AEB 1313 (= PDD 117242)

***Rosellinia communis* L.E. Petrini with *Geniculosporium* anamorph – a good match**

Collection site: Wainuiomata Recreation Area, Nikau Track – an area near which *Scleroderma citrinum* (AEB 1308) was earlier collected. *Rosellinia stenasca* Rick (AEB 1312), also nearby, was only seen once, but was collected on a similar dead woody substrate.

Substrate: on a number of small to moderate-sized, much-decayed, decorticated, branch fragments beside the walking track – which was lined with large specimens of the tree species Kanuka (*Kunzea* sp.).

Collection date: 25 April 2018

Collector & identifier: Dan Mahoney

Voucher materials: Dried herbarium specimen AEB 1313 (= PDD 117242) accompanied by Shear's mounting fluid (SMF) and SMF/aniline blue lactic acid semi-permanent slide mounts; several digitized 35 mm Portra 36-exposure color film, 160 ASA photos of in-situ stromata and a number of compound scope digital photos from water, Melzer's reagent, SMF and SMF/aniline blue lactic acid microscope slides; Dan's brief description and comments below.

Dan's brief description: Ascospore size, shape and other morphological features used by Petrini, 2003, in her key to New Zealand species of *Rosellinia*, place this collection in *R. communis*.

The following morphological features are worth noting for this collection: **Stromata** numerous, black, usually solitary to occasionally in clusters, superficial, mostly free of any **subiculum** but sometimes with a creamy light-yellow subiculum at their bases. **Concentric rings** were observed on the stromata but these were not as clear as I have seen in other collections. **Ostioles** small, at the center of the apically flattened stromata – sometimes on a slight papilla but often no papilla seen. **Ectostroma** black, brittle. **Entostroma** not seen. **Perithecial peridium** seen attached to the surrounding stroma but also separated from it. **Asci** cylindrical with 8 uniseriately overlapping single-celled ascospores (115–)137.5–170 × 10–14 µm, n = 10). **Apical ring** blue in Melzer's reagent. **Stipe** fairly short. **Paraphyses** much longer than the asci, narrow, tapering somewhat apically, hyaline, septate, simple. **Ascospores** ellipsoid to ellipsoid-fusoid or sometimes ovoid to ovoid-fusoid, equilateral to inequilateral (and then moderately plano-convex), extremities rounded (broadly or narrowly so), dark brown to blackish, with 2 large bipolar guttules and a central deBary bubble (guttule and deBary bubble views dependent on the mounting medium, lighting and ascospore maturity) (13–)14–16(–17.5) × 8–9 µm (n = 25) with a straight, longitudinal germ slit stretching the length of the spore. **Continued on the next page:**

With a ***Geniculosporium*** **anamorph** on some stromata, diffusely so or covering the stromata. Conidiophores forming an often complex, variously branched shrub-like growth with its sporogenous apices extending sympodially to produce closely formed, single, dry, holoblastic conidia. Conidial production mostly visible only as tiny darkish scars closely-spaced along the sporogenous extension where the conidia had detached. Conidia small, smooth, hyaline, obovoid and basally truncate with a very small 'detachment fringe'. Conidia mostly 3 × 2 µm.

Dan's comments:

Publications and New Zealand collections of interest:

1) Petrini L.E. 2003. *Rosellinia* and related genera in New Zealand. New Zealand Journal of Botany 41: 71–138. https://doi.org/10.1080/0028825X.2003.9512833 Her treatment of *Rosellinia communis* is reproduced on a following page of this pdf.

2) Petrini, L. E. & Petrini, O. 2005. Morphological studies in *Rosellinia* (Xylariaceae): the first step towards a polyphasic taxonomy. Mycol. Res. 109: 569-580. Worth noting is their species cluster which includes *R. communis* (see Table 9 below).

Table 9. Cluster D6: *Rosellinia* species with ellipsoidal ascospores, *Geniculosporium* anamorph, ascus apical structure lacking pronounced rim, l:w ratio ⩽4.

Species	Range of ascospores (µm)	Distribution	Hosts	Subgenus	Character combination
R. communis	14–22 × 7–12	New Zealand	Monocot., dicot. wood	Ca	4
R. griseo-cincta	12–15 × 7–8	Brazil	Dicot. wood	Ca	4
R. johnstonii	10–16 × 5–9	New Zealand	Conifers, dicot. wood	Ca	4
R. macdonaldii[a]	22–29 × 8–13	Africa: Kenia	Dicot. wood	R	6
R. mammoidea	11–16 × 6–9	New Zealand	Dicot. wood	Ca	4
R. rhopalostilicola	11–16 × 4–11	New Zealand	Monocot. wood	Ca	4

[a] Clusters in this group because no ascus apical structure was observed, but due to its *Dematophora* anamorph it belongs to cluster D5.

3) Petrini L.E. 2013. *Rosellinia* – a world monograph. Bibliotheca Mycologica 205. 410 p. Unfortunately, I have not had access to this important treatise.

Landcare Research at their PDD Systematics Collections Data website – as of May 2018 – lists 45 collections of *R. communis* (not including the present collection), of which 5 were contributed by Dan Mahoney and Ann Bell. These 5 are PDD 82102, PDD 92314, PDD 102623, PDD 110469 & PDD 110480.

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3. *Rosellinia communis* L.E. Petrini, sp. nov. Figs 11, 12 O–R
ANAMORPH: *Geniculosporium*.

