

***Ascobolus stictoideus* Speg. AEB 1377 (= PDD 121668)**

**Collection site:** Kāpiti Island nature reserve

**Collection date:** 18 May 2024

**Substrate:** Takahē (*Porphyrio hochstetteri*) dung; Incubated in moist chamber 20 May 2024

**Collector:** Ian Flux

**Identifiers:** Ann Bell & Dan Mahoney

**Voucher materials:** dried herbarium material [AEB 1377 (= PDD 121668) accompanied by four Shear's mounting fluid (SMF) semi-permanent slide mount; several in-situ dissecting scope photos of apothecia on the dung and a number of photos of microscopic detail from water mounts.

**Dan's brief comments:** A good match. Van Brummelen's 1967 world monograph key to his *Ascobolus* sect. *Dasyobolus* (Sacc.) Brumm. is reproduced on the next page and his *Ascobolus stictoideus* description is produced below.

Apothecia scattered, gregarious or closely crowded, completely immersed or rarely superficial, 350–600  $\mu$  diameter, 400–650  $\mu$  high. Receptacle at first closed and globular or pyriform, then opening by irregular rupturing of the wall, watery-white, greenish-yellow or olive in colour; thinly tomentose or rarely smooth; without a margin. Disk flat or slightly concave, pale olivaceous to almost colourless, with a few almost black, ripe asci strongly protruding. Hymenium 230–280  $\mu$  thick, containing up to 40 asci. Hypothecium very thin, of isodiametric cells 6–12  $\mu$  diameter. Flesh not sharply differentiated or very thin. Excipulum about 15  $\mu$  thick, of more or less isodiametric, polygonal, thick-walled cells 9–25  $\mu$  diameter (textura angularis), with pale yellowish cell-walls, often covered with a thin layer of interwoven, cylindrical, irregularly branched, hyaline, 4–9  $\mu$  wide hyphae. Asci clavate or clavate-saccate, gradually tapering downwards into a rather thick base, rounded above, 150–400  $\times$  39–55  $\mu$ , 8-spored; the wall deep blue in Melzer's reagent. Ascospores biseriate or irregularly disposed, ellipsoid; at first hyaline, then pale violet, finally dark violet, (25.5–)26.5–30.5(–32)  $\times$  (14.5–)16–17.5  $\mu$ , ornamented with rather coarse, rounded warts; pigment often rather thick up to 1.5  $\mu$ ; with

unilateral, mucilaginous substance. Paraphyses filiform, simple, septate, 2.8–3.8  $\mu$  thick, not enlarged upwards, sometimes slightly narrowed at the tip 2.5–3.2  $\mu$  thick, hyaline, embedded in pale yellowish or colourless mucus.

On dung of cow, horse, sheep, dog, rabbit, muskrat, and goose, also on soil dirtied with dung.

AEB 1377 matched van Brummelin's description with the following variations: 1. Ascus walls were very faintly bluish, never deep blue in Melzer's reagent. 2. Ascospores had an obvious gelatinous sheath but this did not always appear to be unilateral. 3. Young apothecia were more immersed and often greenish although green algae were common on the dung; mature apothecia were yellowish to greenish-yellow and more superficial. For our earlier collections of this species in the PDD datastore see PDD 117248 and PDD 76919.

**Brummelen J. Van. 1967. A world monograph of the genera *Ascobolus* and *Saccobolus* (Ascomycetes, Pezizales). Persoonia, supplement Vol. I. Rijksherbarium, Leiden. Pages 66–68.**

