***Cheilymenia raripila* (W. Phillips) Dennis – PDD 126760 (= AEB 1415)** See also an earlier PDD & datastore record by Ann Bell and Dan Mahoney: PDD 124541 (= AEB 1386)

Collection site: 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)

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

Substrate: cow (*Bos taurus*) dung

Collector: Stewart Bisset; **Identifiers:** Ann Bell and Dan Mahoney

Voucher materials: dried cow dung specimen accompanied by 3 Shear's mounting fluid (SMF) and 1 lacto-fuchsin glass slides; Zeiss SV 11 Stereo-zoom dissecting microscope in-situ photos of the fruiting bodies using a MC80 camera and Olympus BX51 microscopic slide photos of morphological detail using a DP28 camera.

References consulted:

1. Moravec J. 2003. Taxonomic revision of the genus *Cheilymenia* - 7. A reassessment of the sections Paracheilymeniae and Raripilosae. Czech Mycol. 54: 113-133. Pages 118–121 with description & illustrations of *C. raripila* are reproduced on the next 2 pages.

2. Moravec J. 2005. A World Monograph of the genus *Cheilymenia*. Libri Botanici. 21:1-256.

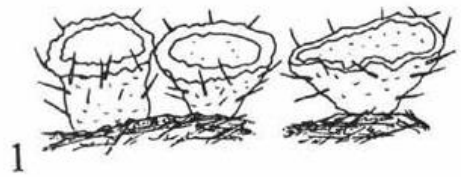
3. Bell A. 2005. An Illustrated Guide to the Coprophilous Ascomycetes of Australia. CBS Biodiversity Series No. 3, Centraal-bureau voor Schimmelcultures, Utrecht, the Netherlands, 172 pages. Illustrations of *Cheilymenia raripila* on page 89 are re-produced after those from Moravec 2003.

4. Dougoud's online illustrations of *Cheilymenia raripila* in '2000 Pezizales Repository on the Ascomycetes.org website'. These are reproduced after those of Ann Bell 2005.

Brief comments on the *Cheilymenia raripila* (AEB 1415) morphology: All morphological features fall within Moravec's description of morphological variability in this species. Comments accompany the photos of AEB 1415 on the following pag-es.

Moravec J. 2003. Taxonomic revision of the genus *Cheilymenia* - 7. A reassessment of the sections Paracheilymeniae and Raripilosae. Czech Mycol. 54: 113-133. Pages 118–121 with description & illustrations of *C. raripila* are reproduced below and on the next page.

Apothecia small, 0.3–1.5(–2.0) mm diam., scattered to densely gregarious, first obconical with a flat hymenium, then saucer shaped with a more or less distinct, slightly fissured membranaceous marginal collar but usually flat hymenium, old apothecia rarely more expanded with elevated margin; hymenium ochre-yellowish to orange-yellow, outer surface paler, sparsely covered with inconspicuous but comparatively long pale hairs. Hairs 90–280(–350) × 10–22(–25) μm (width measured at the base), superficial; marginal hairs of the same shape as the receptacular ones but more rigid and thick-walled (walls 0.7–3.0 μm thick), straight, sometimes with moderately wavy walls, with enlarged to bulbous base which originates from excipular cells; the base simple, rarely with indistinct cell-like appendages; apex blunt, subacute or rarely acute, hyaline to pale brown; towards the base of the apothecia the hairs are shorter and with thinner walls, occasionally feeble, with the apical portion folded downwards. Ectal excipulum not clearly delimited from the medullary layer, composed of a textura globulosa-angularis throughout; ectal layer 40–80 μm thick, narrower at the margin, composed of strongly cyanophilic, polygonal, mostly angular to subglobose cells 8–50(–65) μm diam., which are smaller and more isodiametric at the marginal zone and larger at the apothecial base, fluently passing into the medullary layer. Medulla 50–70 μm thick, consisting of more elongated and irregularly horizontally to mostly vertically oriented polygonal cells 10–25 μm diam., rarely some of them more elongated (up to 35 μm) thus resembling hyphal elements. Hypothecium sharply differentiated, 20–40 μm thick, composed of much smaller, irregular, angular to elongated cells 2–9 μm diam., passing into hyphae towards the lateral margins of the hymenium. Hymenium 200–250(–260) μm thick. Asci 180–230(–260) × 23–30 μm, operculate, broadly cylindrical with rounded to blunt apex, abruptly constricted at base, eight-spored (occasionally some of the ascospores aborted and then the ascus contains only six or four mature ascospores). Ascospores ellipsoid, (21.5–)24.0–29.0(–31.5) × 12.0–16.5(–18.5) μm, mostly 27 × 15 μm, uniseriate to occasionally biseriate, hyaline, eguttulate (with small drops observed in vivo), mature ascospores with yellow refractive colour when stained with C^4B in lactic acid, bearing a loosening perisporium which is ornamented with cyanophilic, irregular fine crests forming a dense irregular and mostly incomplete reticulum. Paraphyses filiform, 3–4 μm thick, unbranched, straight to moderately flexuous, septate, apices moderately to distinctly clavate-dilated, 6–12(–15) μm, occasionally obtusely lanceolate, with yellow to pale orange granular pigment.



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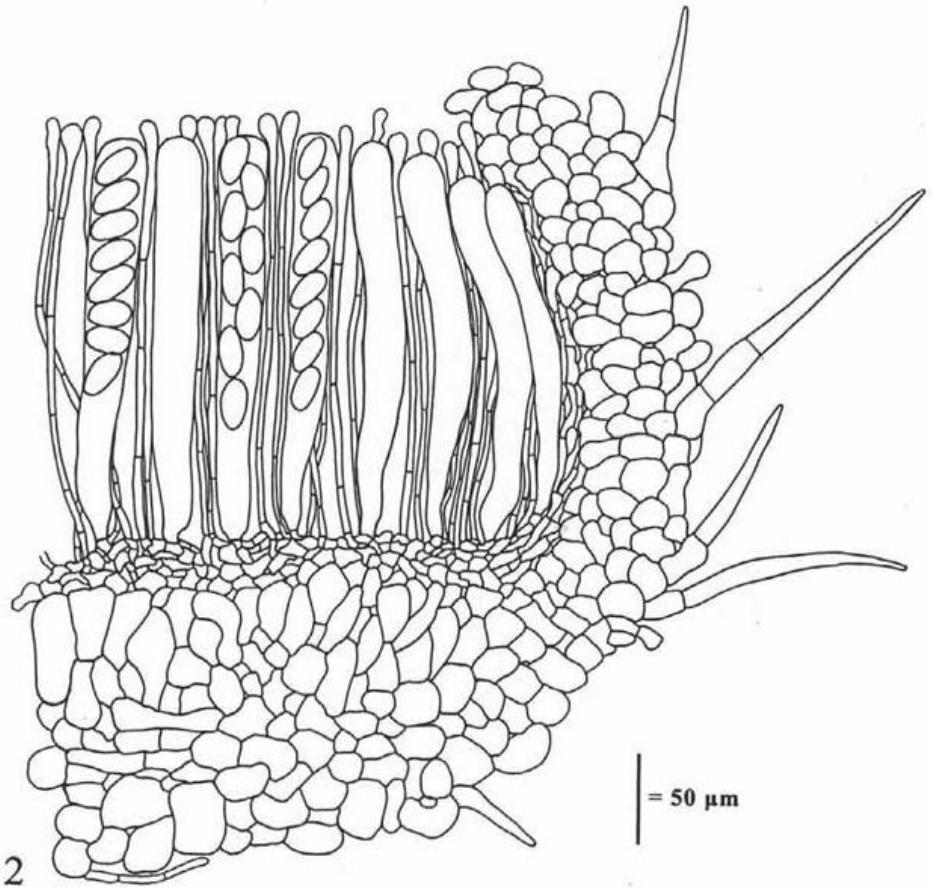

