***Ascobolus immersus* Pers. – PDD 126761 (= AEB 1414)**

<u>Collection site:</u> a flat grass paddock recently grazed (2-3 weeks earlier) by young female cattle (all about to calve for the first time). During the previous month they had been fed pasture with a daily ration of grass-based silage. (39° 52' 26.96" S, 175° 40' 11.21" E – elevation of ~278m), Mangaonoho (10 km N of Hunterville)

<u>Collection date:</u> 12 August 2025; **<u>first observations in the collection container moist chamber:</u>** 13 August

<u>Substrate:</u> cow (*Bos taurus*) dung

<u>Collector:</u> Stewart Bisset; **<u>Identifier:</u>** Dan Mahoney

<u>Voucher materials:</u> no dried cow dung specimen but 3 Shear's mounting fluid (SMF) glass slides; Olympus BX51 microscopic slide photos of morphological detail using a DP28 camera.

<u>Other fungi accompanying *Ascobolus immersus* on the cow dung:</u> *Pilobolus* sp. and *Cheilymenia raripila* PDD 126760 (= AEB 1415). These fungi appear on the last 2 pages of this pdf. They were photographed in-situ on the cow dung with a Zeiss SV 11 Stereo-zoom dissecting microscope using a MC80 camera.

<u>References examined:</u>

1. Brummelen J. (van). 1967. A World-monograph of the genera *Ascobolus* and *Saccobolus* (Ascomycetes, Pezizales). Persoonia, supplement, I: 1-260. See portions of his *Ascobolus immersus* coverage on the next page.

2. Bell A. 1983. Dung Fungi an illustrated guide to coprophilous fungi in New Zealand. Victoria University Press, New Zealand. 88 pp. Illustrations of *Ascobolus immersus* on p. 65, Fig. 30 are reproduced on the page after next.

3. 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 immersus* on p. 71, Fig. 17 are reproduced on the page after next.

4. Photos and comments from online references: Fungal Forum (UK Fungi), iNaturalist & PDD (Jerry Cooper), Enrique Rubio Domínguez *Ascobolus immersus*. See these after the Bell 1983 & 2005 publication illustrations.

Brummelen J. (van). 1967. A World-monograph of the genera *Ascobolus* and *Saccobolus* (Ascomycetes, Pezizales). Persoonia, supplement, I: 1-260. See portions of the *Ascobolus immersus* coverage reproduced below from pp. 69, 70 & 73.

Apothecia scattered or gregarious, at first often immersed or partly immersed, then erumpent or superficial, sessile, 0.5–1.0(–1.5) mm diameter, 0.5–0.7 mm high. Receptacle globular or pear-shaped, at first closed, then irregularly opening near the top, yellowish- or greenish-brown or yellowish, rarely with a reddish or purplish hue; smooth or covered with a thin layer of downy colourless hyphae, more rarely subfurfuraceous; without margin. Disk flat or convex, yellow or greenish-yellow, with only a few ripe asci protruding far above the surface. Hymenium usually with only a few asci. Hypothecium very thin, of isodiametric cells 3–10 μ diameter. Flesh rather thin; of subglobular or slightly oblong cells 7–19 μ diameter, accompanied by hyphae which are about 3 μ wide; hyaline. Excipulum about 25 μ thick; of only two or three layers of subglobular or somewhat angular, thick-walled cells 6–20 μ diameter (textura angularis or globulosa), pale brownish, covered with colourless hyphae about 5 μ wide, very rarely with hairs (fide Boudier 1869: 227 and Le Gal 1961: 455). Asci 1–40 per fruit-body, broadly clavate, 490–720 × 100–130 μ, with a short stalk, rounded above, 8-spored, but very often with only a part of the spores developed; the wall stains deep blue in Melzer's reagent. Ascospores biseriate or irregularly disposed; oblong-ellipsoid, more rarely cylindrical or subglobular, rounded at the ends; at first hyaline, then purple or violet, finally sometimes purplish-brown; (35–)58–71(–81) × (24–)28–36(–40) μ; smooth or with one or a few lines which occasionally anastomose, sometimes with a coarse or fine net-work of narrow lines; a thick gelatinous envelope surrounding each spore. Paraphyses simple or branched, septate, filiform, 2–3 μ thick, not enlarged at the tip, hyaline, embedded in abundant greenish-yellow mucus.

On dung of cow, horse, sheep, goat, nilgai, antelope, elephant, dog, hare, and rabbit.

ETYMOLOGY.—From Latin, immersus, plunged, below the surface.

This species is probably one of the commonest members of the genus and its distribution seems to be limited only by the occurrence of herbivorous mammals. It can be easily recognized by the very large ascospores with a thick gelatinous envelope surrounding each spore. The fruit-bodies grow more or less immersed, the depth depending on the structure of the substratum. On semi-solid or soft surfaces and on substrata with superficial, small cavities they will grow fully immersed with only the ripe asci protruding. On very dense, solid surfaces they may develop also superficially.

