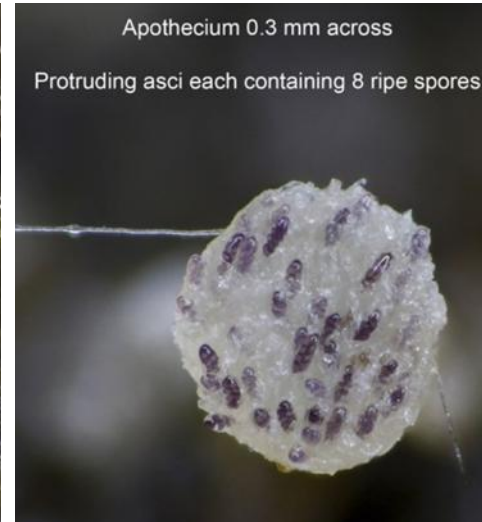
[PDD 73473 : *Ascobolus hawaiiensis* Brumm. 1967](#)

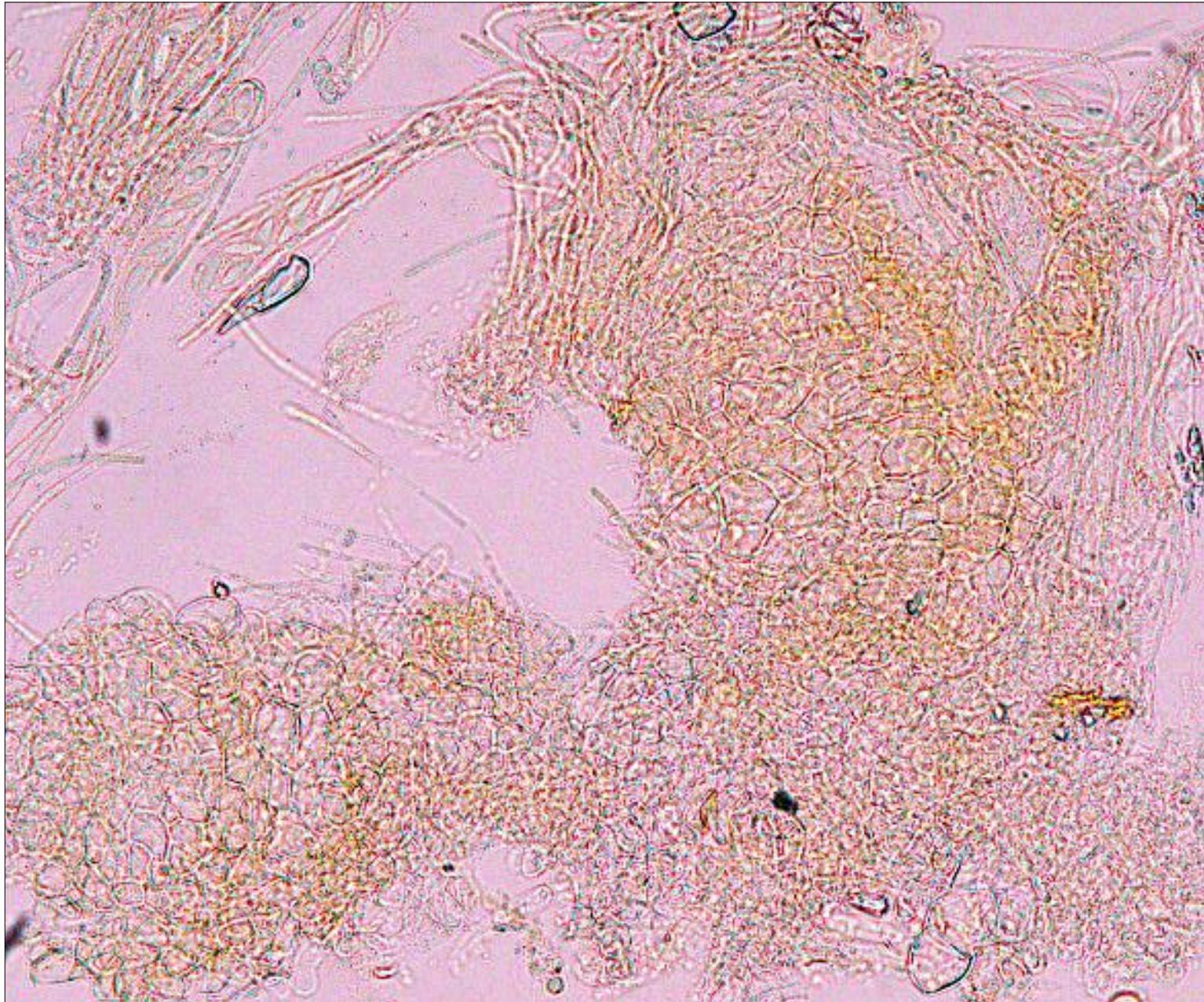
[PDD 73490 : *Ascobolus hawaiiensis* Brumm. 1967](#)

[PDD 73563 : *Ascobolus hawaiiensis* Brumm. 1967](#)

[PDD 73426 : *Ascobolus hawaiiensis* Brumm. 1967](#)

Photos of *Ascobolus hawaiiensis* Brumm. from the online website 'Fungi Outer Hebrides'
A rare fungus found on various types of herbivore dung. The white apothecia are just 0.3-0.4 mm across.