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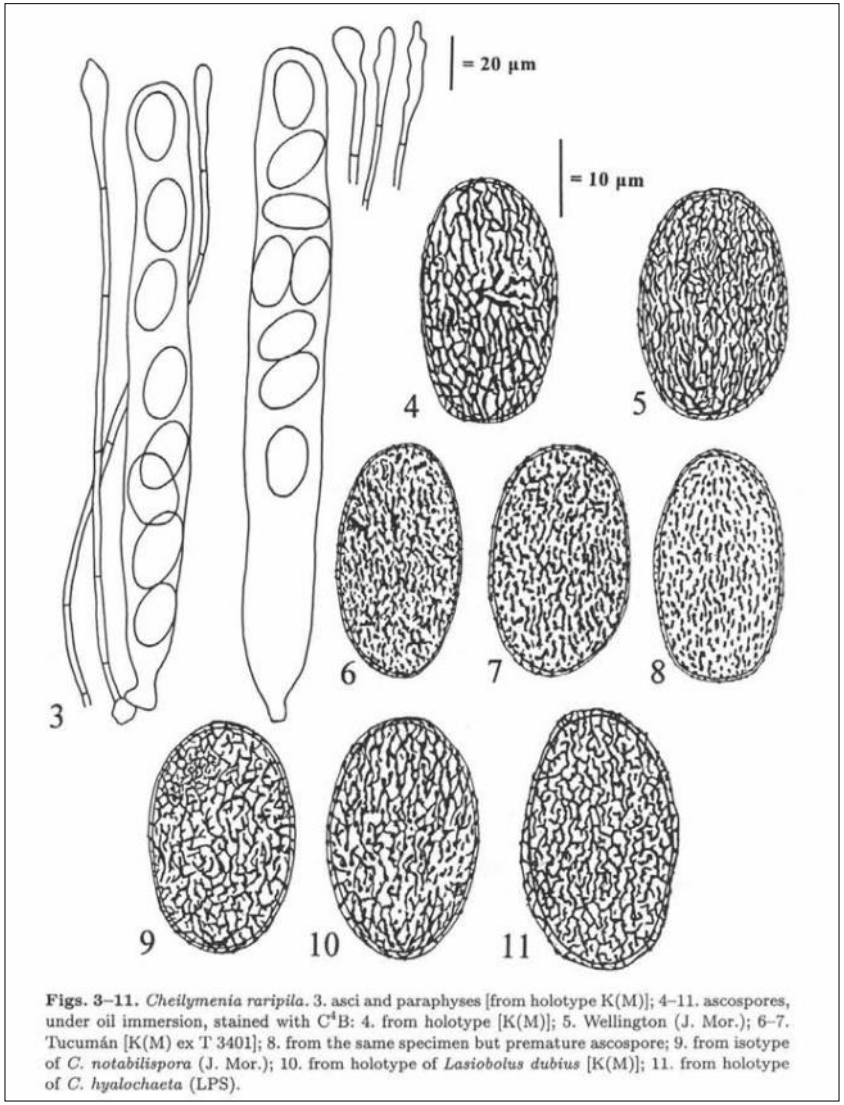
Figs. 1–2. *Cheilymenia raripila*. 1. apothecia; 2. part of medial section through apothecium (from Wellington, J. Mor.).



Figs. 3–11. *Cheilymenia raripila*. 3. asci and paraphyses [from holotype K(M)]; 4–11. ascospores, under oil immersion, stained with C^4B: 4. from holotype [K(M)]; 5. Wellington (J. Mor.); 6–7. Tucumán [K(M) ex T 3401]; 8. from the same specimen but premature ascospore; 9. from isotype of *C. notabilispora* (J. Mor.); 10. from holotype of *Lasiobolus dubius* [K(M)]; 11. from holotype of *C. hyalochaeta* (LPS).

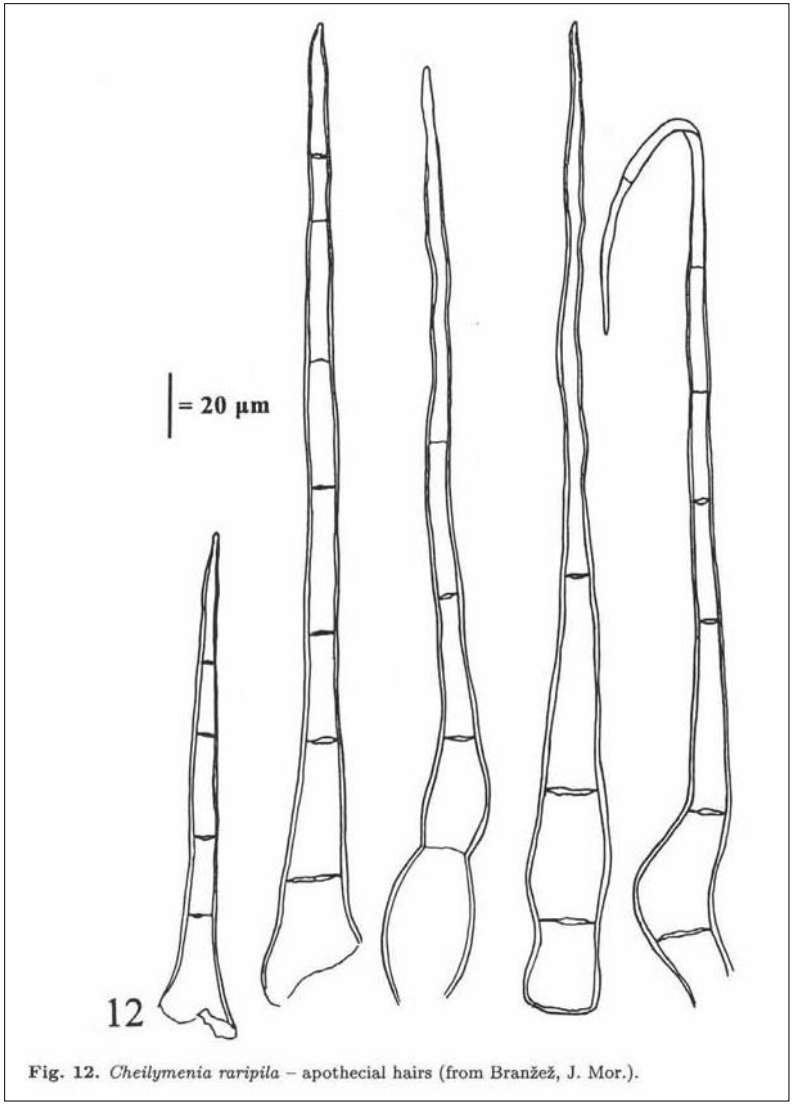
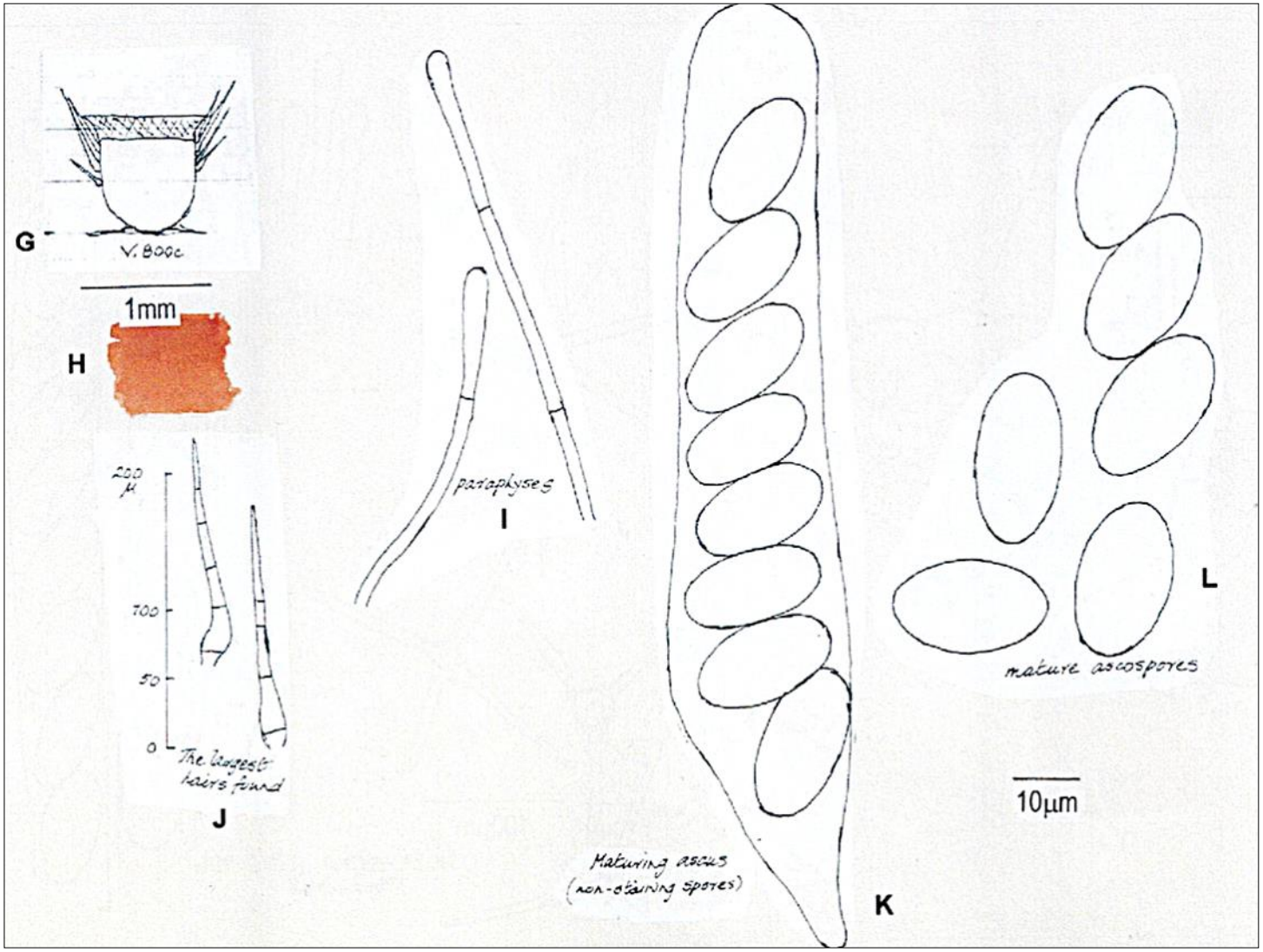


Fig. 12. *Cheilymenia raripila* – apothecial hairs (from Branžež, J. Mor.).