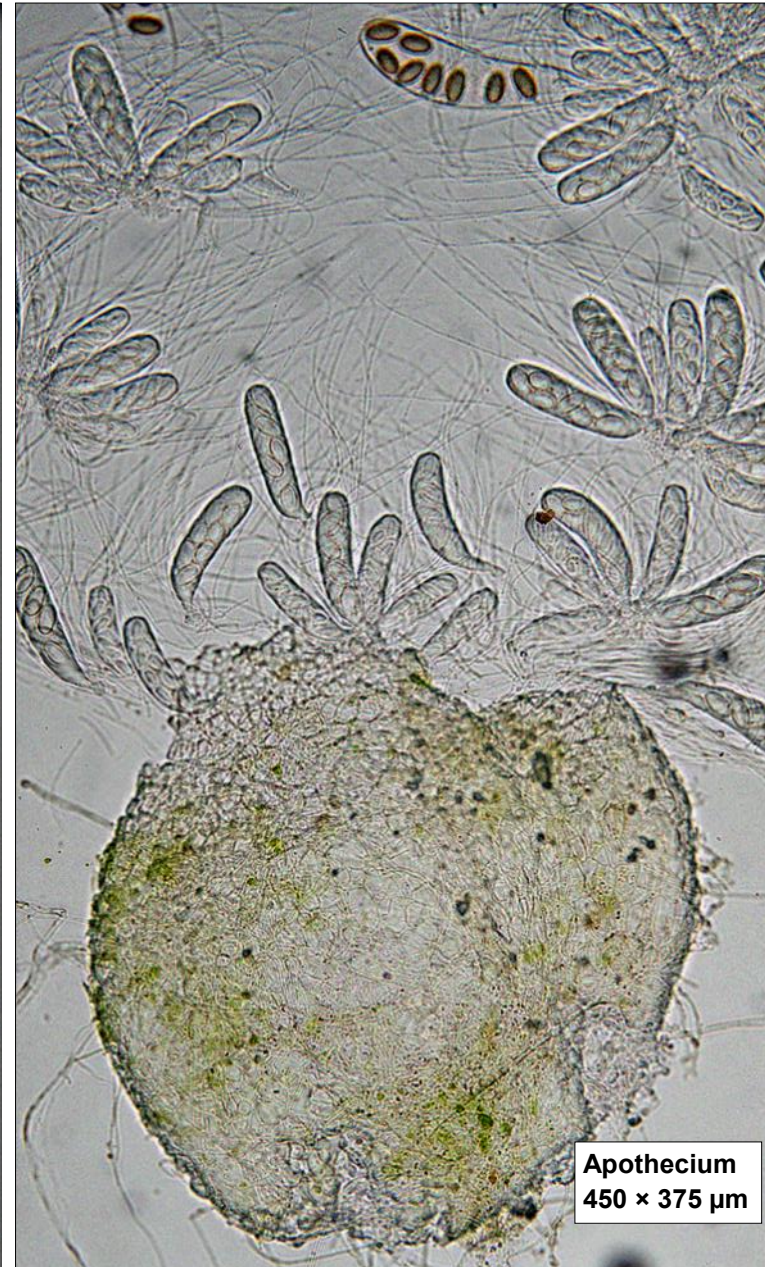
**I. *Ascobolus* sect. *Dasyobolus* (Sacc.) Brumm., *comb. nov.***

- KEY TO THE SPECIES OF ASCOBOLUS SECT. DASYOBOLUS
1. Episporium smooth or finely granular:
    2. Ascospores globular or subglobular; more than 33  $\mu$  long; with all-sided gelatinous envelope . . . . . 1. *Ascobolus immersus*, p. 68
    2. Ascospores ellipsoid:
      3. Ascospores more than 50  $\mu$  long and surrounded by a gelatinous envelope. Episporium smooth or with some irregular fine crevices  
1. *Ascobolus immersus*, p. 68
      3. Ascospores less than 50  $\mu$  long:
        4. Ascospores more than 17  $\mu$  long:
          5. Excipulum smooth, tomentose or rarely finely powdery; not brown; not furfuraceous. Hymenial mucus greenish-yellow:
            - 6a. Ascospores 29–38(–48)  $\times$  14–18(–21)  $\mu$   
5. *Ascobolus amoenus*, p. 80
            - 6b. Ascospores 23–29  $\times$  12–17  $\mu$ . . . . . 6. *Ascobolus elegans*, p. 82

- 6c. Ascospores (17.5–)19–23(–24)  $\times$  10–12(–13)  $\mu$   
7. *Ascobolus mancus*, p. 84
- 6d. Ascospores 42–48  $\times$  20–25  $\mu$  . . . . . cf. "*A. quezelii*", p. 74
5. Excipulum rich with brown intercellular pigment; in the upper part covered with brown warts. Hymenial mucus vivid sulphur-yellow. Ascospores 20–25  $\times$  11–13  $\mu$  . . . . . 8. *Ascobolus boudieri*, p. 85
4. Ascospores less than 17  $\mu$  long:
  7. Ascospores 15–16  $\times$  6–7  $\mu$  . . . . . cf. *Ascobolus masseei*, p. 226
  7. Ascospores 11–13  $\times$  6–8  $\mu$  . . . . . cf. *Ascobolus candidus*, p. 210
1. Episporium warted or with a net-work of irregular fine crevices:
  8. Ascospores ellipsoid. Ascus-wall staining blue with iodine:
    9. Episporium with a reticulum of irregular fine crevices. Ascospores more than 50  $\mu$  long . . . . . 1. *Ascobolus immersus*, p. 68
    9. Episporium warted:
      10. Ascospores 50–60  $\times$  30–36  $\mu$  . . . . . 2. *Ascobolus bistitii*, p. 75
      10. Ascospores less than 50  $\mu$  long:
        11. Apothecia with a thick margin. Ascospores 40–45  $\times$  21–33  $\mu$   
cf. *Ascobolus asininus*, p. 208
        11. Apothecia without a prominent margin. Ascospores less than 40  $\mu$  long:
          12. Apothecia immersed. Ascospores more than 25  $\mu$  long:
            13. Episporium with a regular pattern of warts. Ascospores 26–31  $\times$  15–17.5  $\mu$  . . . . . 3. *Ascobolus stictoides*, p. 76
            13. Episporium besides having a pattern of warts also with large and thick caps of pigment and a submedian pigment-free zone. Ascospores 30–34  $\times$  16–18  $\mu$   
4. *Ascobolus degluptus*, p. 78
          12. Apothecia superficial. Ascospores 18.5–21  $\times$  10–11.5  $\mu$   
9. *Ascobolus hawaiiensis*, p. 87
  8. Ascospores subglobular to very shortly ellipsoid; 17–20  $\times$  15–17  $\mu$ . Ascus-wall not blue with iodine . . . . . 10. *Ascobolus siamensis*, p. 88

