***Ascobolus crenulatus* P. Karst. – PDD 126767 (= AEB 1420) A good match**

Substrate: hare (*Lepus europaeus*) dung

Collected: 26 February 2025; **Incubated in a moist chamber:** 26 April 2025

Collection site: Tararua Ranges near Mt. Holdsworth E1804046 N5472545, alpine vegetation: tussock (*Chionochlhoa flavicans*), *Celmisia* & *Dracophyllum*

Collector: Ian Flux & Merryl Park; **Identifier:** Dan Mahoney

Voucher materials: No dried hare dung pellets but 1 Shear's mounting fluid (SMF) slide mount; in-situ fresh ascoma photo was taken using a Zeiss dissecting microscope; microscopic detail photos were taken from various water mounts using an Olympus BX51 compound scope with a DP28 camera; references consulted.

References consulted:

1. Brummelen J. (van). 1967. A World-monograph of the genera *Ascobolus* and *Saccobolus* (Ascomycetes, Pezizales). Persoonia, supplement, I: 1-260. Brummelen's description and illustrations of *Ascobolus crenulatus* 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 crenulatus* on p. 75, Fig. 21 are reproduced on the page after next.

Another collection of *A. crenulatus* (A329) from Ann's Australian Biological Resources Study (ABRS) work in 1999-2000 deserves recognition. No dried or slide vouchers exist but my fresh in-situ & water mount slide photos prepared in 2000 are presented following the coverage of AEB 1420.

A329: Area collected VIC, Little Desert Nat. Pk., ±2 km S of Mt. Moffat in recently burned vegetation, 36°32'30", 141° 01'00"
Date collected 30/8/1999 by A.C. Cochrane & T. Lebel (RBG. MEL)
Date incubated 30/3/2000 by Ann Bell
First observation by Ann 7 April 2000

Brummelen J. (van). 1967. A World-monograph of the genera *Ascobolus* and *Saccobolus* (Ascomycetes, Pezizales). Persoonia, supplement, I: 1-260. His description and illustrations of *Ascobolus crenulatus* from pp. 115 & 116 are reproduced below.

Apothecia gregarious, superficial, sessile or rarely substipitate, 0.3–1.8 mm diameter, 0.2–0.9 mm high. Receptacle at first subglobular and closed, then opening and expanding, becoming hemispherical, greenish-yellow or pale olive-green, coarsely or finely furfuraceous or granulated, especially near the margin, rarely almost smooth, with prominent crenulate margin. Disk concave, then flat, greenish-yellow, dotted with the dark purplish tips of ripe asci. Hymenium 115–140 µm thick, not always clearly differentiated, of closely compacted isodiametric cells 4.5–7(–15) µm. Flesh of varying thickness, of isodiametric or oblong cells 4.5–20 × 4.5–14 µm, hyaline. Excipulum 15–30(–65) µm, thick, of globular, subangular or oblong rather thick-walled cells 7–30(–40) × 7–20 µm (textura globulosa or angularis); the walls pale yellowish; margin consisting of fragments of excipular layer covered with groups of subglobular cells 20–37 µm diameter. Asci cylindric-clavate, tapering downwards into a rather long stalk, rounded above, 125–150 × 13–15 µm, 8-spored; only when young is the wall pale blue in Melzer's reagent. Ascospores uniseriate, at maturity biseriate; ellipsoid or shortly ellipsoid with rather blunt ends, sometimes swollen, at first hyaline, then pale violet, finally brownish-violet, (8–)9.5–15(–16) × (5–)6–8 µm, ornamented with a rather regular pattern of longitudinal, rarely anastomosing striae, sometimes with unilateral mucilaginous substance. Paraphyses simple or branched, septate, cylindrical, sometimes swollen just under the septum, 2–3.5 µm thick, hyaline; enlarged, narrowed, forked, regular or irregular above, 2.0–10.5 µm thick at the tip; embedded in abundant yellowish-green mucus.