New Zealand material examined: South Island: Orinoco Valley near Motueka, on sheep excrements in a margin of pasture and forest, 4. III. 1993 leg. et det. Jiři Moravec (J. Mor., CUP); Marlborough, on cow dung, 12. V. 1978 leg. et det. Ann Bell (WELTU 305); Marlborough, on sheep dung, 4. VI. 1981 leg. et det. Ann Bell (WELTU 329). North Island: near Wellington, on cow dung at a farm, 27. II. 1993, leg et det. Jiři Moravec (J. Mor., CUP); Wellington, Orongo-rongo Valley, on Opossum dung, 20. X. 1970 leg. et det. Ann Bell (WELTU 54); Wellington, near DSIR Field Station, on dung of Opossum, 12. III. 1971 leg. et det. Ann Bell (WELTU 64); Wellington, near DSIR Field Station, on dung of Opossum, 24. VI. 1971 leg. et det. Ann Bell (WELTU 103); Wainuiomata Road, on cow dung, 22. VIII. 1971 leg. et det. Ann Bell (WELTU 109); Lake Pounui, on cow dung, s. dat., leg. et det. Ann Bell (WELTU 151); Wellington, Ohariu Valley Rd., 20. V. 1980 leg. et det. Ann Bell (WELTU 312); Wellington, Ohariu Valley Rd., 26. IV. 1981 leg. et det. Ann Bell (WELTU 335). WELTU is now AEB.

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. Ann's illustrations of *Cheilymenia raripila* from Harry Dade on page 89 are reproduced below.



Page 89. Fig. 35. *Cheilymenia raripila*. G—L. G. Mature apothecium. H. Colour chip showing typical colour of mature apothecia. I. Paraphyses. J. Apothecial bristles. K. Mature ascus. L. Mature ascospores. All illustrations taken from Dade 's notes. Ann's comments on Dade's notes and illustrations are available on pp. 21–23 in her 2005 publication.

Cheilymenia raripila is represented by 15 records in PDD online (as of 30-8-2025, not including this PDD addition). 12 of these were identified by Ann and 9 of the 12 appear on the previous page below Moravec's illustrations as those he examined from NZ in 2003 and repeated again in his 2005 monograph. These include:

PDD 73214 (= AEB 54)
PDD 73224 (= AEB 64)
PDD 73263 (= AEB 103)
PDD 73270 (= AEB 109)
PDD 73312 (= AEB 151)
PDD 73470 (= AEB 305)
PDD 73477 (= AEB 312)
PDD 73494 (= AEB 329)
PDD 73500 (= AEB 335)

Dougoud's online record in 2000-Pezizales of *Cheilymenia raripila*

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2000-Pezizales | Species

Cheilymenia raripila

Leg. F. Ayer, 9/11/2010
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Leg. F. Ayer, 9/11/2010
Microcharacters
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1/2 Leg. F. Ayer, 9/11/2010
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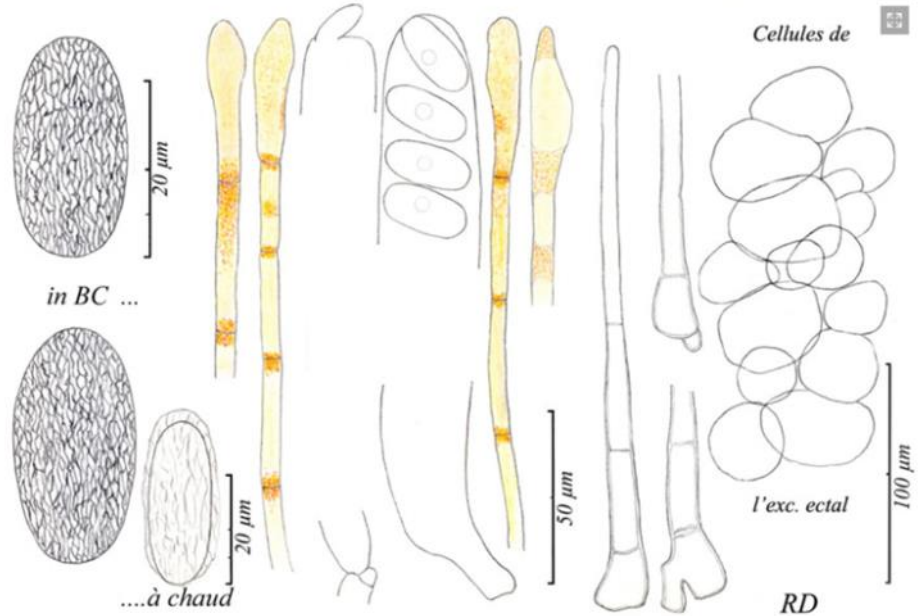