HOLOTYPUS (hic designatus): New Zealand, North Island, Northland: Hokianga County, on decorticated wood, 13 May 1983, G. J. Samuels, T. Matsushima, & R. H. Petersen, PDD 45775, anamorph on host.

Subiculum evanescent, restricted, approx. to 1 mm in extension, as white, cream patches in early stages, later light brown, felty, bearing conidiophores, subsequently reduced while stromata progressively emerge, until absent in old material. **Stromata** (400)687 ± 119.5(1050) µm high, (550)804 ± 131(1250) µm wide (n = 134), conical to columnar with bluntly rounded top, side walls often with concentric rings, wavy (Fig. 11E,H), dark brown, black around the ostioles, completely black when old, solitary or crowded, touching each other, sometimes 2–3 fused together, when young completely covered by the subiculum, during development gradually exposed. **Ostioles** finely papillate to pointed or not pronounced. **Ectostroma** 50–75 µm thick, black. **Entostroma** light brown, confined to the base. **Perithecia** detached and collapsed in mature material. **Ascus apical rings** (1.9)2.7 ± 0.5(3.8) µm high, upper width 3.3–4.8 µm, lower width 2–2.8 µm (n = 63), J+, pale blue. **Ascospores** (13.4)17.3 ± 1.3(21.6) µm long, (6.7)8.9 ± 0.7(11.5) µm wide (n = 710), inequilaterally ellipsoidal, dark brown, with straight germ slit, extending almost over the whole spore length. **Conidia** 3–4 × 2.5–3 µm.

HOSTS: *Beilschmiedia tawa, Brachyglottis repanda, Freycinetia baueriana subsp. banksii, Hedycarya arborea, Macropiper excelsum, Melicytus ramiflorus, Neopanax arboreum, Nothofagus solandri, Populus* sp., *Rhopalostylis sapida, Schefflera digitata, Sophora microphylla*.

MATRIX: Corticated or decorticated, heavily decomposed wood.

ETYMOLOGY: communis (common), referring to the frequent occurrence of this species.

ADDITIONAL SPECIMENS EXAMINED: MANY
TYPE SPECIMENS EXAMINED OF RELATED SPECIES: *R. griseo-cincta*: TYPE, Brazil, Rio Grande do Sul I Santo Angelo pr. Cachoeira, Gust. Ain Malme, S. *R. indica*: ISOTYPE, India, on dead, decaying wood, Uttar Pradesh, Naini Tal, Sat Tal, J. S. Dargan 13115, 17 Aug 1973, K. *R. picta*: TYPE, Sri Lanka, Nilgherries, E. S. Berkely, K. *R. rickii*: ISOTYPE, Brazil, in arbore frondosa, São Leopoldo, 1905, S.

NOTES: *Rosellinia communis* is characterised by its conical to columnar, black stromata covered by a whitish cream subiculum when young. The side walls regularly show concentric rings, thus giving their surface a wavy appearance. *Rosellinia communis* can be distinguished easily from *R. johnstonii* and *R. mammoidea* by its larger, differently shaped stromata and ascospore size. Many specimens of *R. communis* were assigned to *R. mammoidea*, as the spore size erroneously published for the latter by Cooke (1879) corresponds to that of *R. communis* ascospores. Cooke (1879) gave 16–18 × 8 µm for the Travers collection (the type of *R. mammoidea*), whereas the spores of this specimen actually measure 11–14 × 7–8 µm. The closest species is *R. picta* (Berk.) Cooke described from Sri Lanka. The type material has regular, conical to semiglobose stromata lacking wavy side walls and ascospores with pinched ends. The stroma and ascospore size, however, do not differ among the two species as revealed by analysis of variance and discriminant analysis, respectively (results not shown). The type material of *R. griseo-cincta* Starbäck, *R. indica* Thind, and *R. rickii* Bres. show roughly the same shape for stromata and ascospores; the stromata, however, are larger and lack the wavy surface and the ascospores are smaller (L. E. Petrini unpubl. data). *Rosellinia communis* differs from *R. subiculata* by stroma shape, size, and subiculum colour as well as much larger ascospores (Petrini 1993).