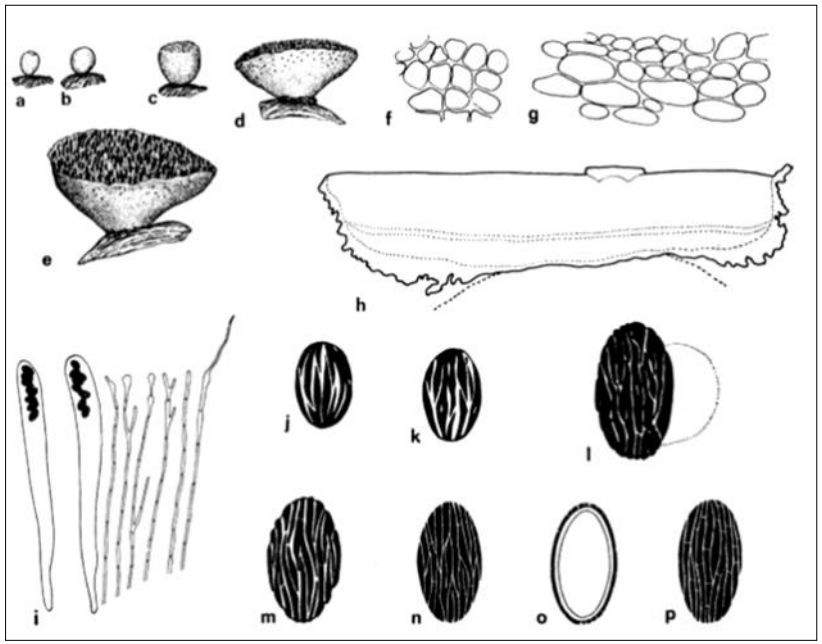


Fig. 27. — *Ascobolus crenulatus:* a–e, habit of fruit-bodies X 12; f, g, texture of excipulum seen from outside, near base (f) and margin (g) of receptacle X 275; h, diagrammatic section of fruit-body X 140; i, asci and paraphyses X 275; j–n, p, ascospores X 1600; o, ascospore in optical section X 1600. (a–l, from *van Brummelen 684;* m–p, from type of *A. crenulatus,* H-A2752.)

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 crenulatus* on p. 75, Fig. 21 are reproduced below.