2/2 Leg. F. Ayer, 9/11/2010
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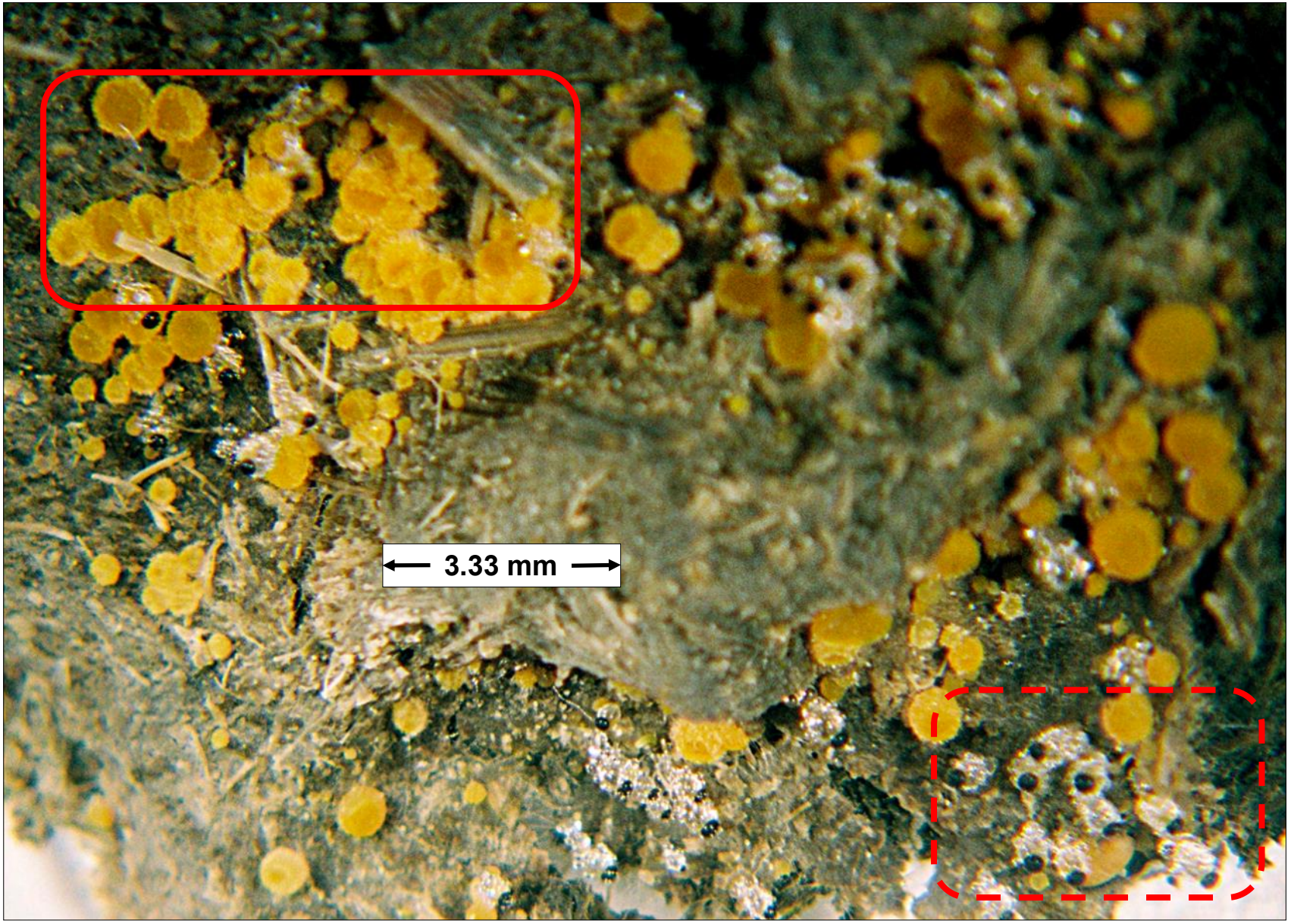
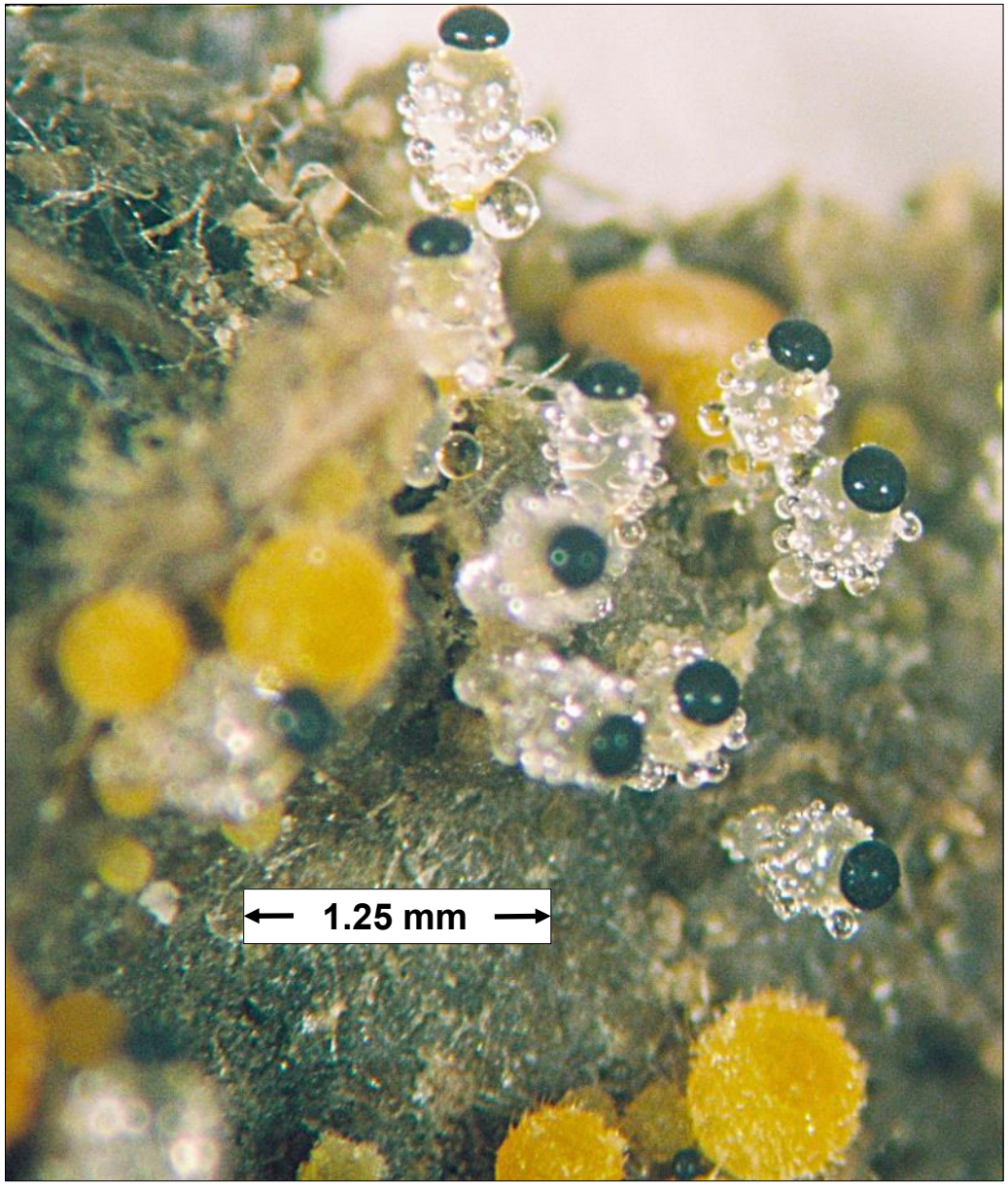
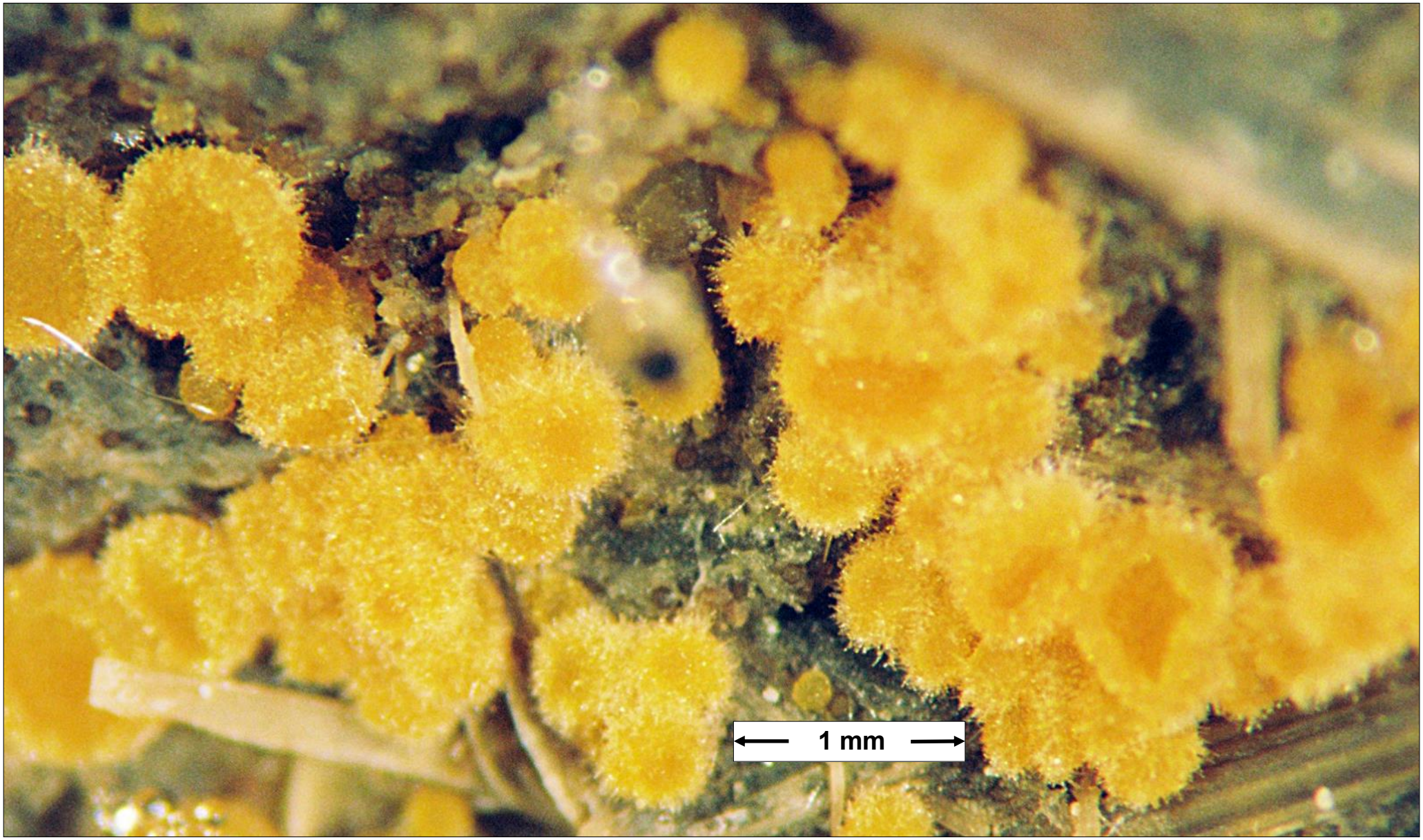