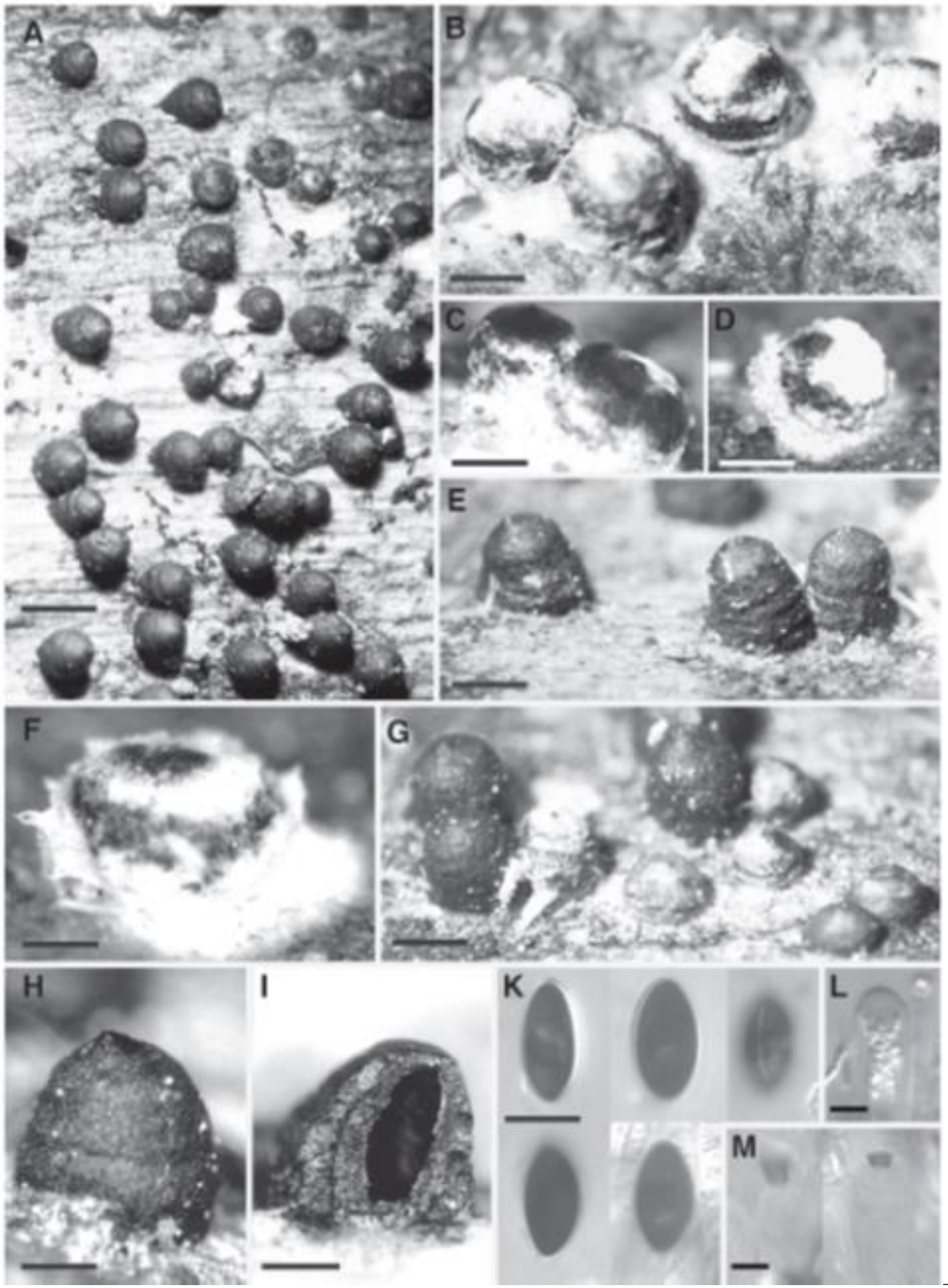


Fig. 11 *Rosellinia communis*. **A–H**, Stromata, B–D, F, showing subiculum, E, concentric rings on surface; **I**, Vertical section of stroma, outer shell stroma, inner perithecium; **K**, Ascospores, 3rd showing germ slit; **L**, Ascus apical ring shown by Nomarski contrast; **M**, Ascus apical rings in Melzer's reagent. Type, PDD 45775; PDD 16903: second picture of M. Scale bars: A = 1 mm; B–E, G = 0.5 mm; F, H, I = 0.25 mm; K = 10 µm; L, M = 5 µm.