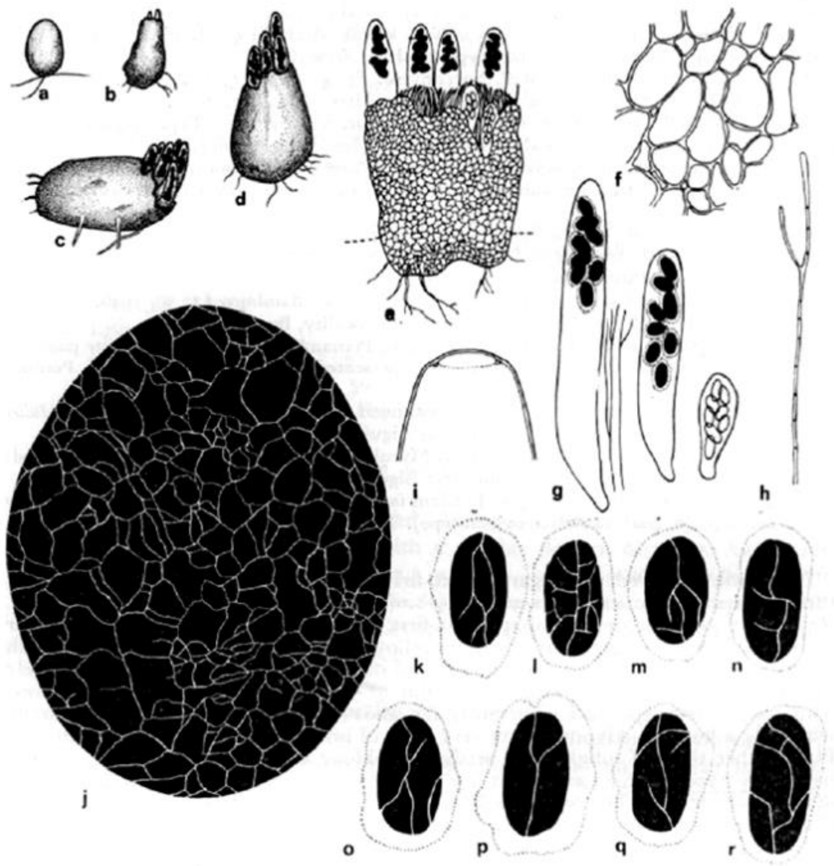
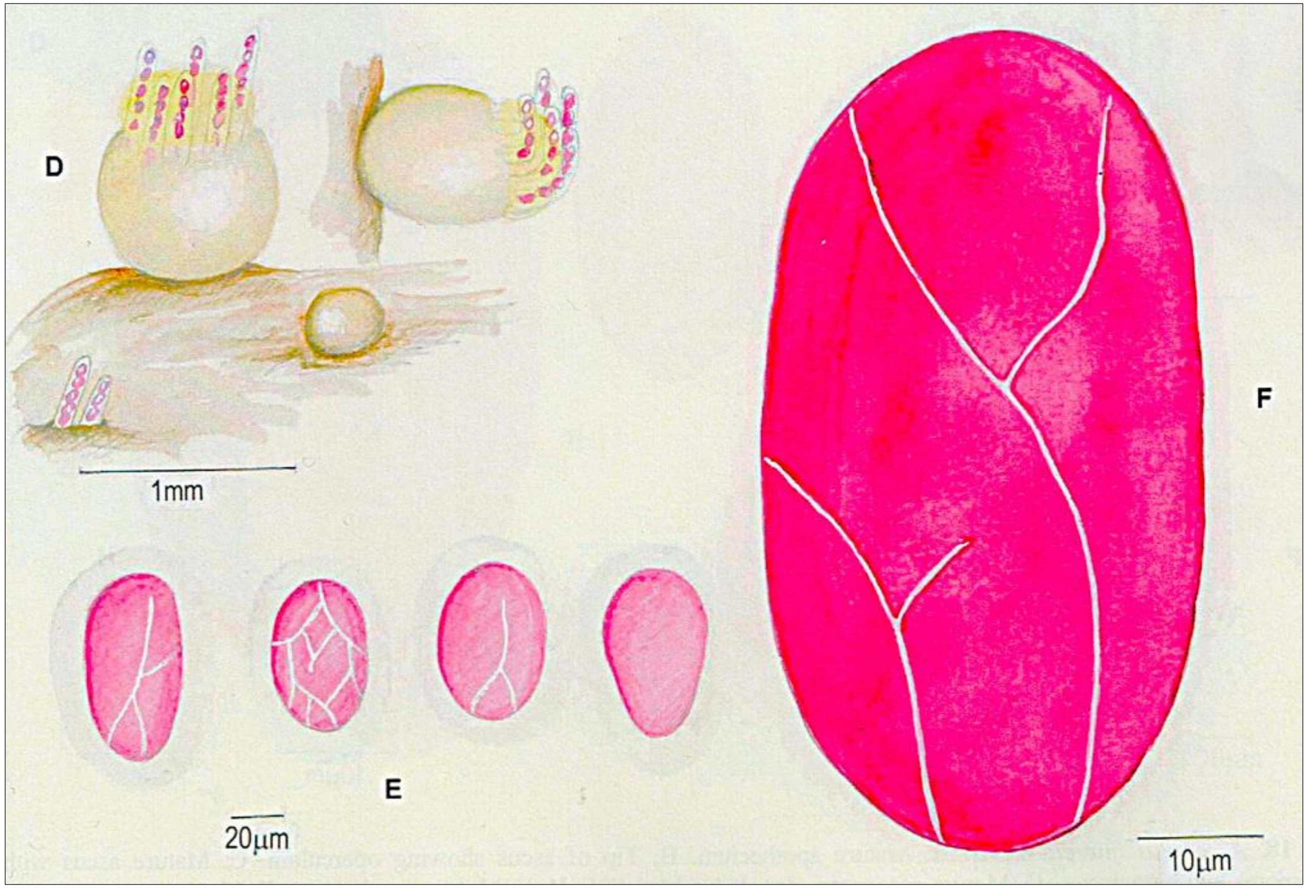
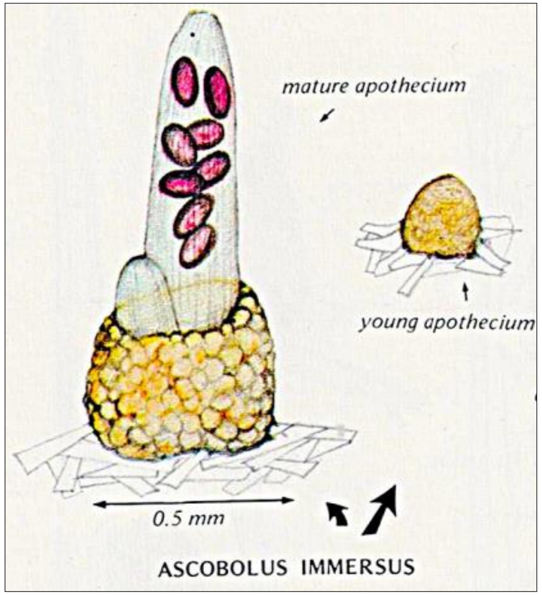