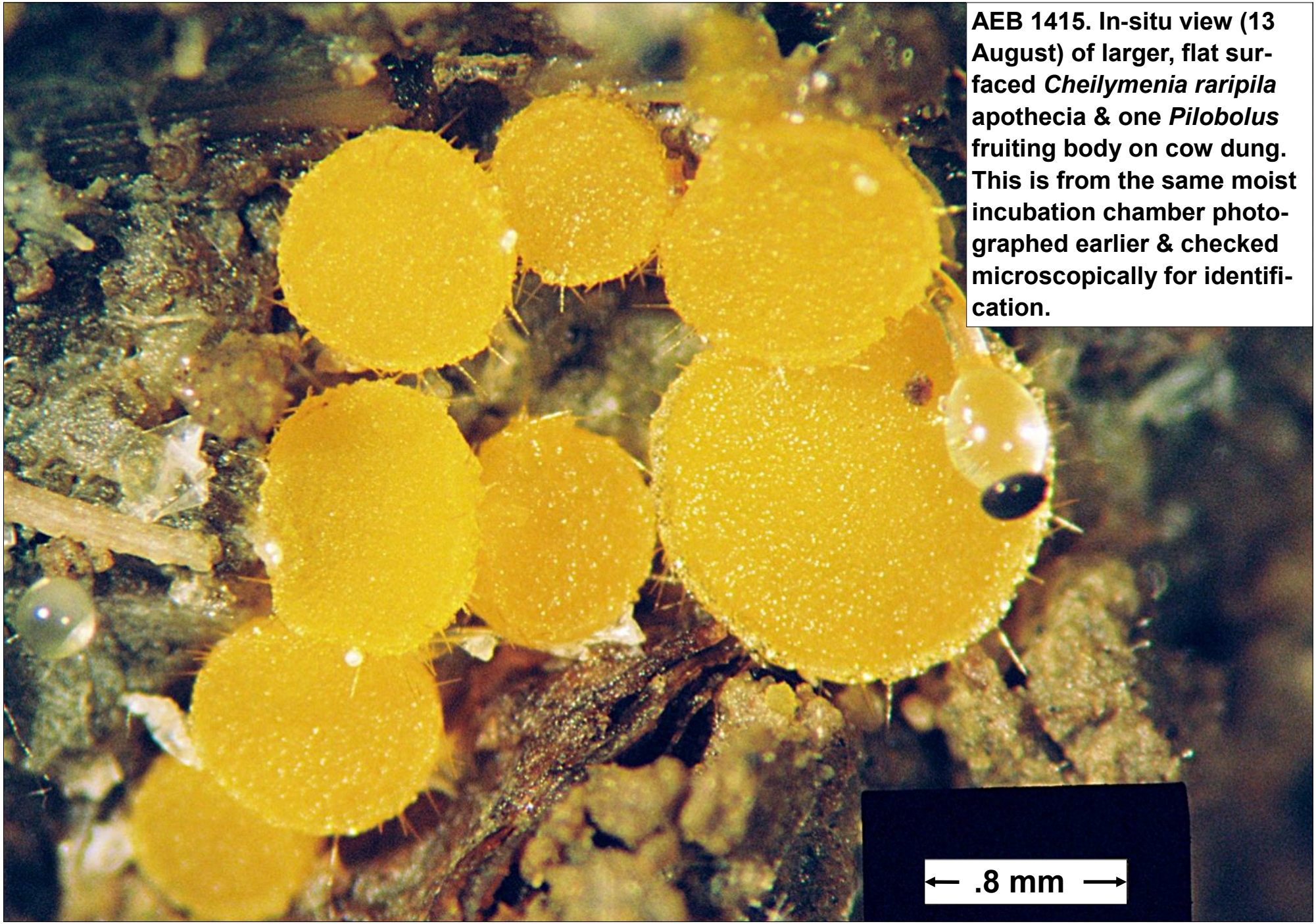
AEB 1415. In-situ view (13 August) of *Cheilymenia raripila* apothecia & a *Pilobolus* species on cow dung in a moist incubation chamber. The red outlined areas are rephotographed at higher magnifications on the next 2 pages.



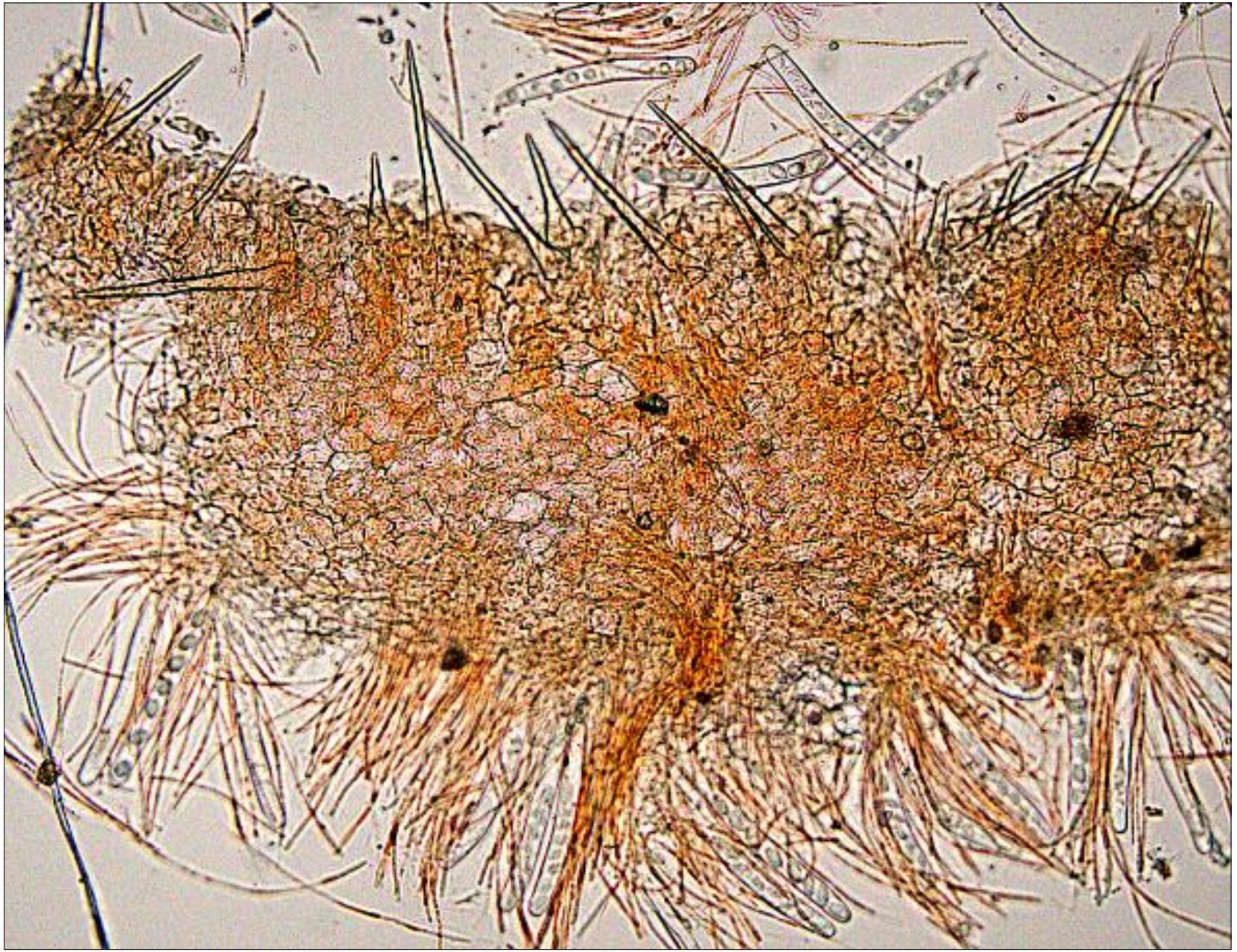
AEB 1415. In-situ view (13 August) of *Cheilymenia raripila* apothecia with emphasis on a nearby *Pilobolus* species seen on cow dung in a moist incubation chamber. This view is the reoriented area outlined with red dashes on the previous page.



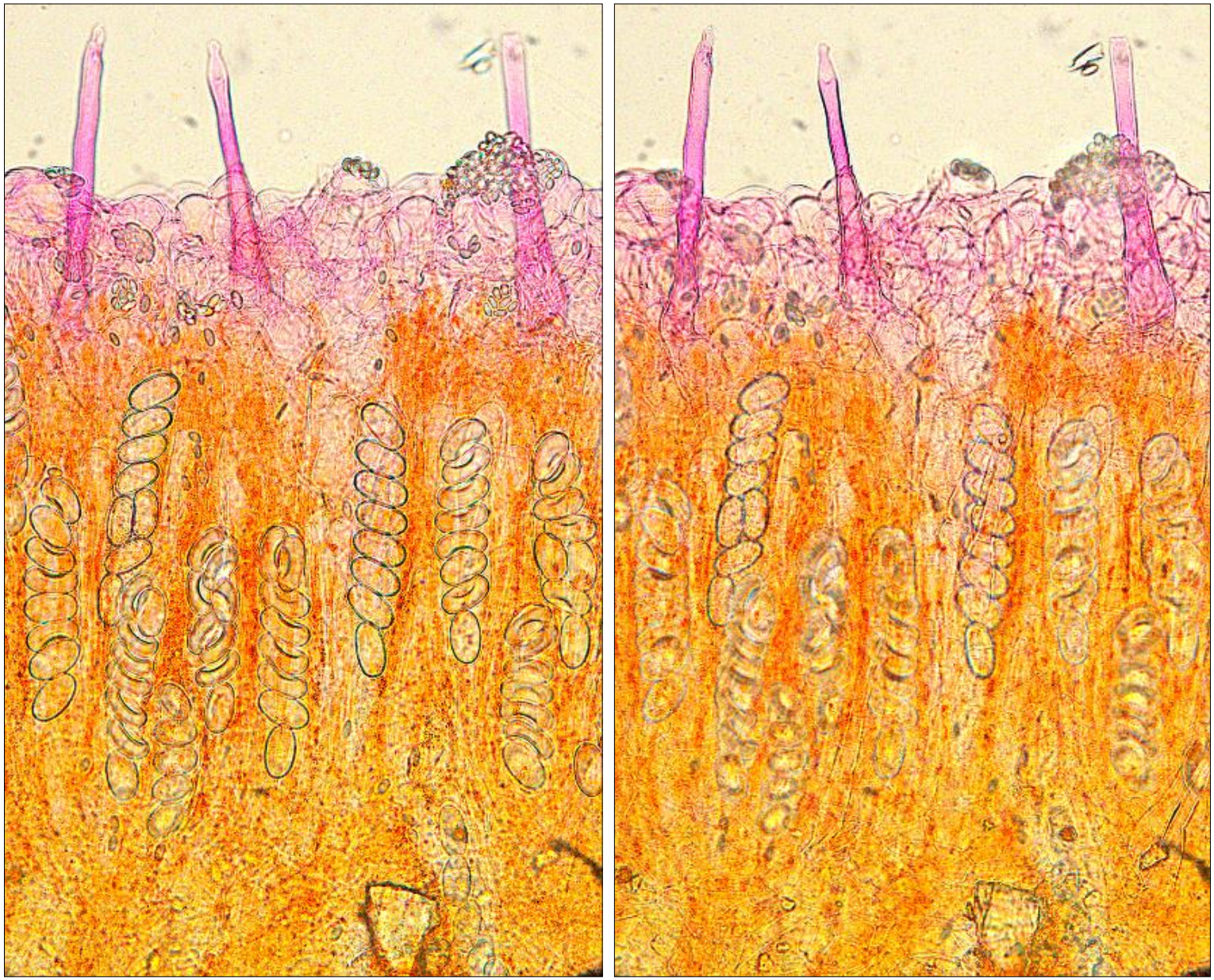
AEB 1415. In-situ view (13 August) of *Cheilymenia raripila* apothecia seen on cow dung in a moist incubation chamber. This view is the red upper-left outlined area on the page before last.