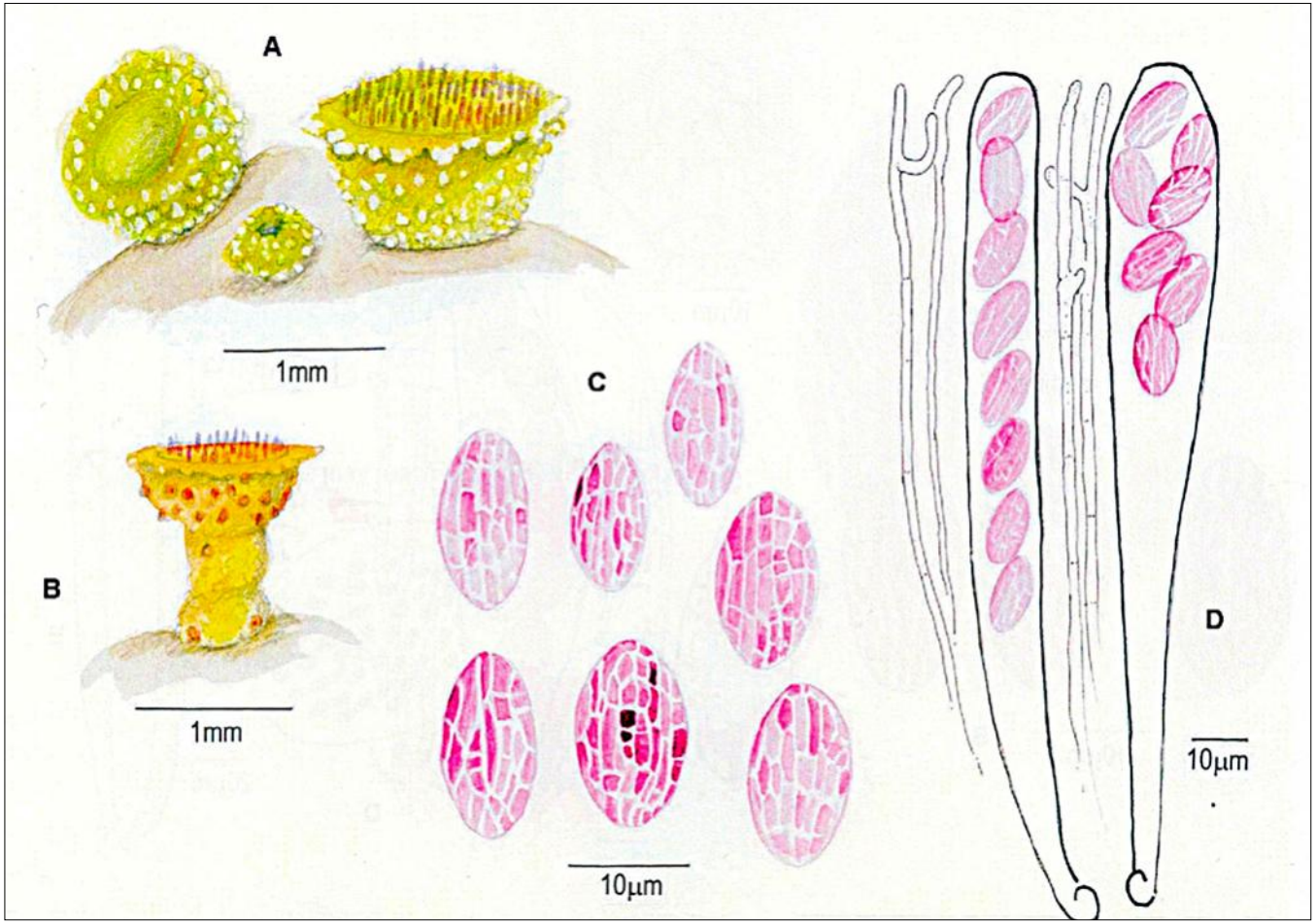


Fig. 21. *Ascobolus crenulatus*. A–D. A. Immature & mature apothecia. B. Stipitate apothecium which is sometimes seen. C. Mature ascospores showing a range of sizes and epispore patterns. D. Mature asci showing uniseriate & biseriate arrangement of ascospores & branched paraphyses.

There are 14 records of *Ascobolus crenulatus* on PDD (as of 24 March 2026)

The 8 reproduced below were identified by Ann

PDD 74148 : Ascobolus crenulatus P. Karst. 1870

PDD 73471 : Ascobolus crenulatus P. Karst. 1870

PDD 73545 : Ascobolus crenulatus P. Karst. 1870

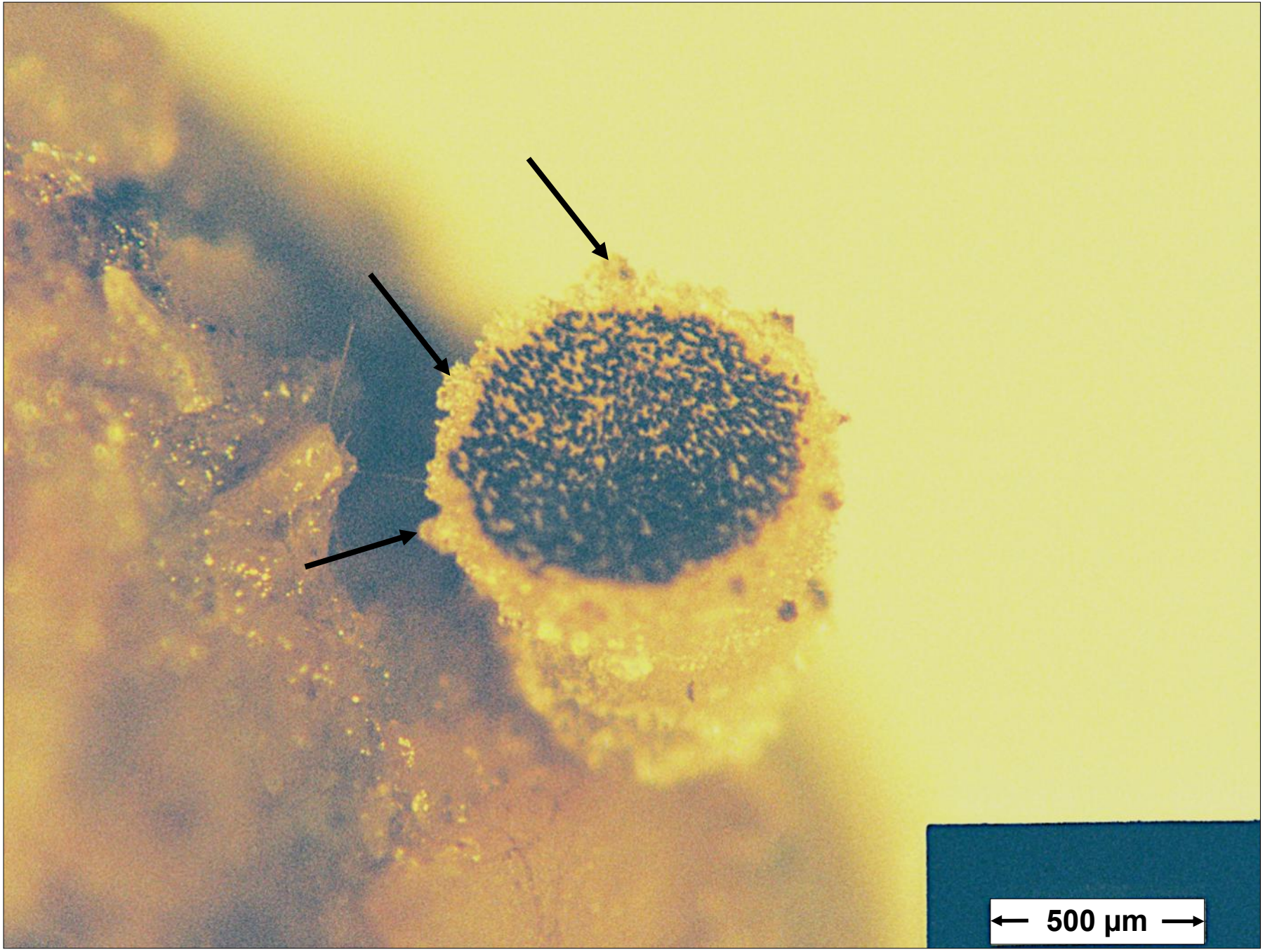
PDD 73512 : Ascobolus crenulatus P. Karst. 1870