Fig. 8. — *Ascobolus immersus:* a–d, habit of fruit-bodies × 25; e, fruit-body seen in transmitted light × 40; f, texture of excipulum seen from outside × 275; g, asci × 65; h, branched paraphysis × 275; i, top of ascus × 275; j, shortly ellipsoid ascospore with reticulated episporium × 1600 (from TRTC 32060); k–r, ascospores × 275. (a–i, k–r, from *van Brummelen 641*.)



Ann Bell's 2005 publication: Page 71, Fig. 17. *Ascobolus immersus*. D–F. D. Immature & mature apothecia (one submerged). E. Mature ascospores showing variations in shape. F. Mature ascospore.

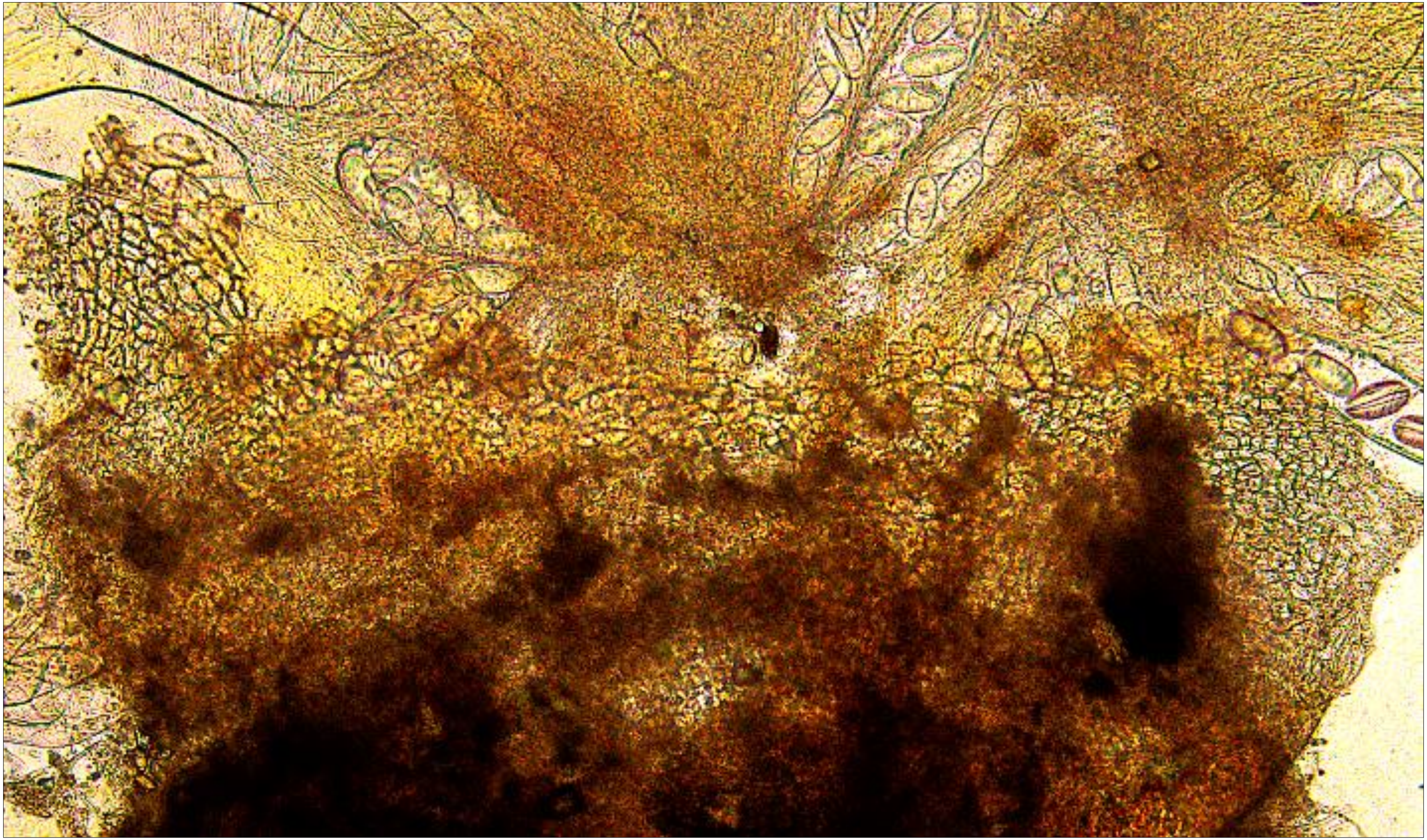


Ann Bell's 1983 publication: *Ascobolus immersus* p. 65 Fig.30

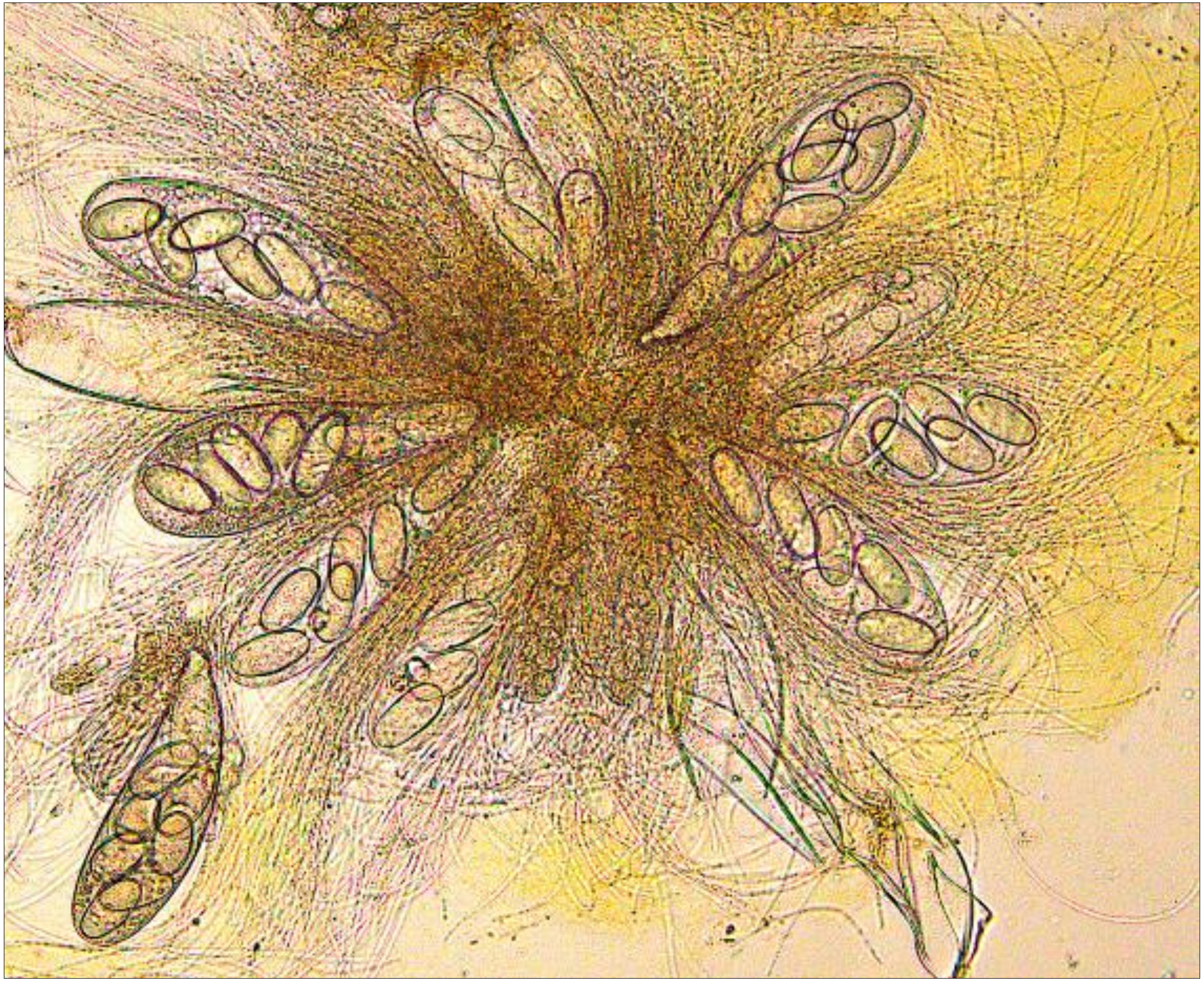
***Ascobolus immersus* online: This largest-spored *Ascobolus* species has attracted much photographic attention. My experience is the same as John's in Fungal Forum (UK Fungi) – "I found lots of *Ascobolus immersus* with the usual *Pilobolus* and *Cheilymenia* species on cow dung." Below are photos online by Jerry Cooper (from iNaturalist and Landcare Research PDD) and Enrique Rubio Domínguez at asturnatura.com**

[Ascobolus immersus Pers. - CEMAS](https://www.centrodeestudiosmicologicosasturianos.org)
centrodeestudiosmicologicosasturianos.org
https://www.centrodeestudiosmicologicosasturianos.org › ...Translate this page
10 Oct 2018 — **Ascobolus immersus** ... Galería de publicaciones de Pedro Zapico en asturnatura.com · Galeria de publicaciones de Marta González en asturnatura.com ...

Title *Ascobolus immersus*
Date created 2008-06-08
Creator Jerry Cooper
URL https://www.inaturalist.org/observations/1076605
Photo also provided by Jerry on PDD 105819