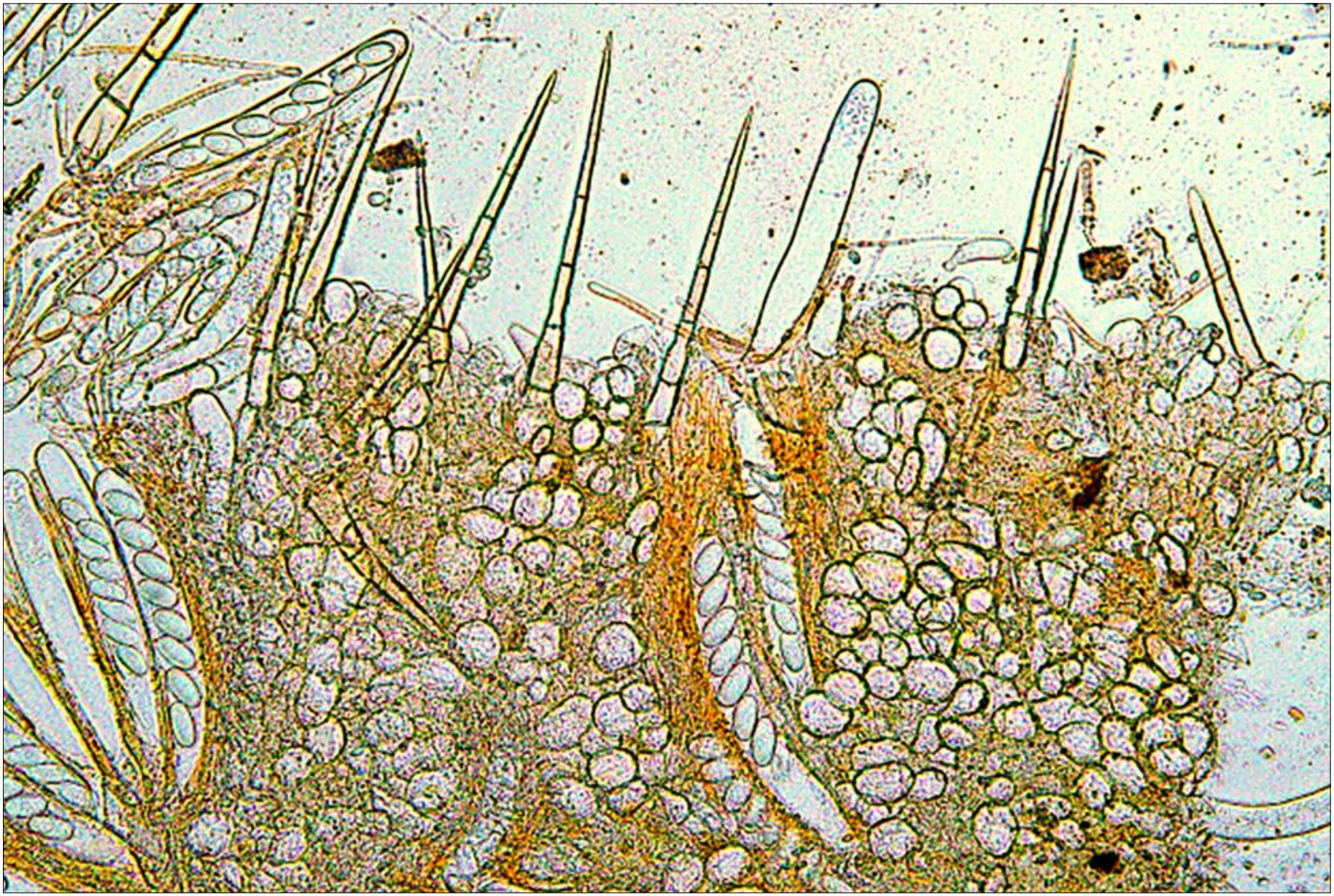
AEB 1415. In-situ view (13 August) of larger, flat surfaced *Cheilymenia raripila* apothecia & one *Pilobolus* fruiting body on cow dung. This is from the same moist incubation chamber photographed earlier & checked microscopically for identification.



AEB 1415. A fragment of the apothecium ectal excipulum (13 Aug. 2025) showing typical rigid hairs (setae) at and below the receptacle rim. Photo enlargement from a SMF semi-permanent mount using the X10 objective.



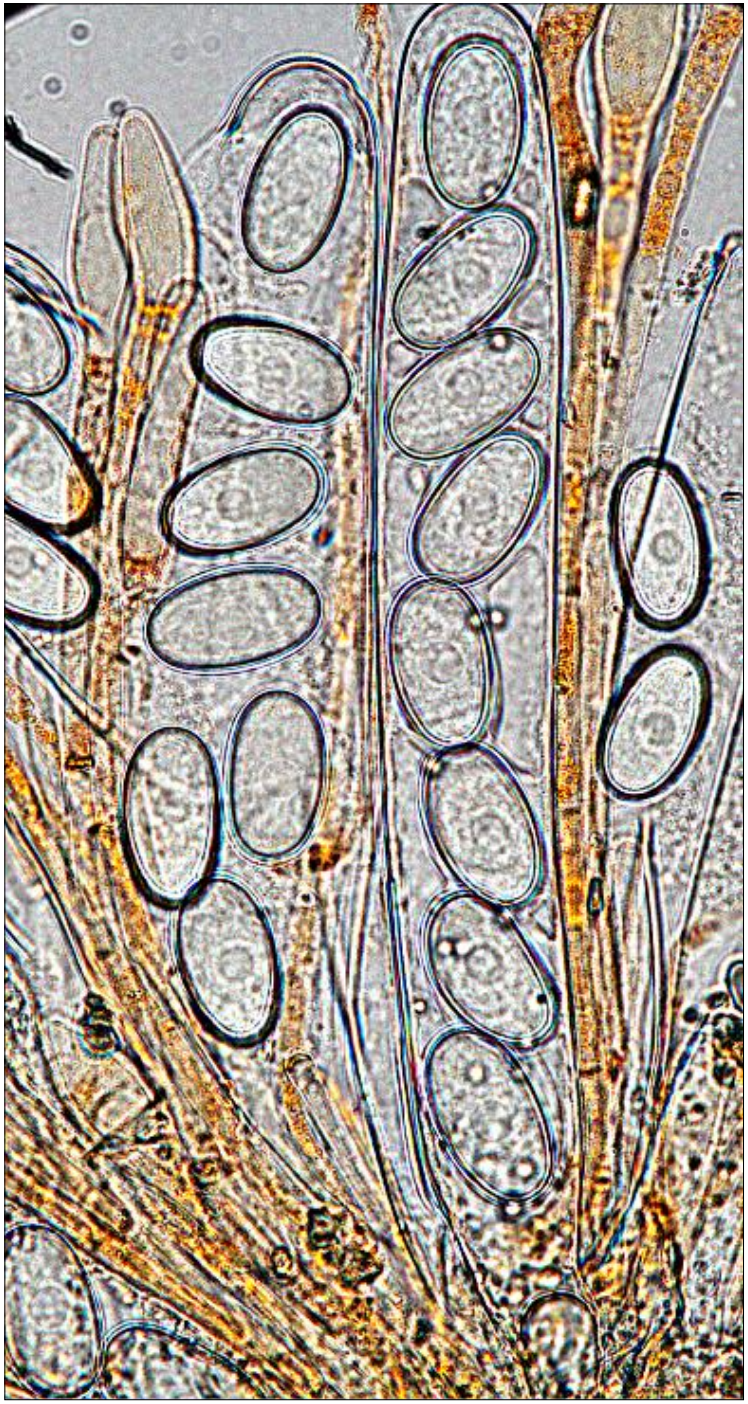
AEB 1415. Both photos (different focus) from the same fragment of the apothecium ectal excipulum (18 Aug. 2025) showing typical rigid hairs (setae) near the receptacle rim. Photo from a lacto-fuchsin semi-permanent mount using the X40 objective. Note that setae have simple bulbous bases that lack rooting appendages.