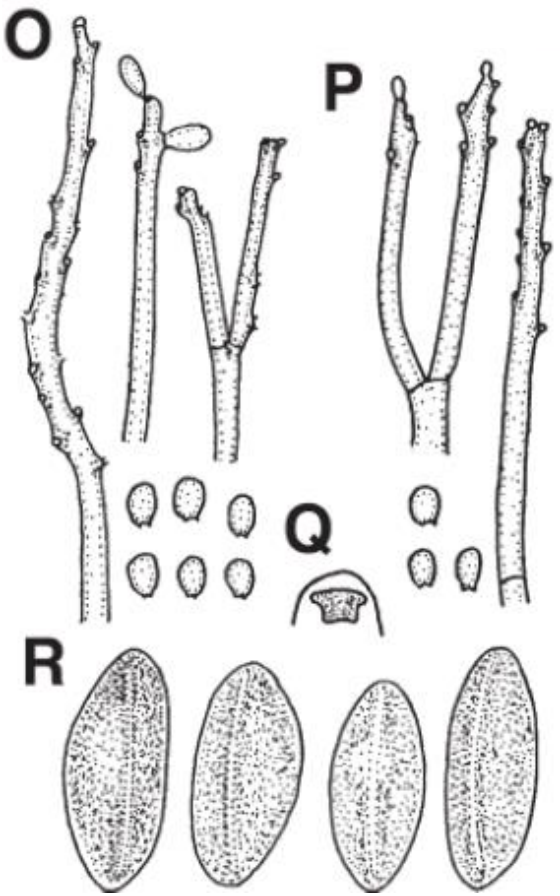
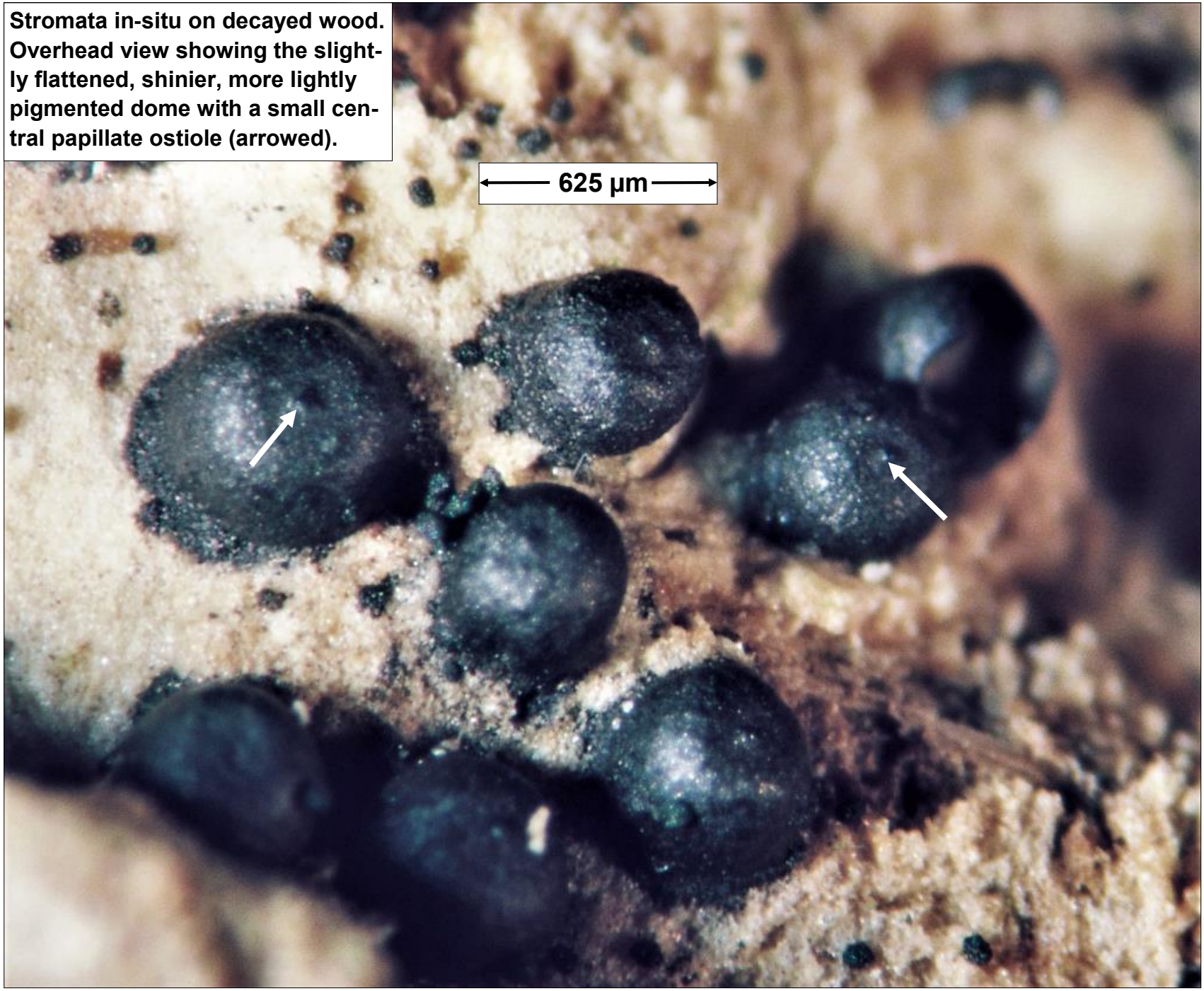
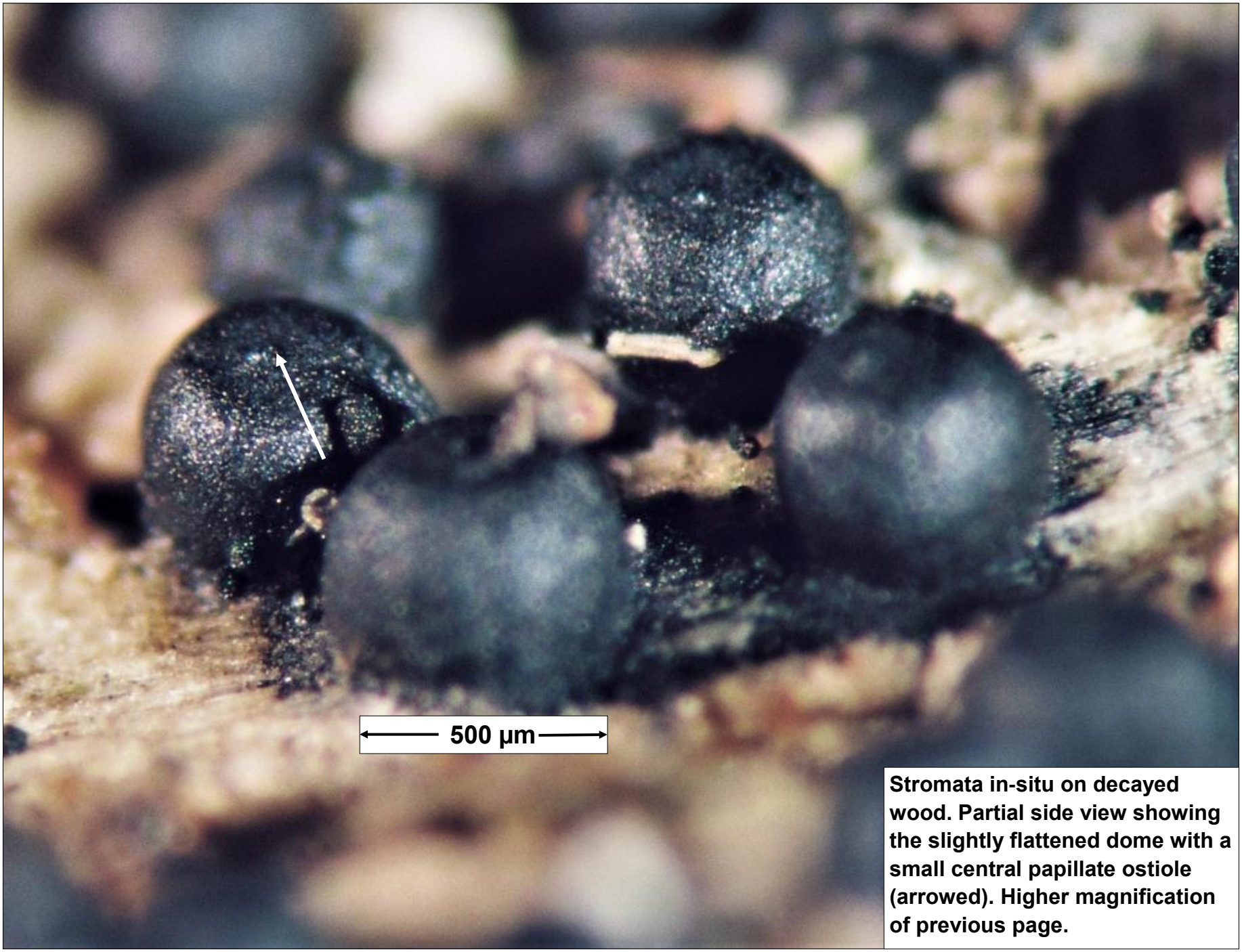