PDD 73502 : Ascobolus crenulatus P. Karst. 1870

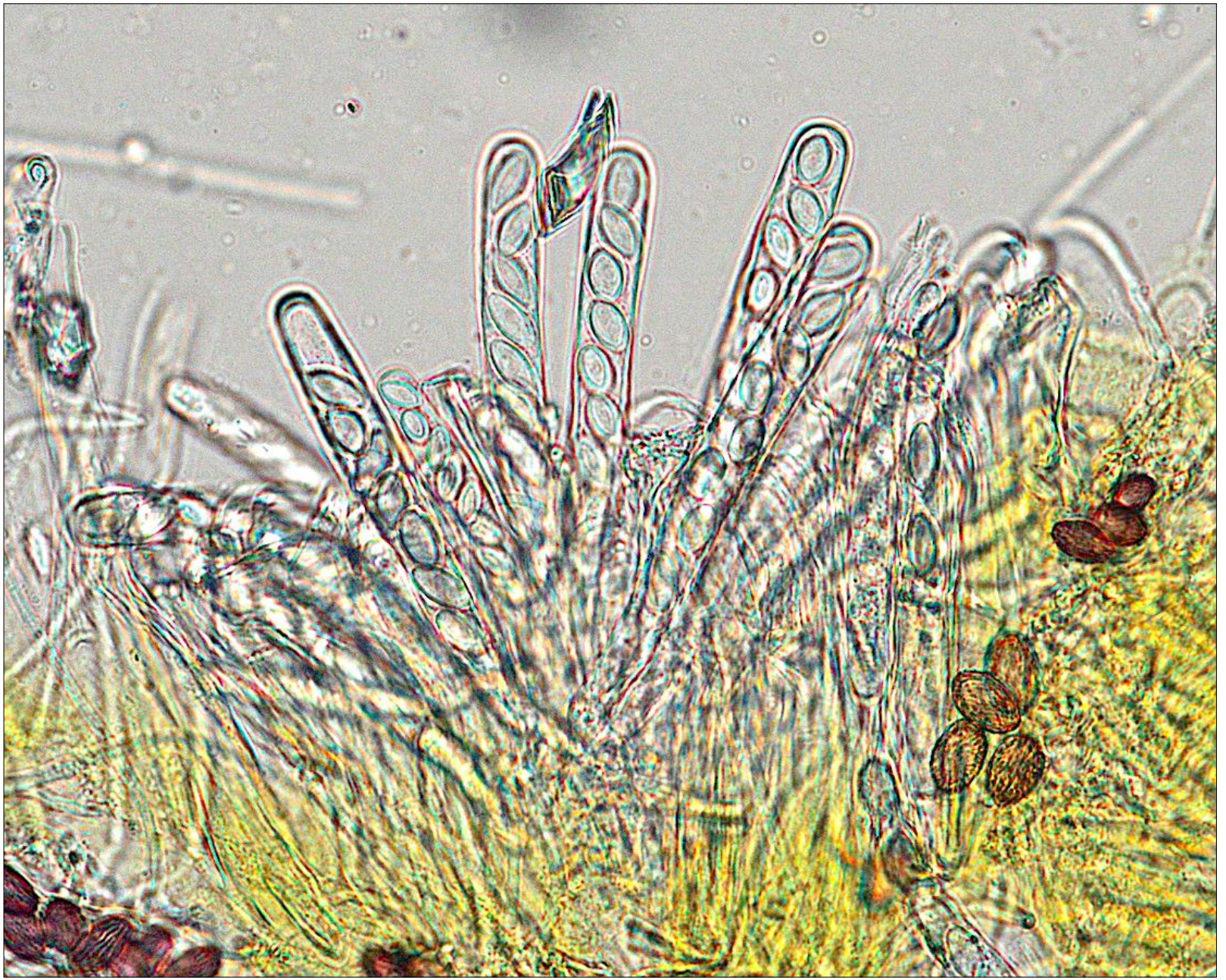
PDD 73509 : Ascobolus crenulatus P. Karst. 1870