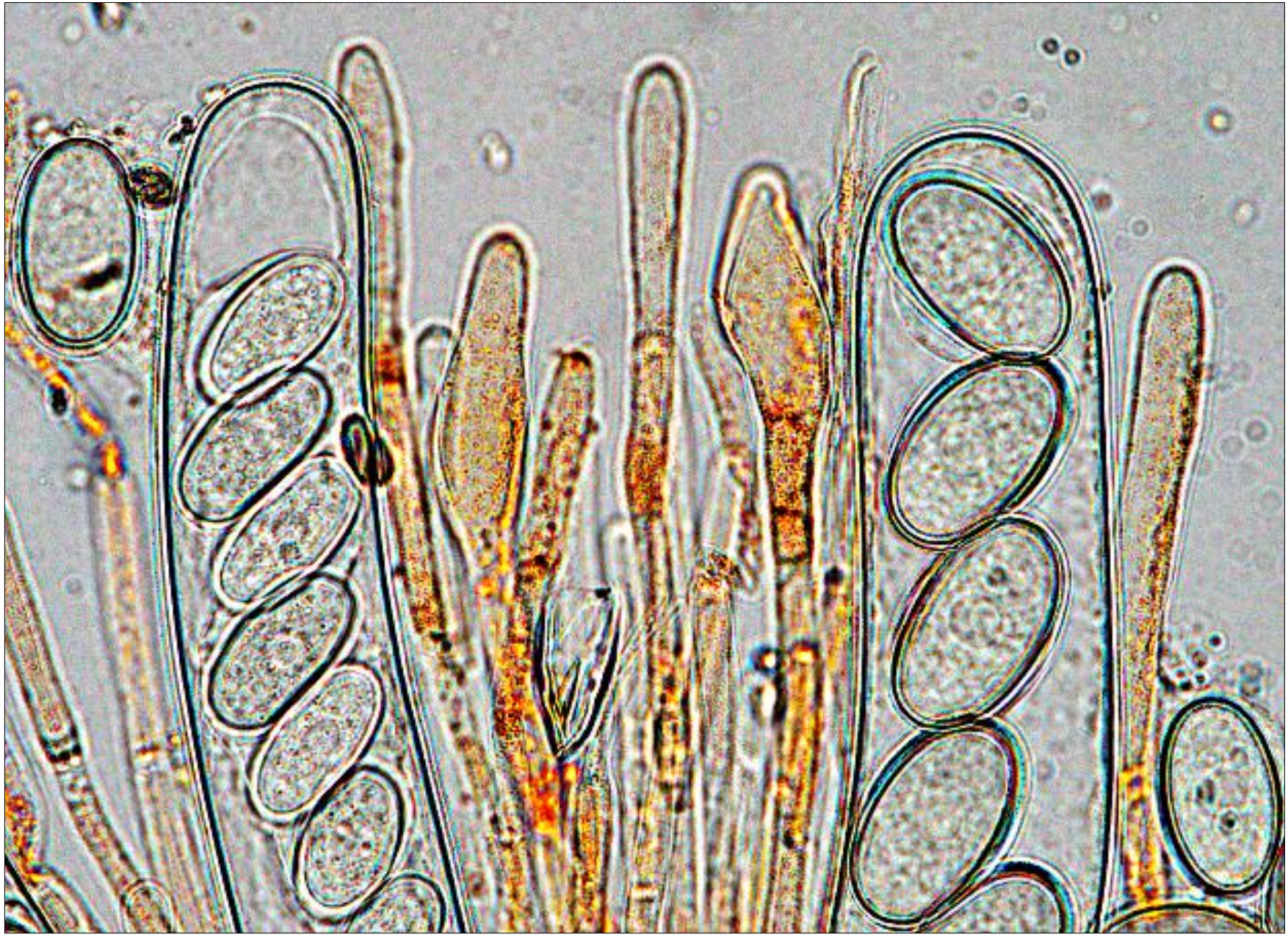
AEB 1415. A fragment of the apothecium ectal excipulum (20 Aug. 2025) showing typical rigid septate hairs (setae) near the receptacle rim. Photo from a water mount using the X20 objective. Note also the mature asci and unpigmented globular excipulum cells.

AEB 1415. Hymenium squash in a water mount (20 August 2025) using the X40 objective – showing mature asci with uniseriately overlapping ascospores and orange-pigmented paraphyses with slightly enlarged apices.

AEB 1415. A portion of the field from the previous page photographed under the X100 objective. Both upper and lower photos represent the same field of view but with different focuses. Viewed in a water mount (20 August 2025) showing mature asci with uniseriately overlapping ascospores and orange-pigmented paraphyses with slightly enlarged apices.

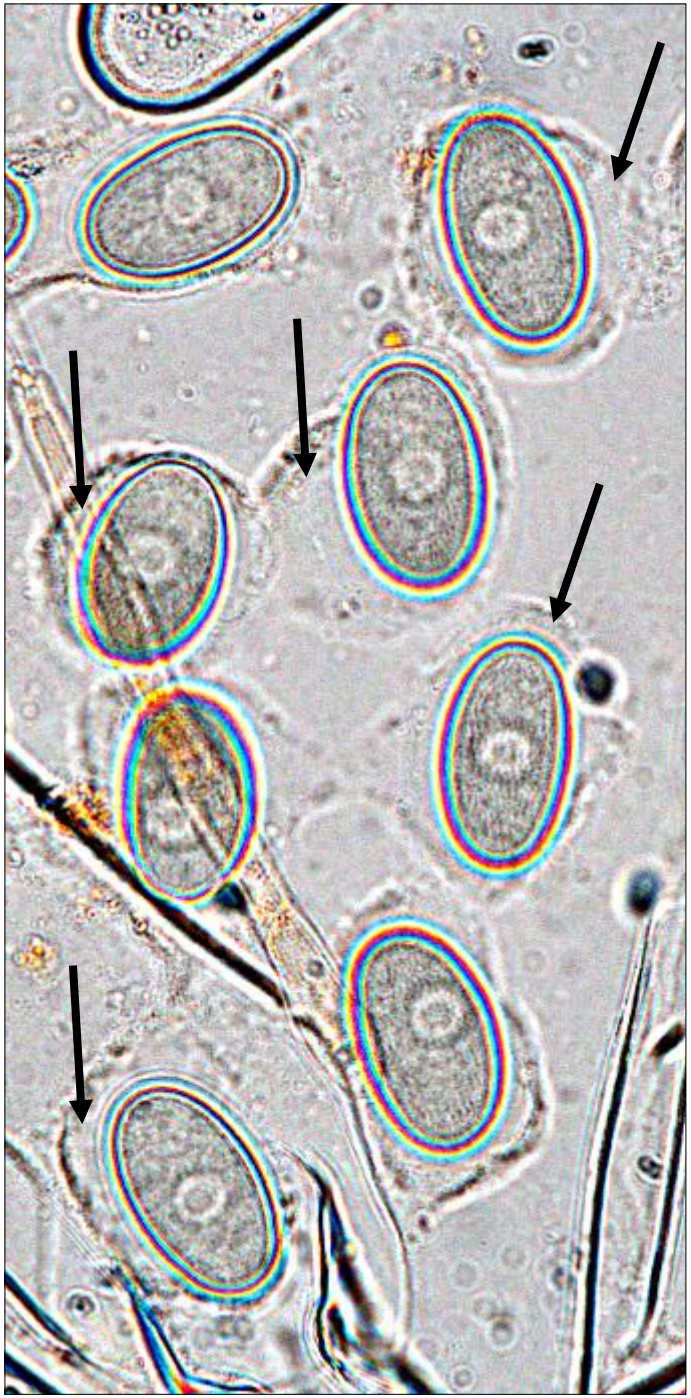


AEB 1415. Hymenium squash with mature asci and apically swollen pigmented paraphyses in a water mount using the X100 objective (16 Aug. 2025). Both photos the same field of view but different focuses: left photo, ascospore surface showing the faint irregular incompletely reticulate perispore ornamentation (often appearing longitudinally stretched, almost striate); right photo, ascospore mid-focus.