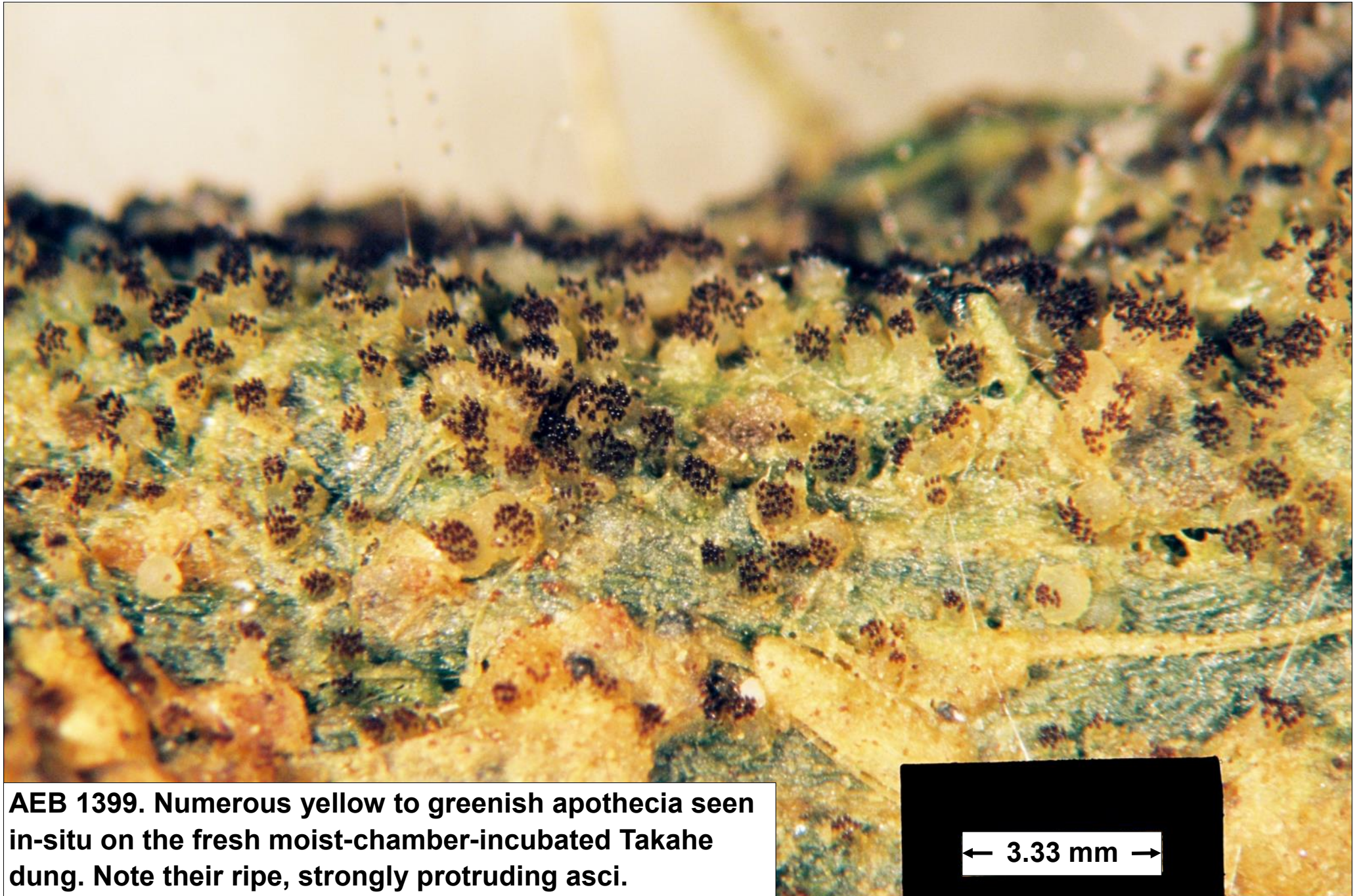


Apothecium  
400 × 375 μm



Apothecium  
450 × 375 μm

**AEB 1377. Apothecia, gently squashed to release their asci, viewed in a SMF slide mount using the X20 objective and brightfield microscopy. Note the large-celled, tissue angularis in the ectal excipulum.**