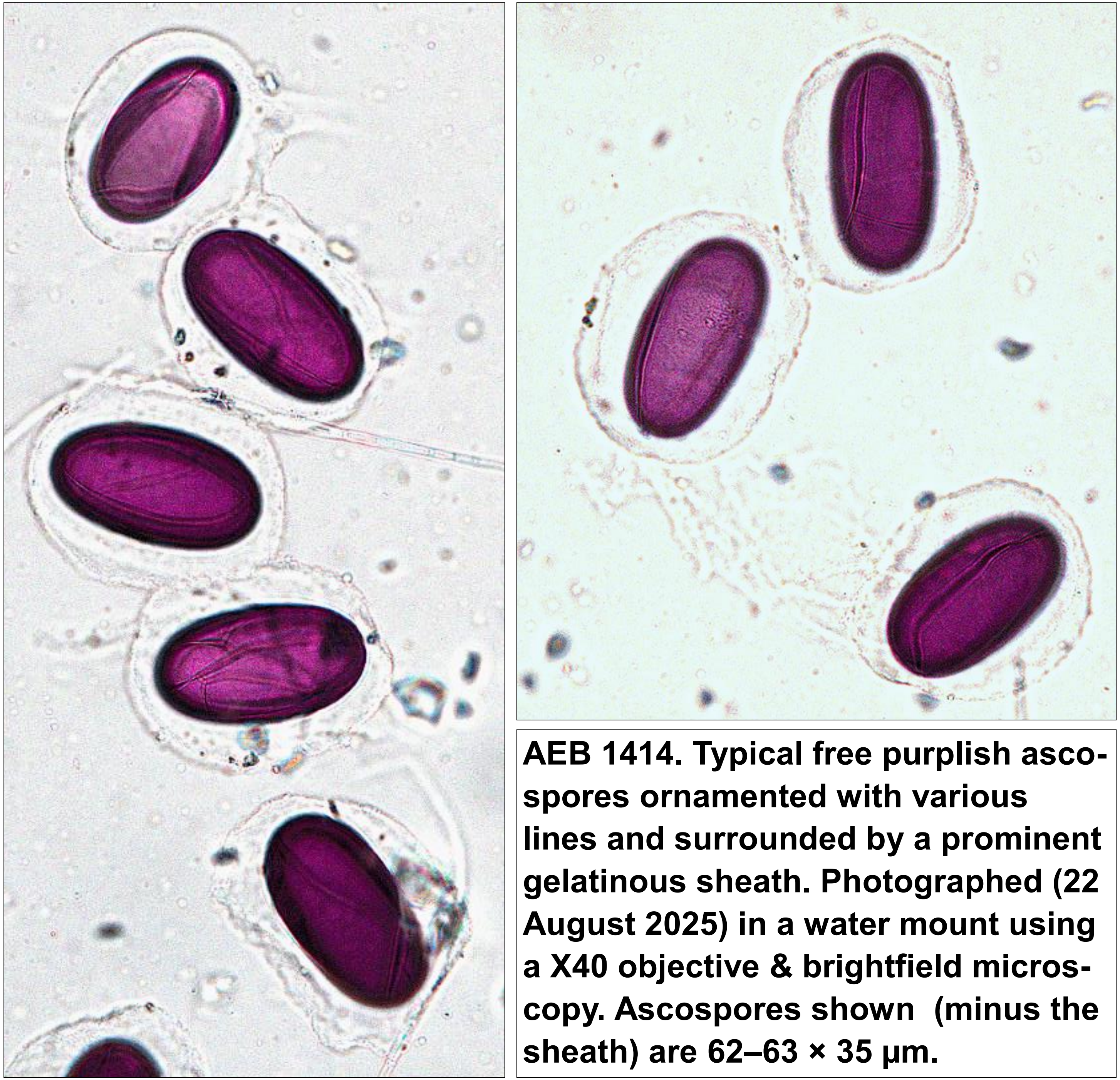
AEB 1414. Ectal excipulum shown at the receptacle rim with hymenial contents extruded above. Photographed (22 August 2025) in a water mount using the X10 objective (image enlarged) and brightfield microscopy.



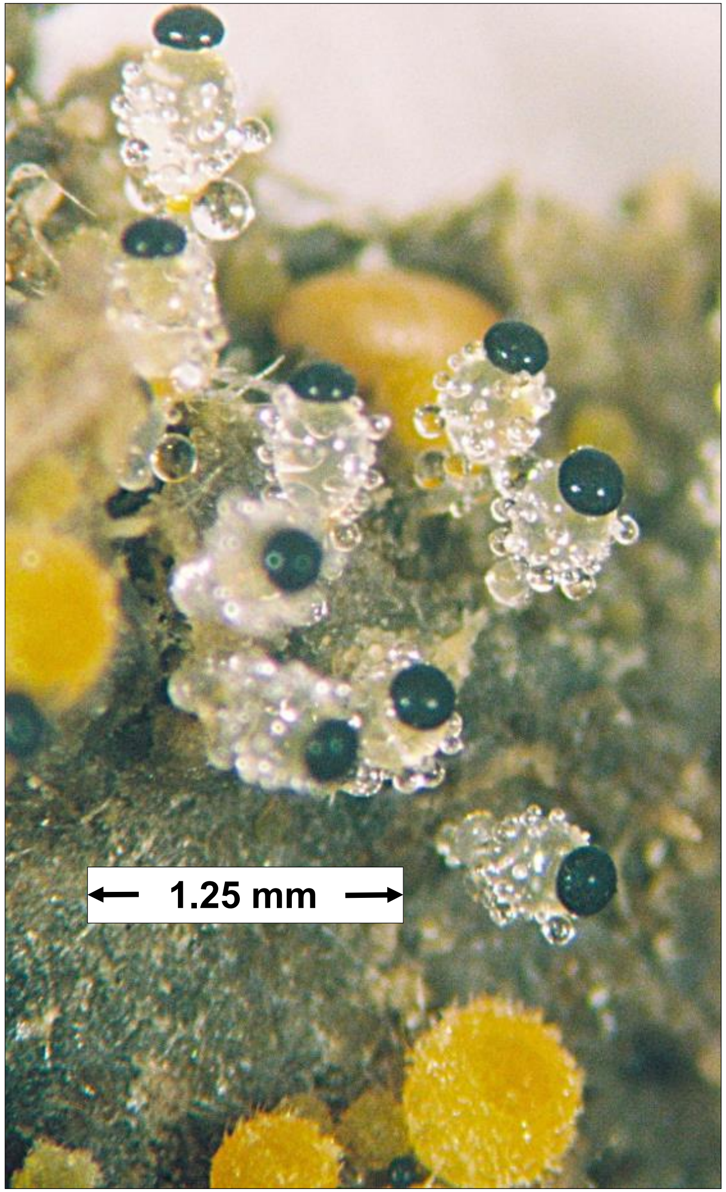
AEB 1414. Hymenium squash showing asci with, as yet unpigmented though slightly yellowish, ascospores and numerous thread-like paraphyses surrounded by a yellowish ‘gel’. Photographed (22 August 2025) in a water mount using the X10 objective (image much enlarged) and brightfield microscopy.