PDD 73511 : Ascobolus crenulatus P. Karst. 1870

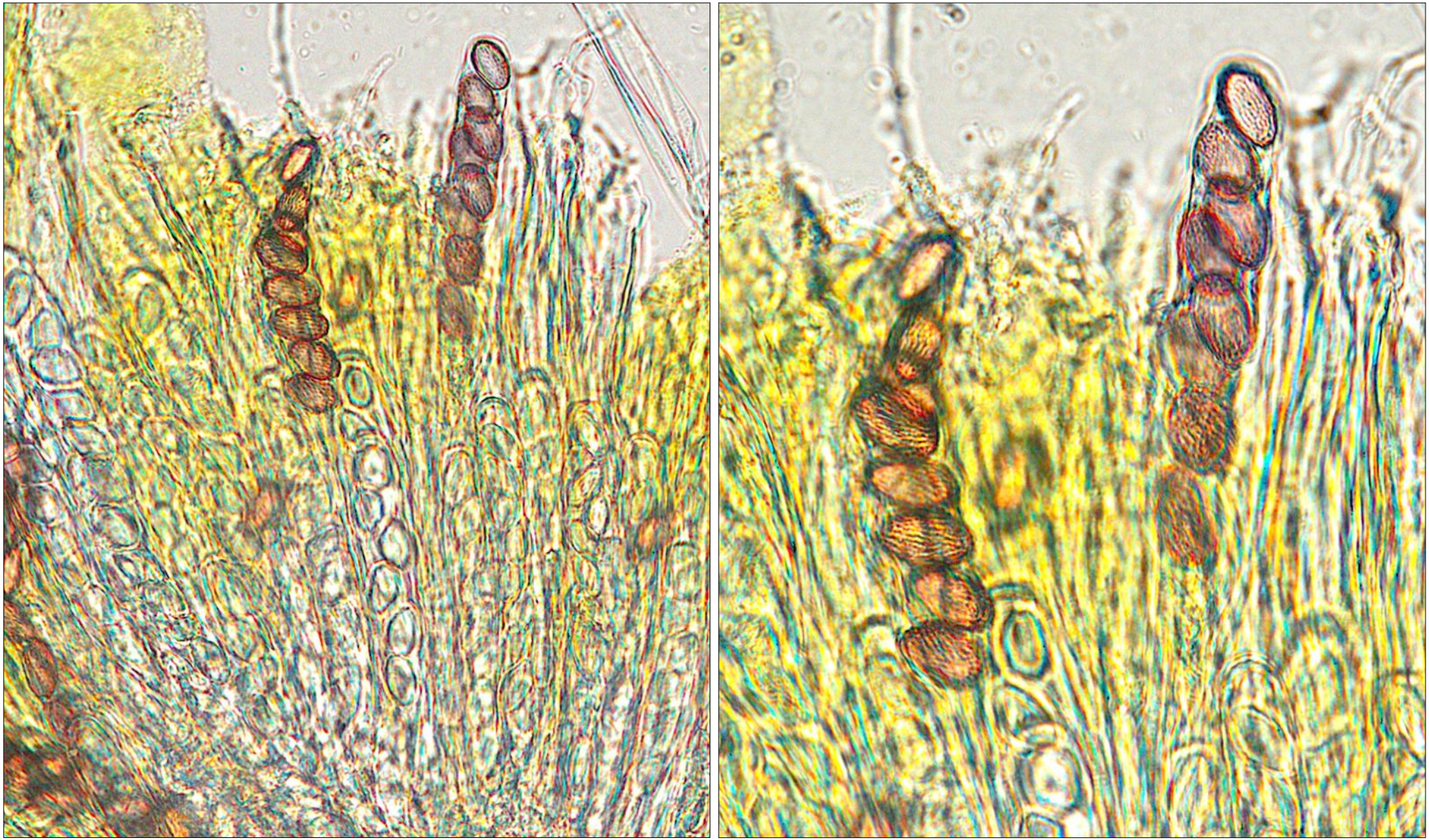
PDD 73870 : Ascobolus crenulatus P. Karst. 1870



AEB 1420. In-situ apothecium on hare dung in a moisture chamber. Photo taken 15 May 2025 – 19 days after incubation began. Note the arrowed crenulations on the apothecium margin.