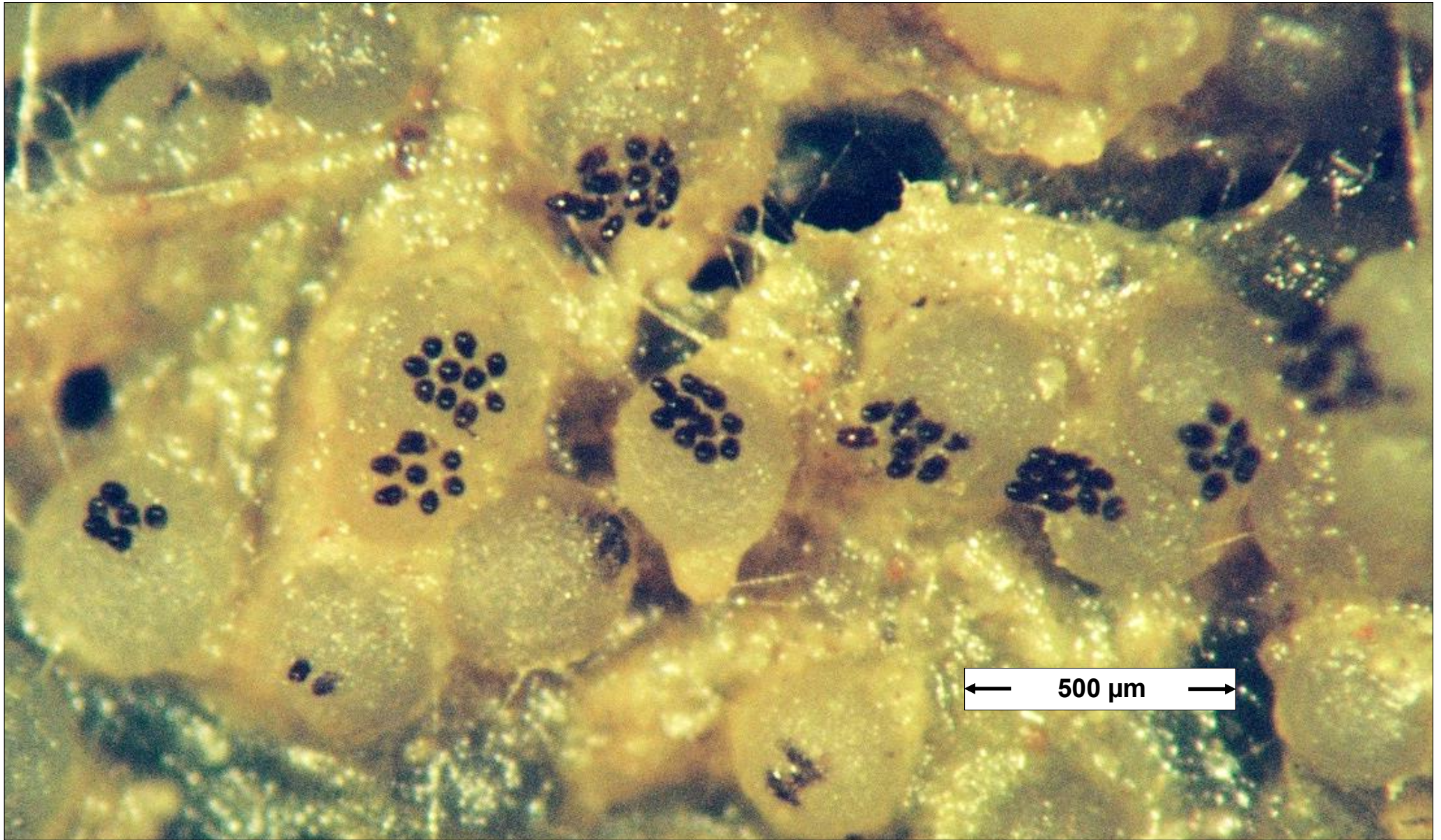


**AEB 1399. Numerous yellow to greenish apothecia seen in-situ on the fresh moist-chamber-incubated Takaha dung. Note their ripe, strongly protruding asci.**