Fig. 12. O–R, *R. communis*; PDD 18413: O, Conidiophores and conidia from the host (PDD 16903); P, Conidiophores and conidia on PDA; Q, Ascus apical ring; R, Ascospores.

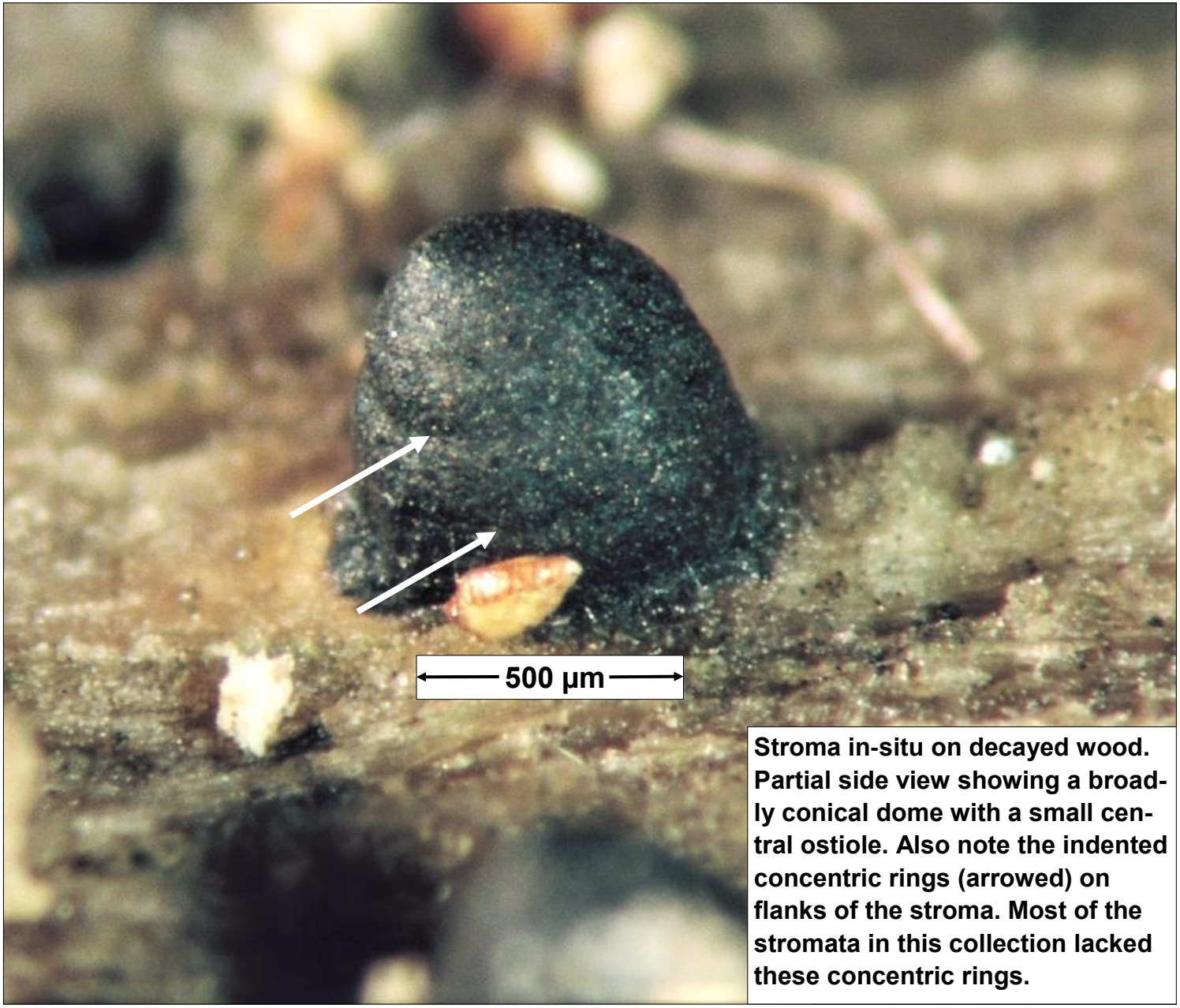


Stromata in-situ on decayed wood. Overhead view showing the slightly flattened, shinier, more lightly pigmented dome with a small central papillate ostiole (arrowed).