AEB 1420. Young asci & free mature ascospores. Photo taken 15 May in a water mount using a X40 objective.

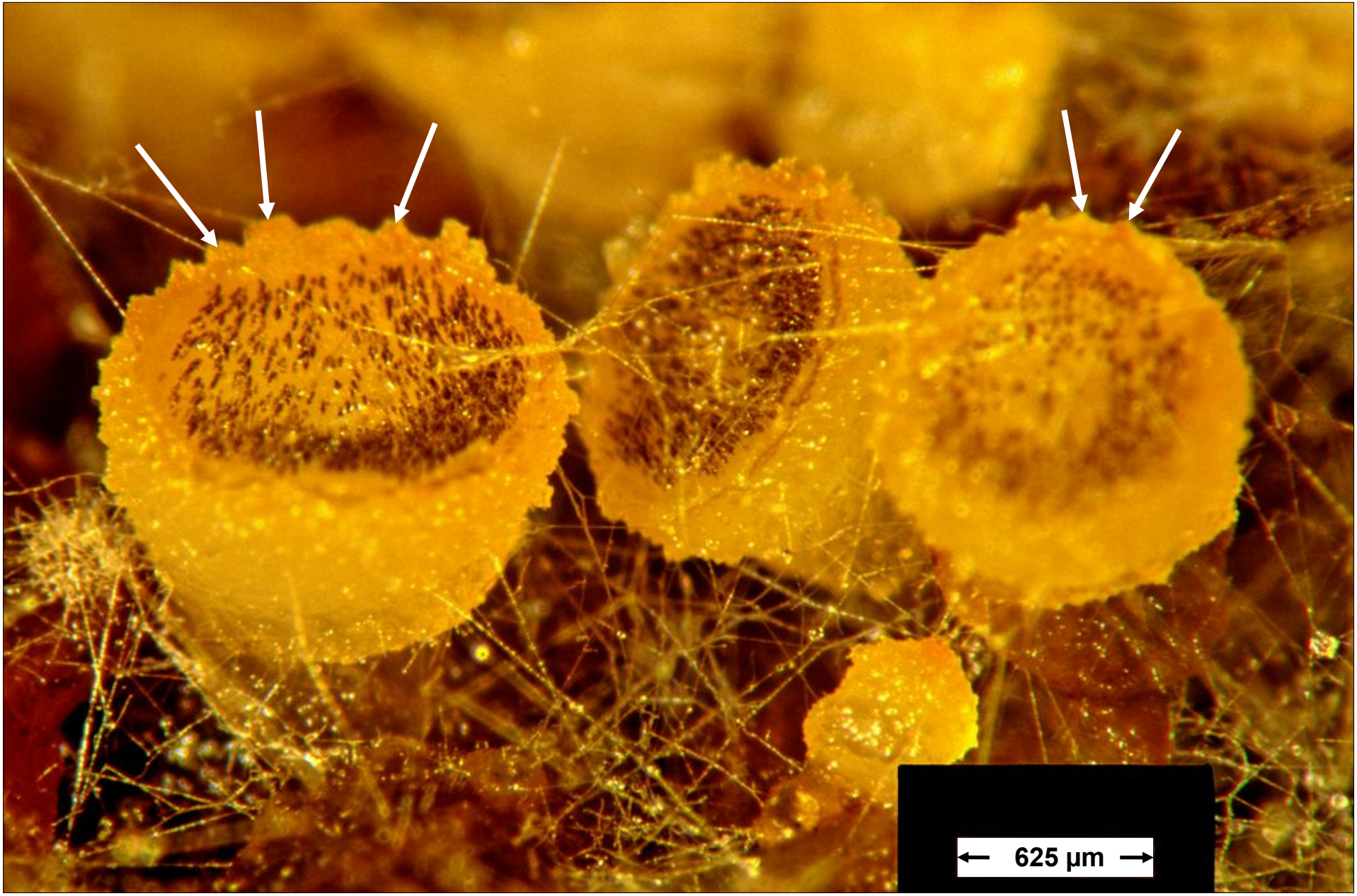


AEB 1420. Young and mature asci. Both photos taken 15 May 2025 showing the same field of view in a water mount. Left photo, using the X40 objective enlarged. Right photo, using the X100 objective enlarged. Emphasis the mature ascospore color, shape and longitudinal striations. Ascospore measurements in the AEB 1420 herbarium SMF voucher slide were 11–15 × 7.5 µm – favorably agreeing with Brummelen's monograph description [(8-)9.5-15(-16) X (5-)6-8 µm].