**AEB 1421. Apothecium textura angularis excipulum using a SMF herbarium voucher slide.
Taken with an Olympus BX51 compound scope, its X40 objective and a DP28 camera.**



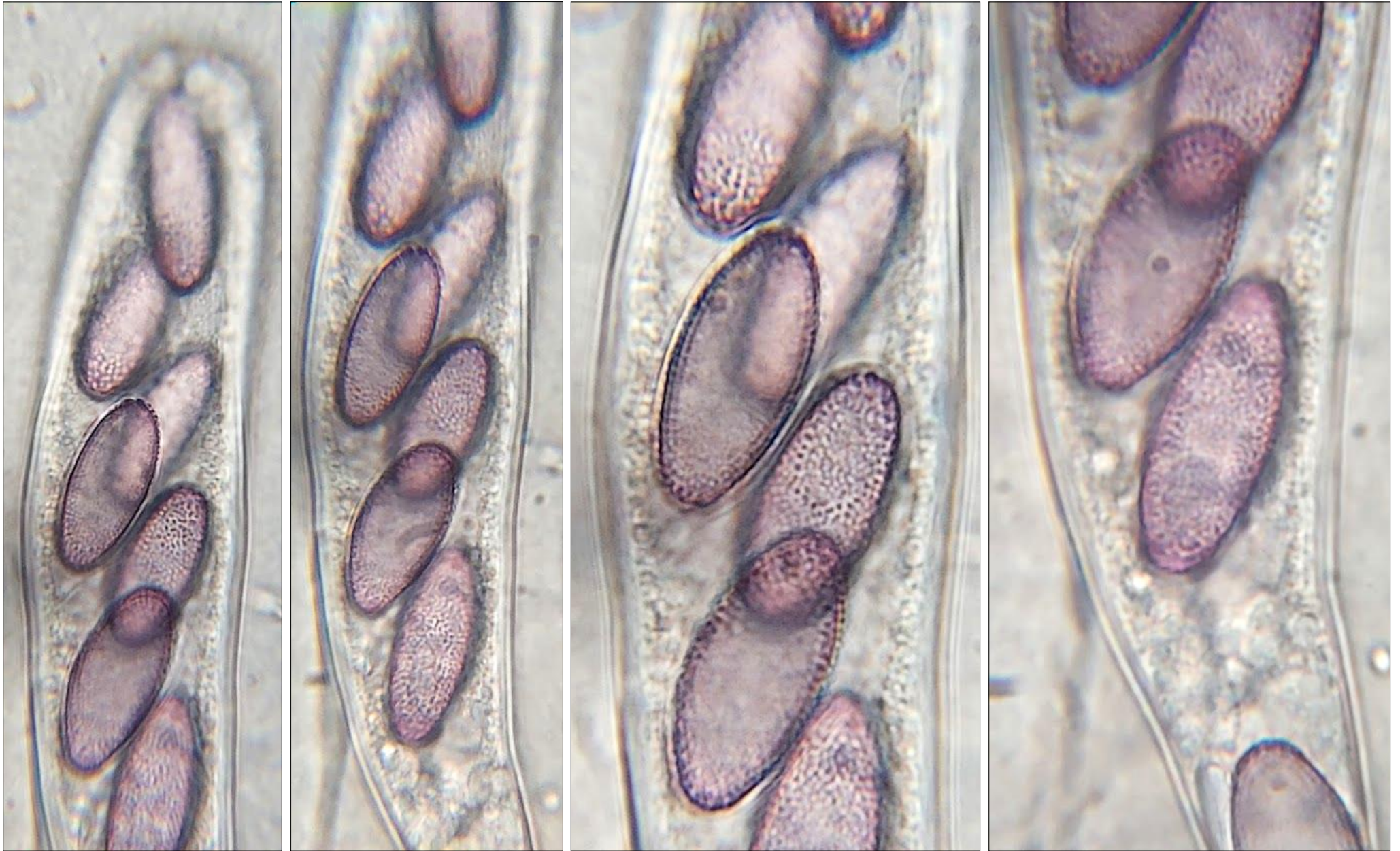
AEB 1421. Photos of mature asci & their apothecium excipulum taken from Ann's water mount on 26 Feb. 2024 using Dan's Samsung smartphone through the eyepiece of his Olympus scope (X100 objective, sl. enlarged).



AEB 1421.
Photos of ma-
ture and im-
mature asci
taken as de-
scribed on the
previous
page.



AEB 1421. Photos of mature and immature asci taken as described on the page before last.



AEB 1421. All photos same ascus: left to right (top to bottom focus with increasing magnification depending on depth of focus). Taken from Ann's water mount on 24 Feb. 2024 using Dan's Samsung smartphone through the eyepiece of his Olympus scope (X100 objective variously enlarged).