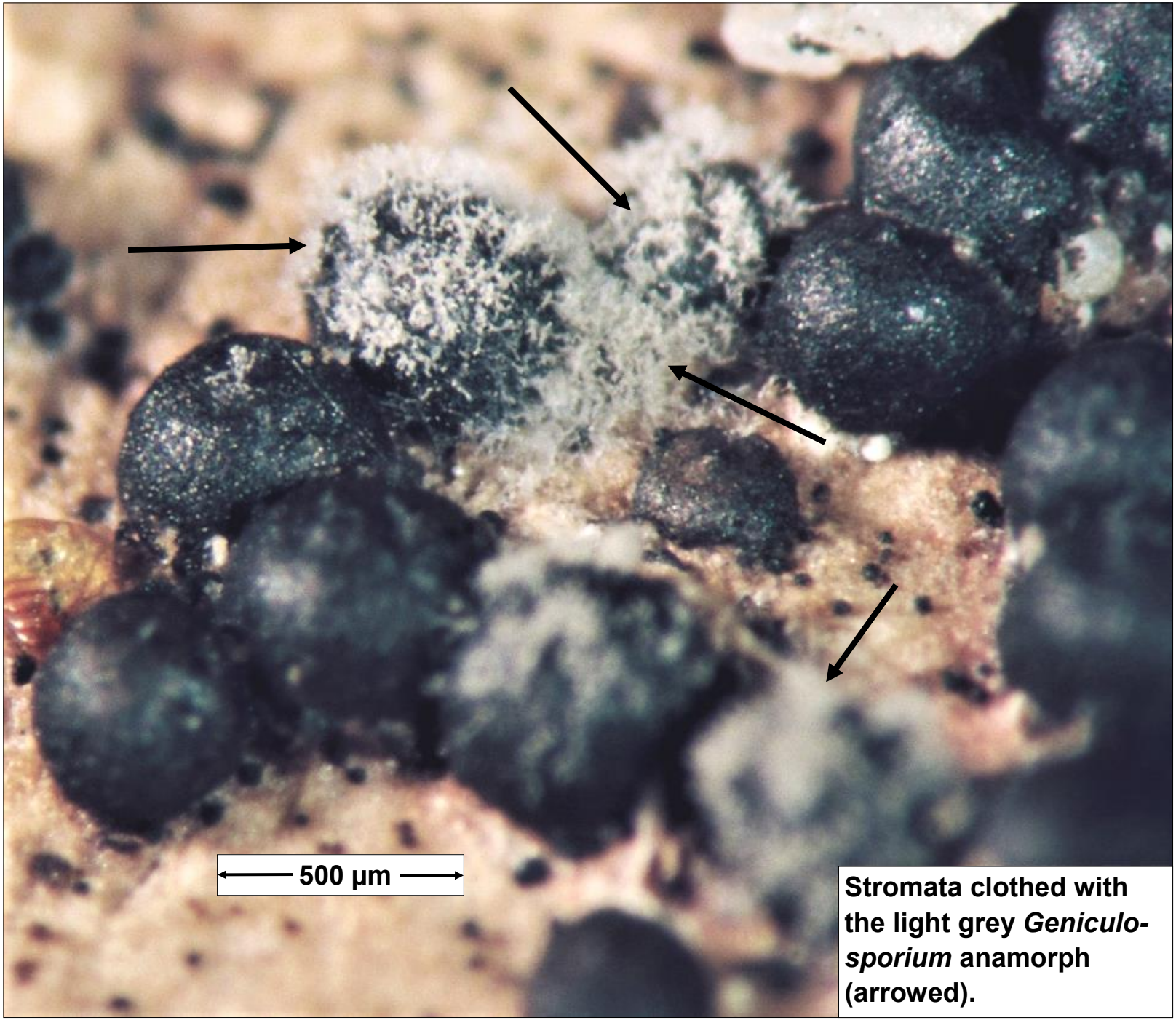
Stromata in-situ on decayed wood. Partial side view showing the slightly flattened dome with a small central papillate ostiole (arrowed).