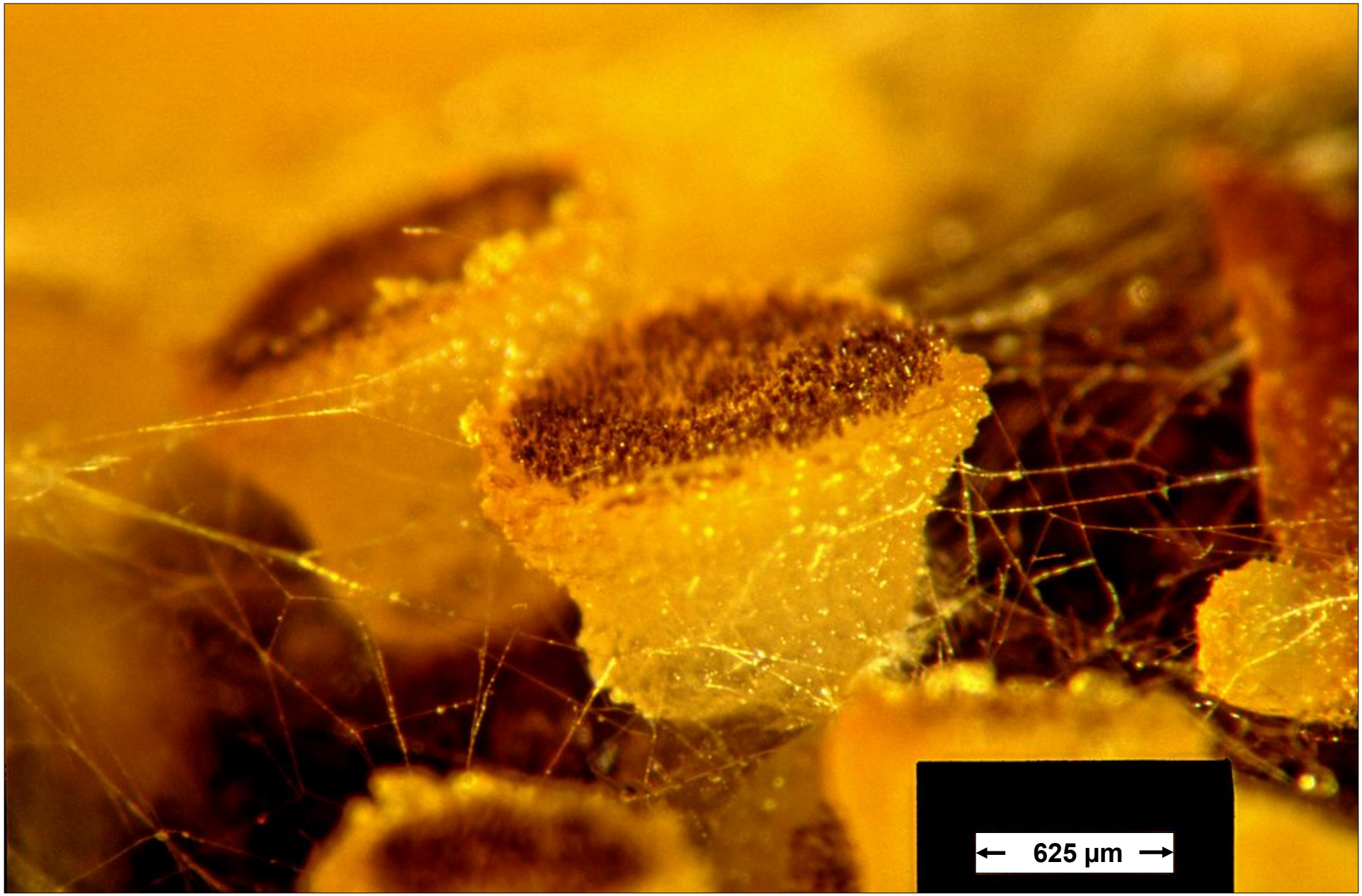
A329. Young apothecia shown in-situ on Emu dung incubated for 11 days in a moisture chamber.