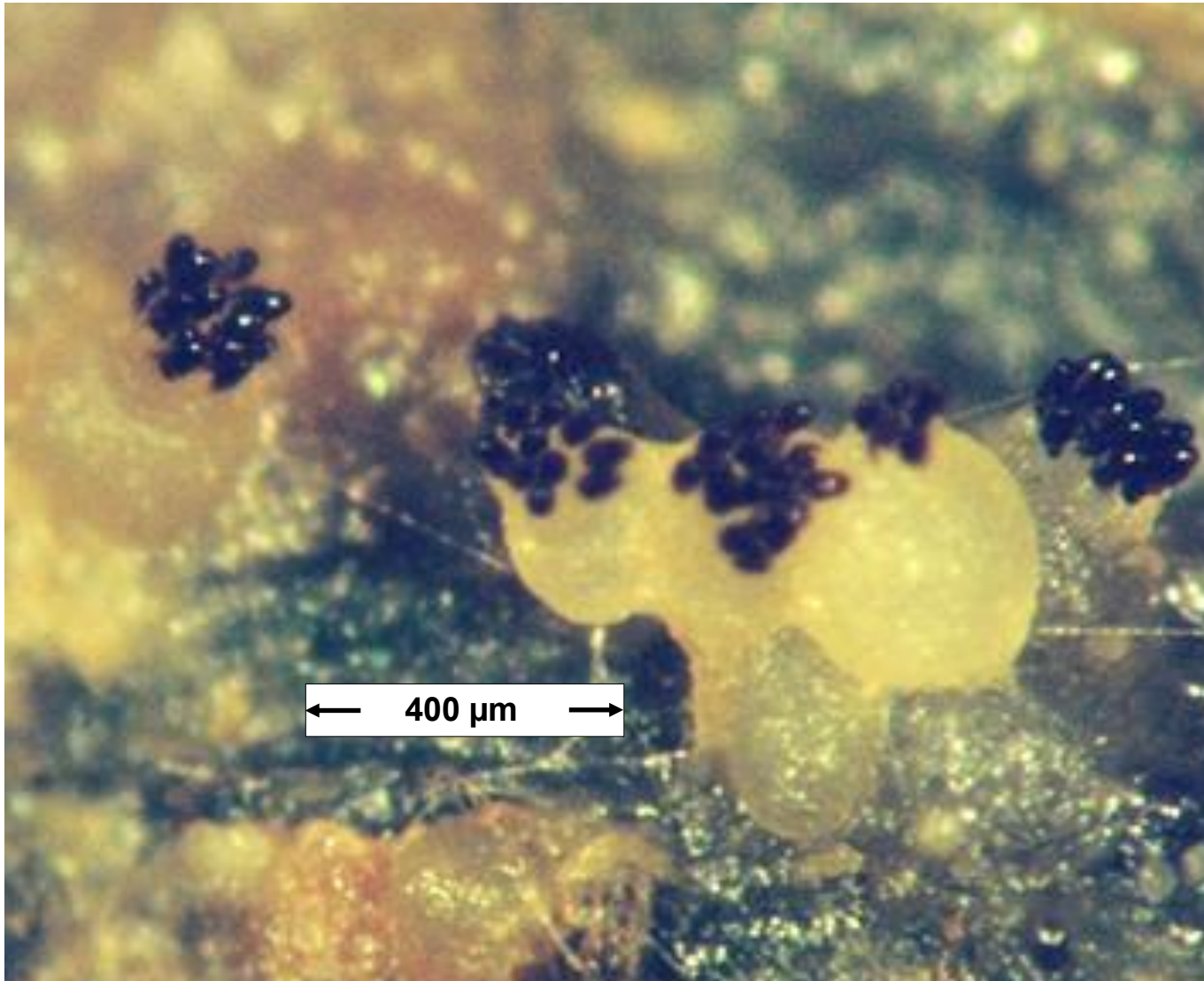
← 3.33 mm →



**AEB 1399. Yellow to greenish apothecia seen in-situ on the fresh moist-chamber-incubated Takaha dung. Note their ripe, strongly protruding asci.**



**AEB 1399. Yellow to greenish apothecia seen in-situ on the fresh moist-chamber-incubated Takahé dung. Note their ripe, strongly protruding asci.**



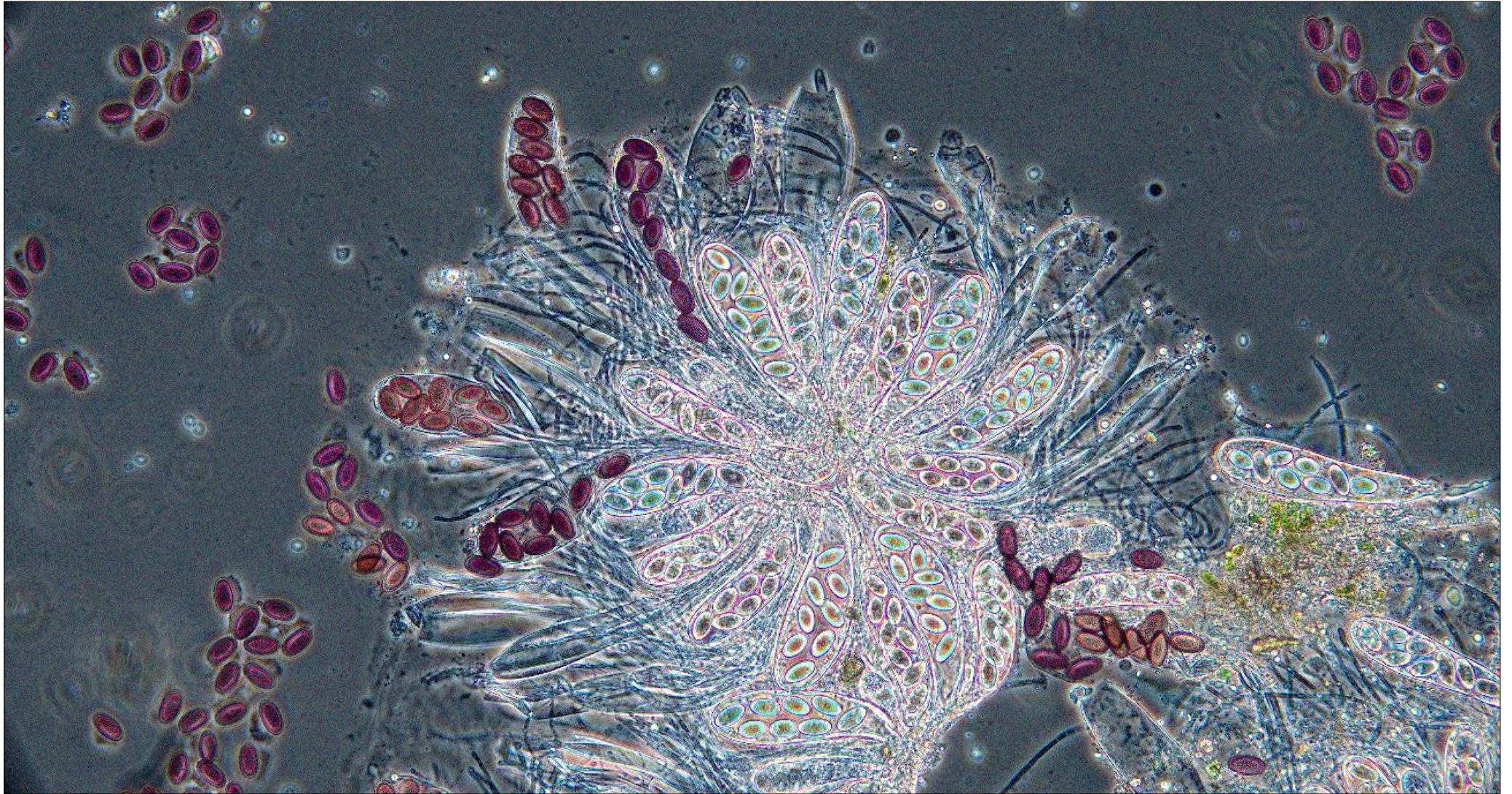
**AEB 1399. Yellow to greenish apothecia seen in-situ on the fresh moist-chamber-incubated Takahé dung. Note their ripe, strongly protruding asci.**