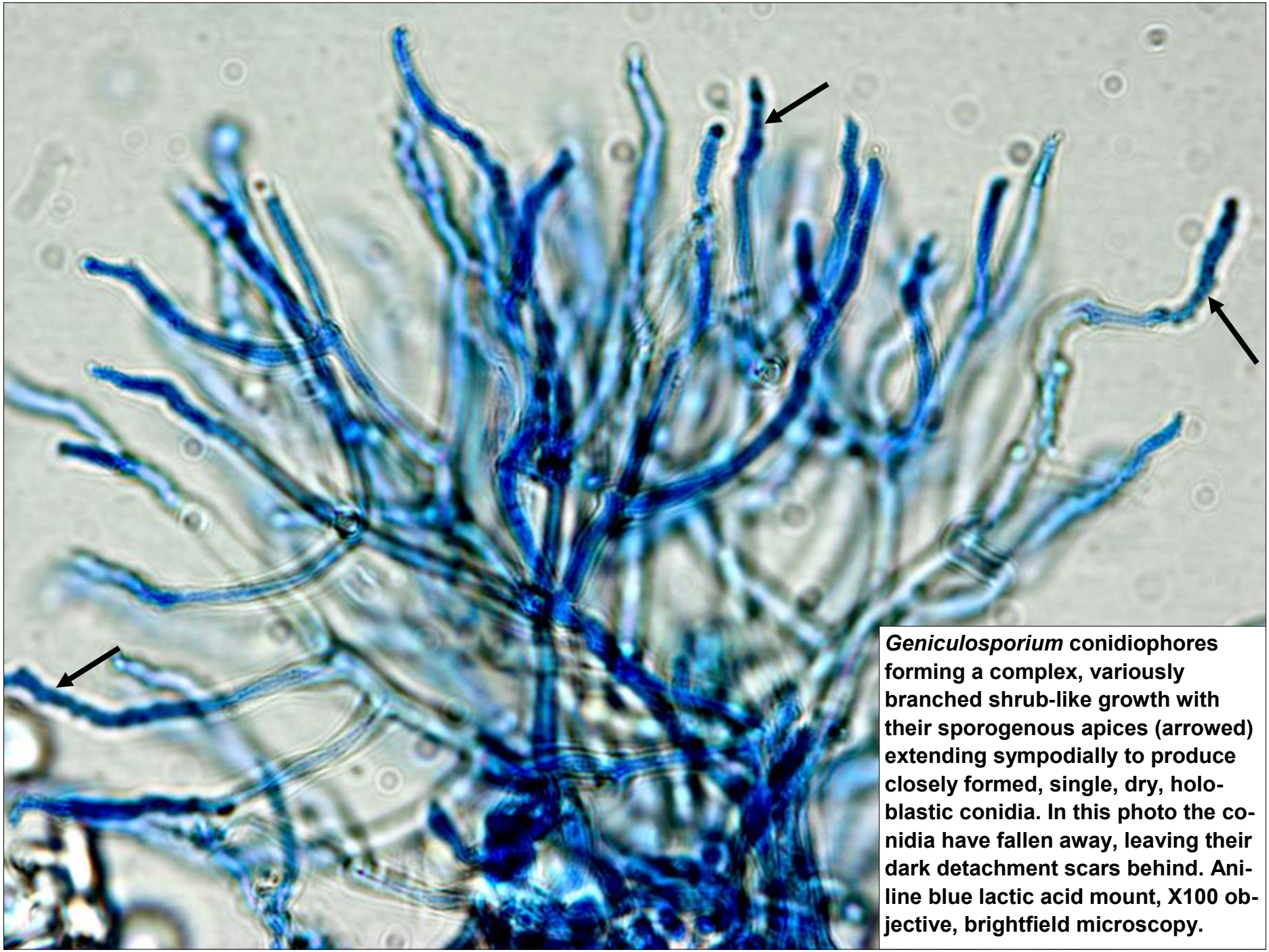
Stromata in-situ on decayed wood. Partial side view showing the slightly flattened dome with a small central papillate ostiole (arrowed). Higher magnification of previous page.



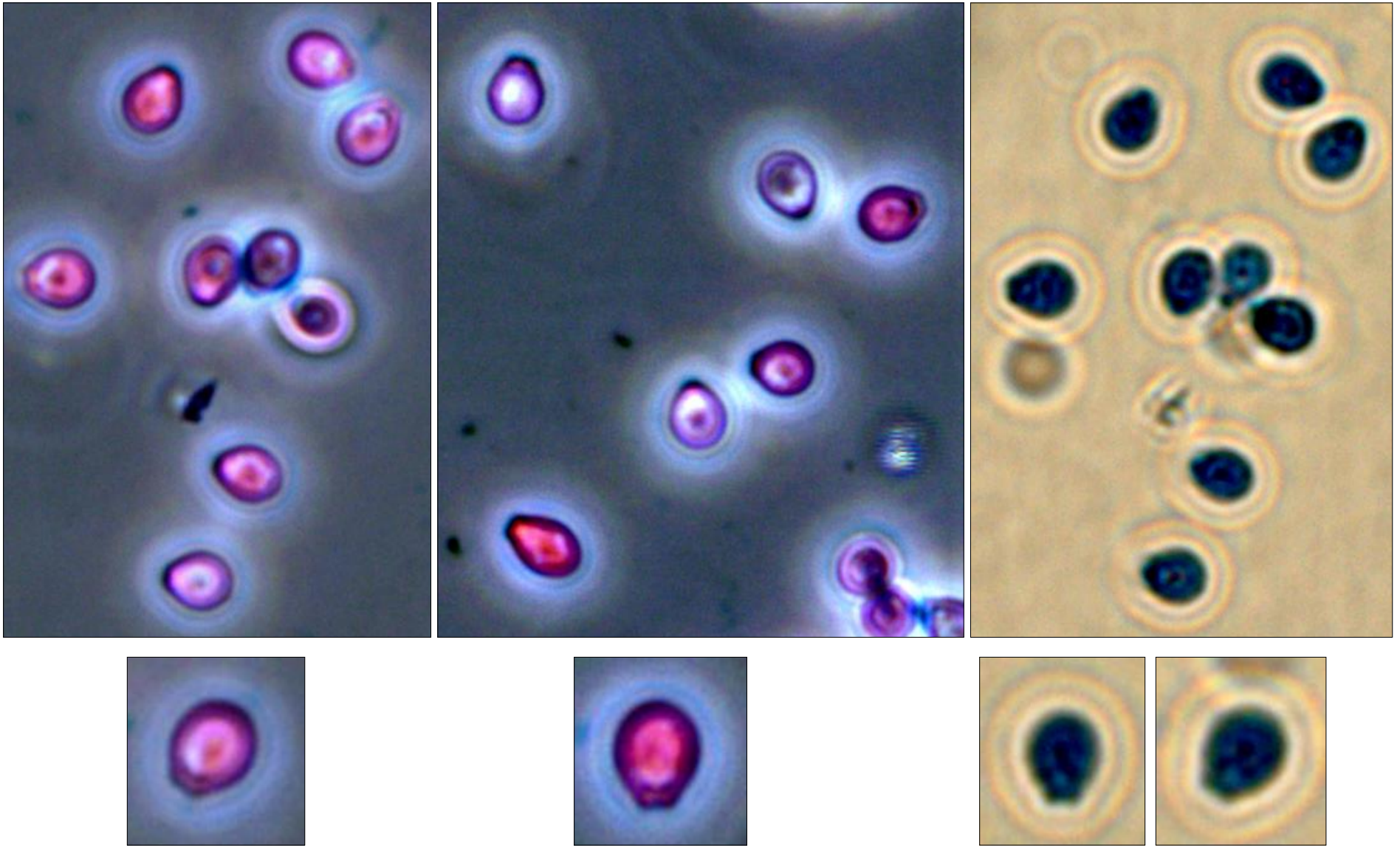
Stroma in-situ on decayed wood. Partial side view showing a broadly conical dome with a small central ostiole. Also note the indented concentric rings (arrowed) on flanks of the stroma. Most of the stromata in this collection lacked these concentric rings.