A329. A closeup from the previous page.

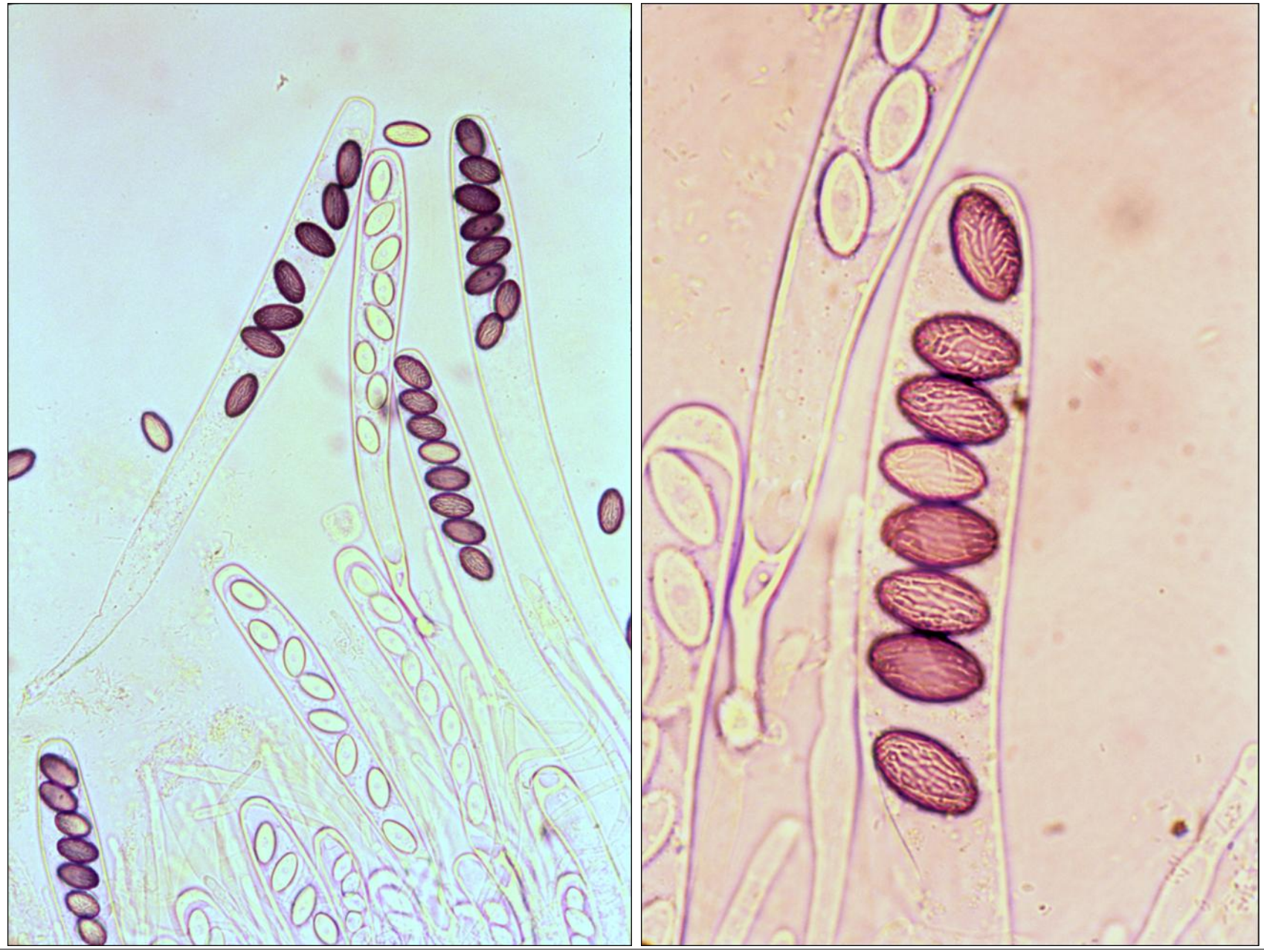
A329. Older mature apothecia (appearing dirty ochraceus, yellow or golden) shown in-situ on Emu dung incubated for 10 days in a moisture chamber.



A329. In-situ mature apothecia formed anew since the 10 April photos on Emu dung seen on the previous page. Note the arrowed crenulations.



A329. Another photo of in-situ mature apothecia formed anew since the 10 April photos on Emu dung.



A329. Asci with mature & immature ascospores from an apothecium on dung incubated 18 days. Photos taken from a water mount using the X40 objective (left photo) and X100 obj. (right photo).