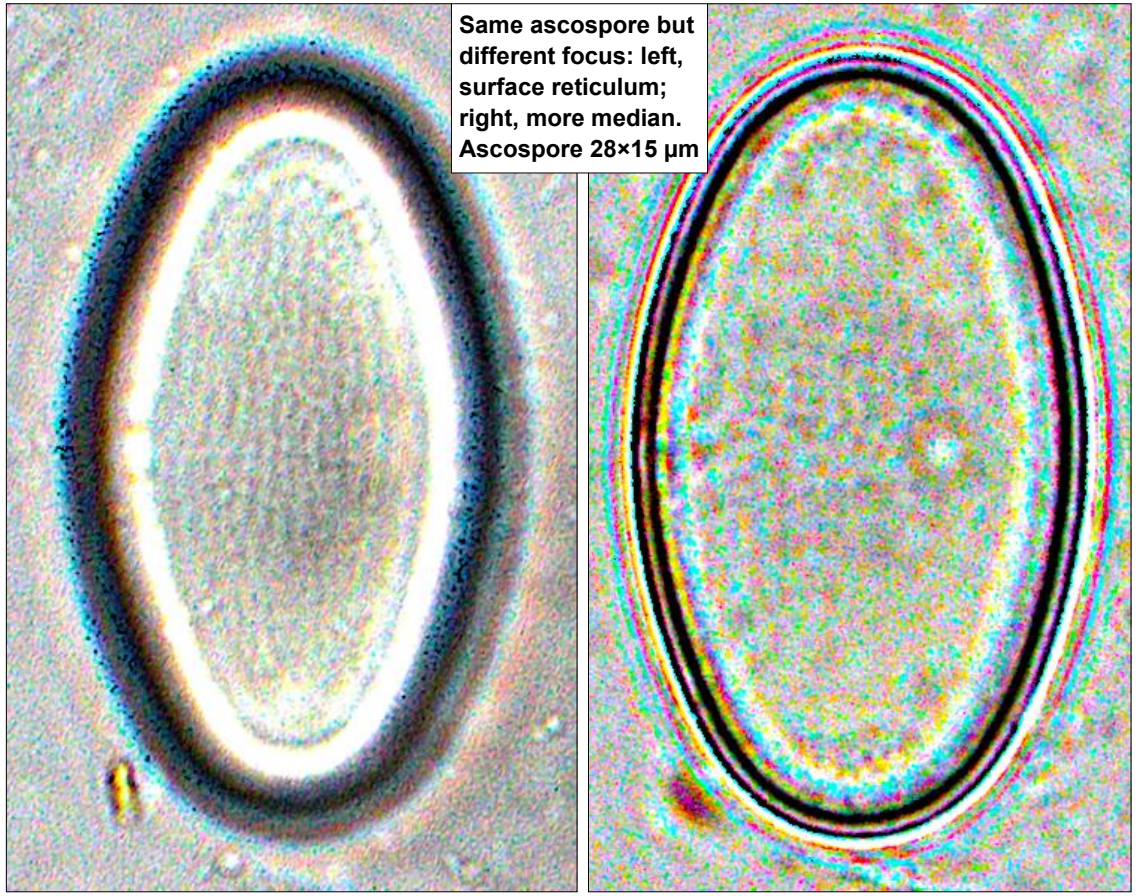
AEB 1415. Mature asci and apically swollen pigmented paraphyses in a water mount using the X100 objective (16 Aug. 2025). Emphasis: variation in the amount of paraphysis apical swelling.

AEB 1415. Mature apically swollen pigmented paraphyses in a water mount using the X100 objective (20 August 2025). Emphasis: yellow orange granules of pigment in the paraphyses. Free ascospores shown are 28 × 15 µm.



AEB 1415. Mature ascospores in a water mount using the X100 objective (16 Aug. 2025). Both photos the same field of view but different focuses: left photo, ascospore surface showing the faint irregular incompletely reticulate perispore ornamentation (often appearing longitudinally stretched, almost striate); right photo, ascospore mid-focus.

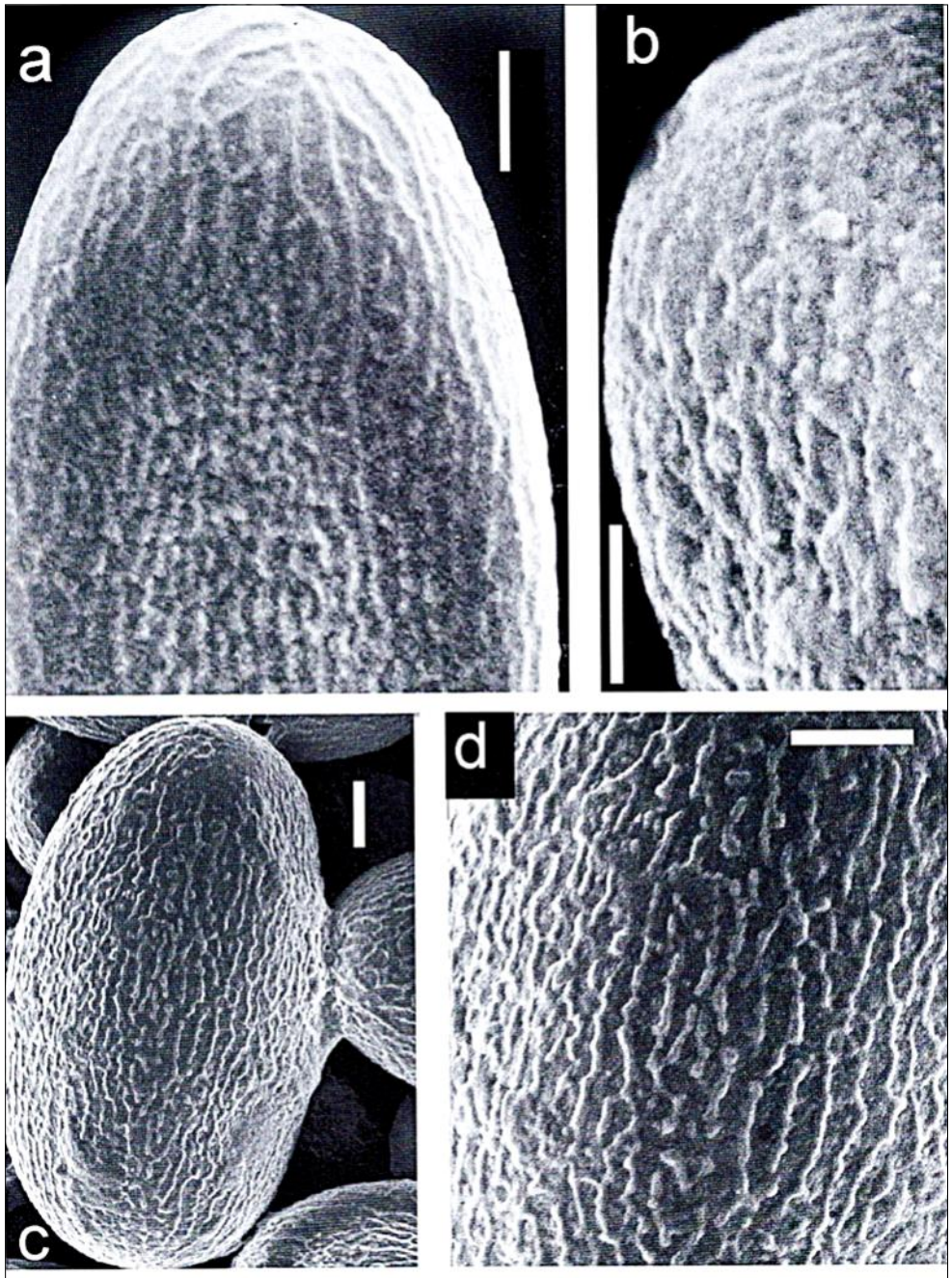
Worth noting is what initially appear to be ascospore gelatinous sheaths (arrowed). However, Moravec and others don't describe gelatinous sheaths. These, instead, are portions of the displaced perispore seen when the immature perispore is pressed tightly into an ascospore monoplane between coverslip and slide.



Same ascospore but different focus: left, surface reticulum; right, more median. Ascospore 28×15 µm

AEB 1415. Mature ascospores in an aniline blue lactic acid mount using the X100 objective (31 Aug. 2025). This represents an attempt to better show the faint irregular incompletely reticulate perispore ornamentation (often appearing longitudinally stretched, almost striate). However, it lacks the success that Moravec had with his C4B-lactic acid mounts.

Ascospores overall in this collection were (22–)24–29(–31) × 13–16 µm.



Pl. 36: SEM of ascospores of *C. raripila*: a – from Wellington (J. Mor.); b – from isotype (J. Mor.) of *C. nota bilispora*; c-d – from Bran?e?, 8.XI.1987 (J1. Mor.). Scales = 3 µm.

Moravec, J. 2005. A World Monograph of the genus *Cheilymenia*. Libri Botanici. 21:1-256. SEM illustrations of *C. raripila* perispore ornamentation on page 218.

Page 215. Autors of SEM microphotographs: the microphotographs were taken from samples prepared by the author and performed by Jiři Lhotecký 36b & Hermann Voglmayr 36a,c,d

Page 49. Perispore ornamentation features prominently in his ascospore description: "Ascospores ellipsoid, (21) 23-29 (31.5) x 12-16.5 (18.5) µm, mostly 27 x 15 µm, uniseriate to occasionally biseriate, hyaline, eguttulate (with small drops observed in vivo), mature ascospores with yellow refractive content when stained with C4B in lactic acid; **perispore ornamented by irregular, fine, cyanophilous crests forming a dense, irregular and mostly incomplete reticulum**."

Although AEB 1415 ascospores on the previous six pages of this pdf were photographed using the X100 objective with enlarged images, none reveal the ornamentation clarity shown in Movavec's drawing-photos 4-11 shown on the 3rd page of this pdf. However, a faint incomplete perispore reticulum is evident even without staining in a C4B-lactic acid mount (see comments accompanying some photos on the previous 6 pages.