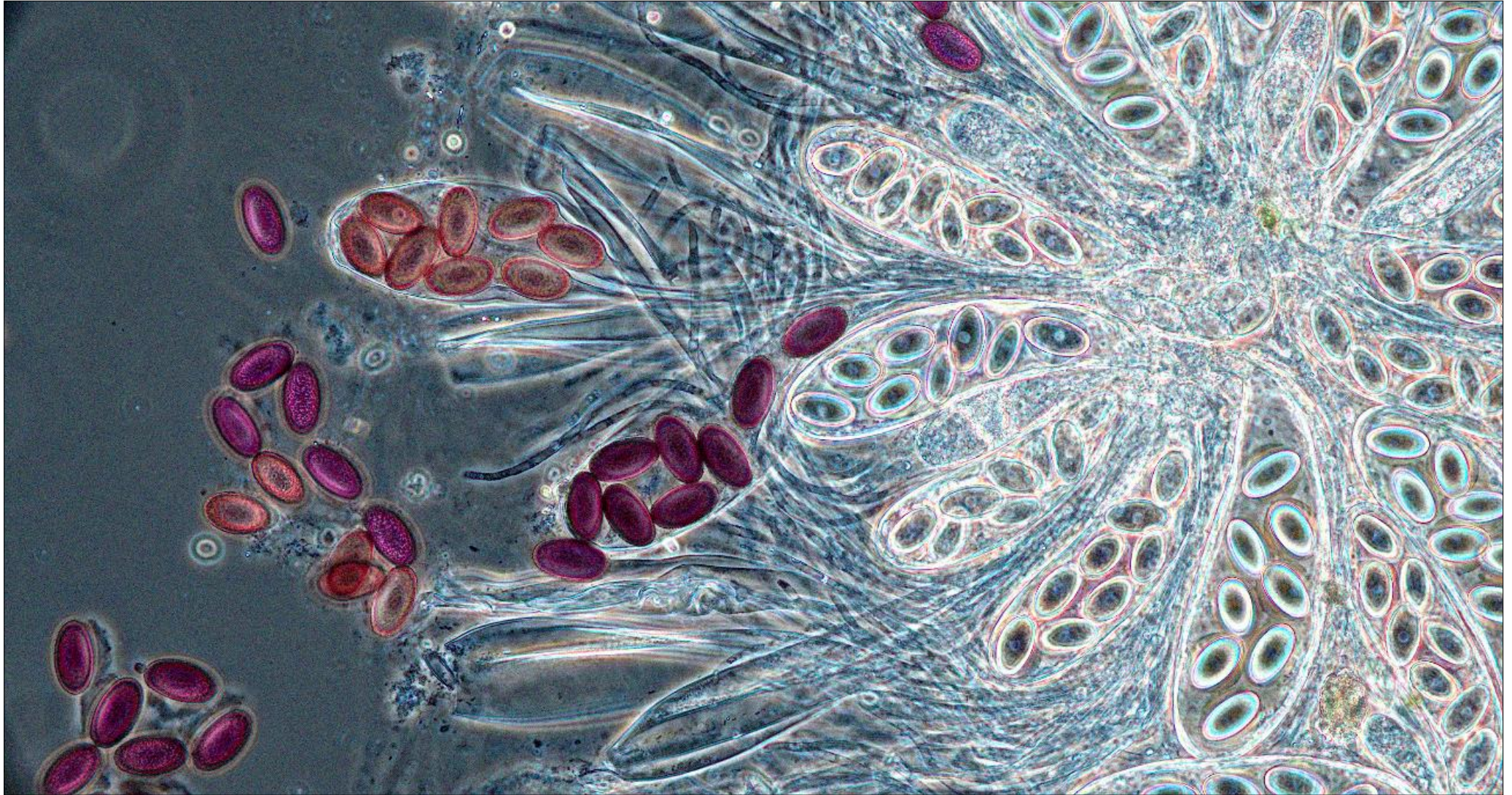


**AEB 1399. Yellow to faintly greenish-yellow apothecia seen in-situ on the fresh moist-chamber-incubated Takahé dung. Note their ripe, strongly protruding asci.**