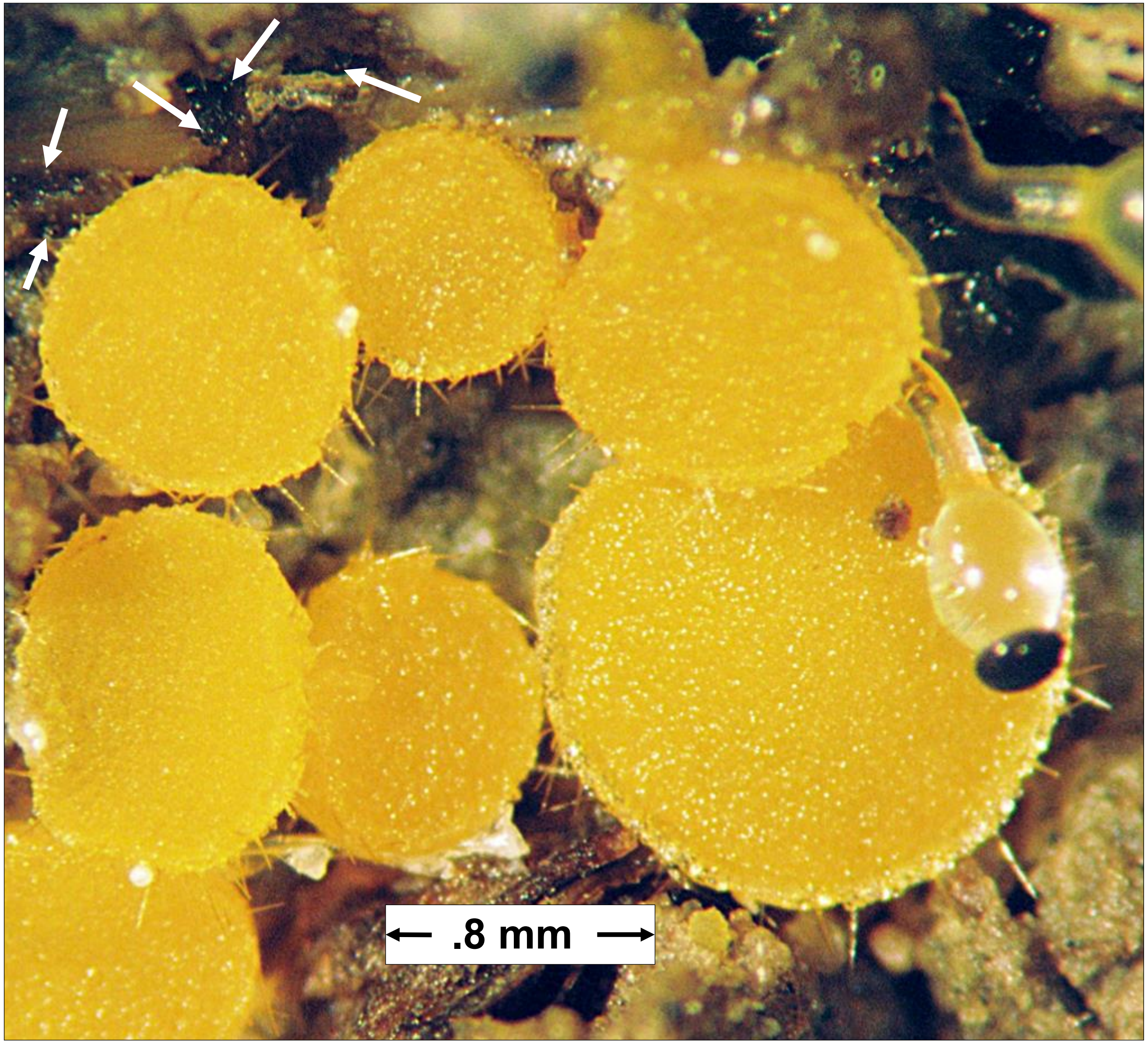
AEB 1414. Hymenium squash similar to that seen on the previous page but showing 3 asci with mature purplish ascospores. Note that the number of ascospores per ascus varies (4–8, frequently 4 & often less than 8). Photographed (22 August 2025) in a water mount using a X10 objective (image much enlarged) & brightfield microscopy.