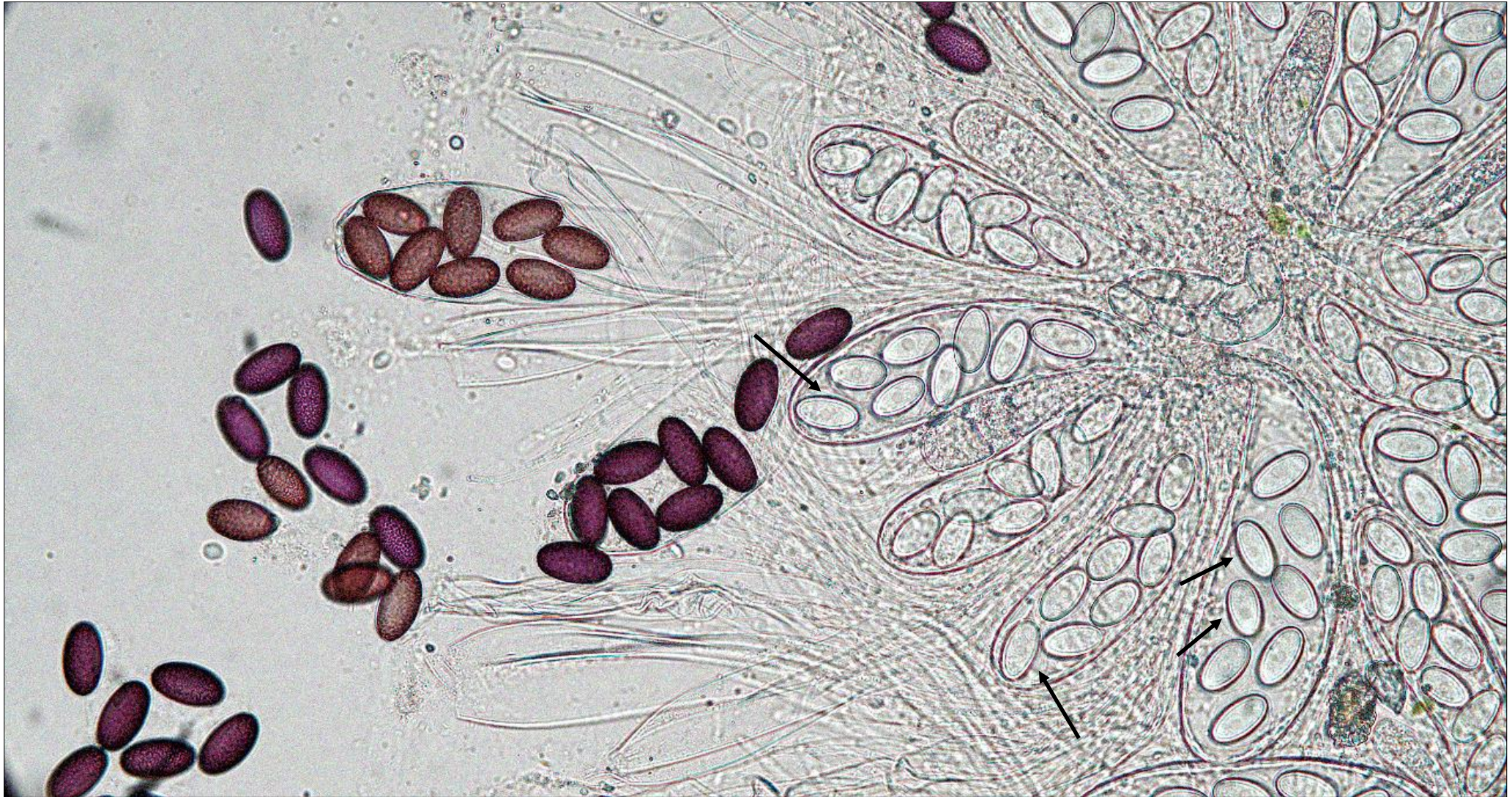




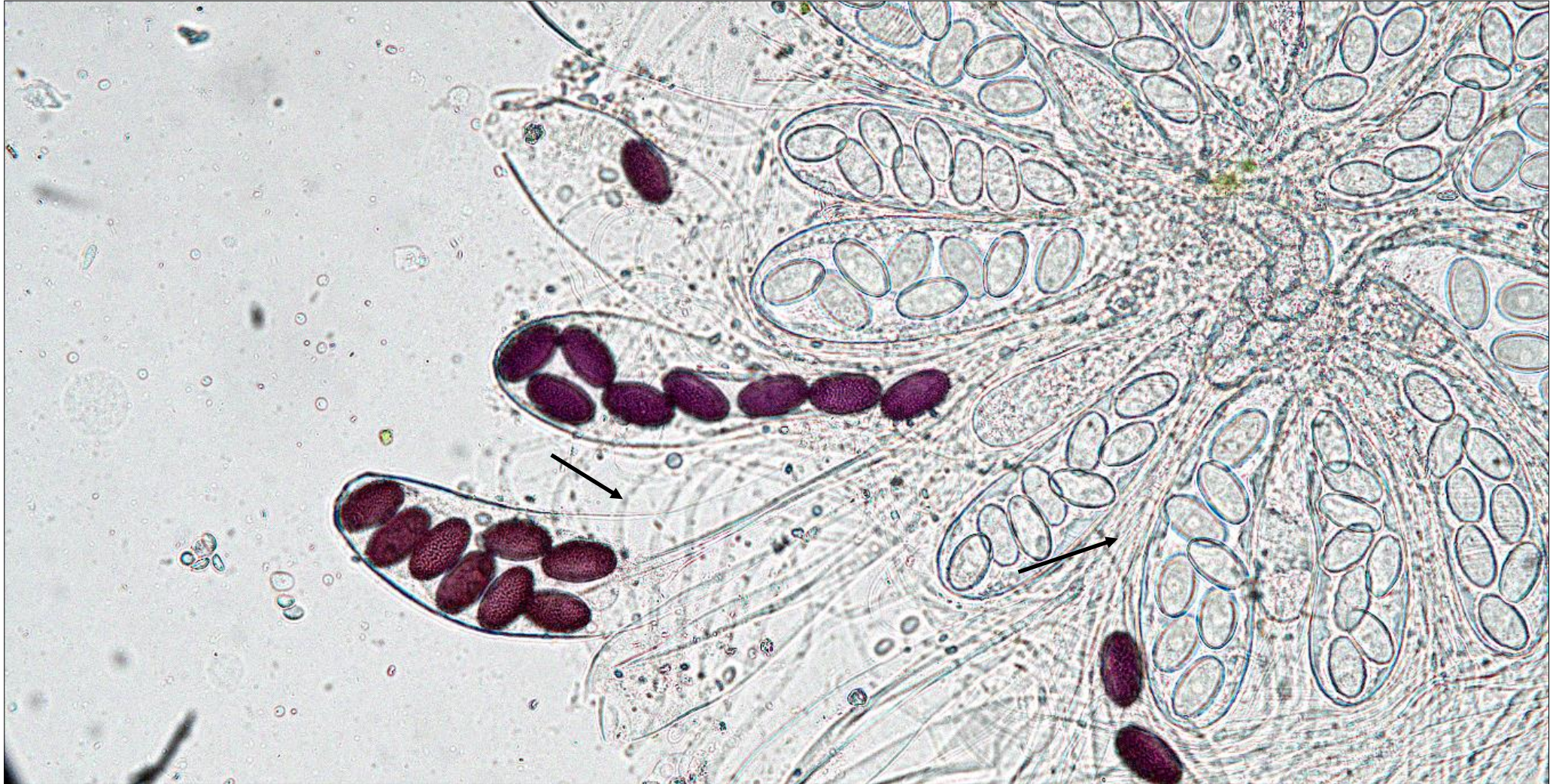
**AEB 1399. Hymenial squash showing asci with ellipsoidal ascospores in various positions within the asci and in various stages of maturity – hyaline to lightly pigmented & faintly warty and finally dark violet & warty. Water mount, using a ×20 objective and phase microscopy.**



**AEB 1399. Hymenial squash showing asci with ellipsoidal ascospores in various positions within the asci and in various stages of maturity – hyaline to lightly pigmented & faintly warty and finally dark violet & warty. Mature ascospores were mostly  $27.5 \times 17 \mu\text{m}$ . Water mount, using a  $\times 40$  objective and phase microscopy.**



**AEB 1399. Hymenial squash showing asci with ellipsoidal ascospores in various positions within the asci and in various stages of maturity – hyaline to lightly pigmented & faintly warty and finally dark violet & warty. Note also the faint gelatinous sheath surrounding the young hyaline ascospores (arrowed). Water mount, using a  $\times 40$  objective and brightfield microscopy.**



**AEB 1399. Hymenial squash showing asci with ellipsoidal ascospores in various positions within the asci and in various stages of maturity – hyaline to dark violet & warted. Note also the narrow hyaline paraphyses sandwiched among the asci (arrowed). Water mount, using a  $\times 40$  objective and brightfield microscopy.**