AEB 1414. Hymenium squash similar to that seen on the previous page but showing 2 4-spored asci with truer-colored mature purplish ascospores with surface lines (see the next page). Note that the number of ascospores per ascus varies (4–8, frequently 4 & often less than 8). Photographed (22 August 2025) in a water mount using a X10 objective (image much enlarged) & brightfield microscopy. Arrowed spores are those of *Cheilymenia raripila*.

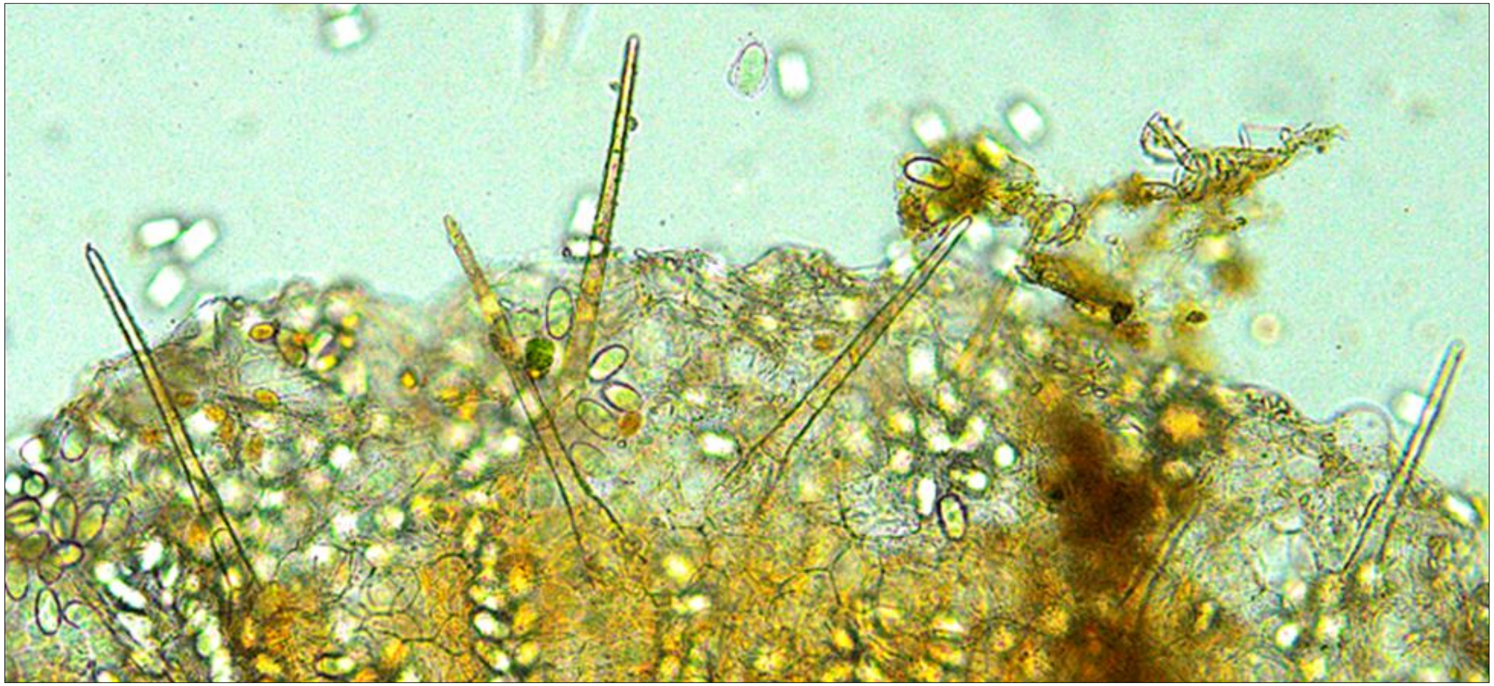


AEB 1414. Typical free purplish ascospores ornamented with various lines and surrounded by a prominent gelatinous sheath. Photographed (22 August 2025) in a water mount using a X40 objective & brightfield microscopy. Ascospores shown (minus the sheath) are 62–63 × 35 µm.





In-situ view of fungi accompanying *Ascobolus immersus* on the cow dung: left photo – *Pilobolus* sp. & *Cheilymenia raripila*; right photo – *C. raripila* & bits of *Pilobolus* but note the asci/ascospores of *A. immersus* (upper left, arrowed) whose apothecia were immersed in cracks of the dung among the *Pilobolus* & *Cheilymenia*.



Closeup water mount views of *Cheilymenia raripila* showing a hymenium section below the spinose receptacle rim. Top photo X10 objective. Note the 4 *Ascobolus immersus* spores at the upper left. Bottom photo a X20 obj. view of the mid-right reoriented top photo.