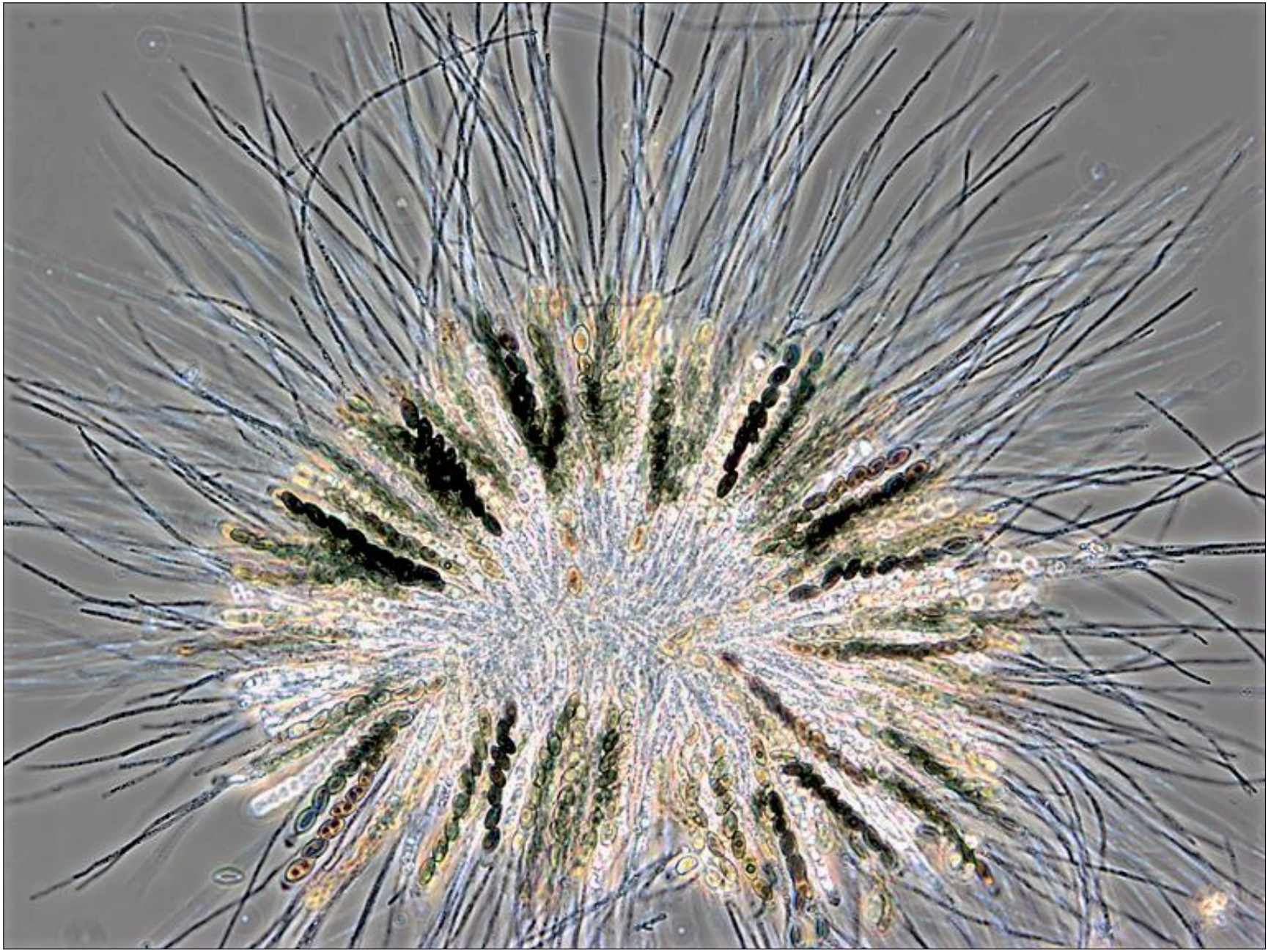
Stromata clothed with the light grey *Geniculo-sporium* anamorph (arrowed).



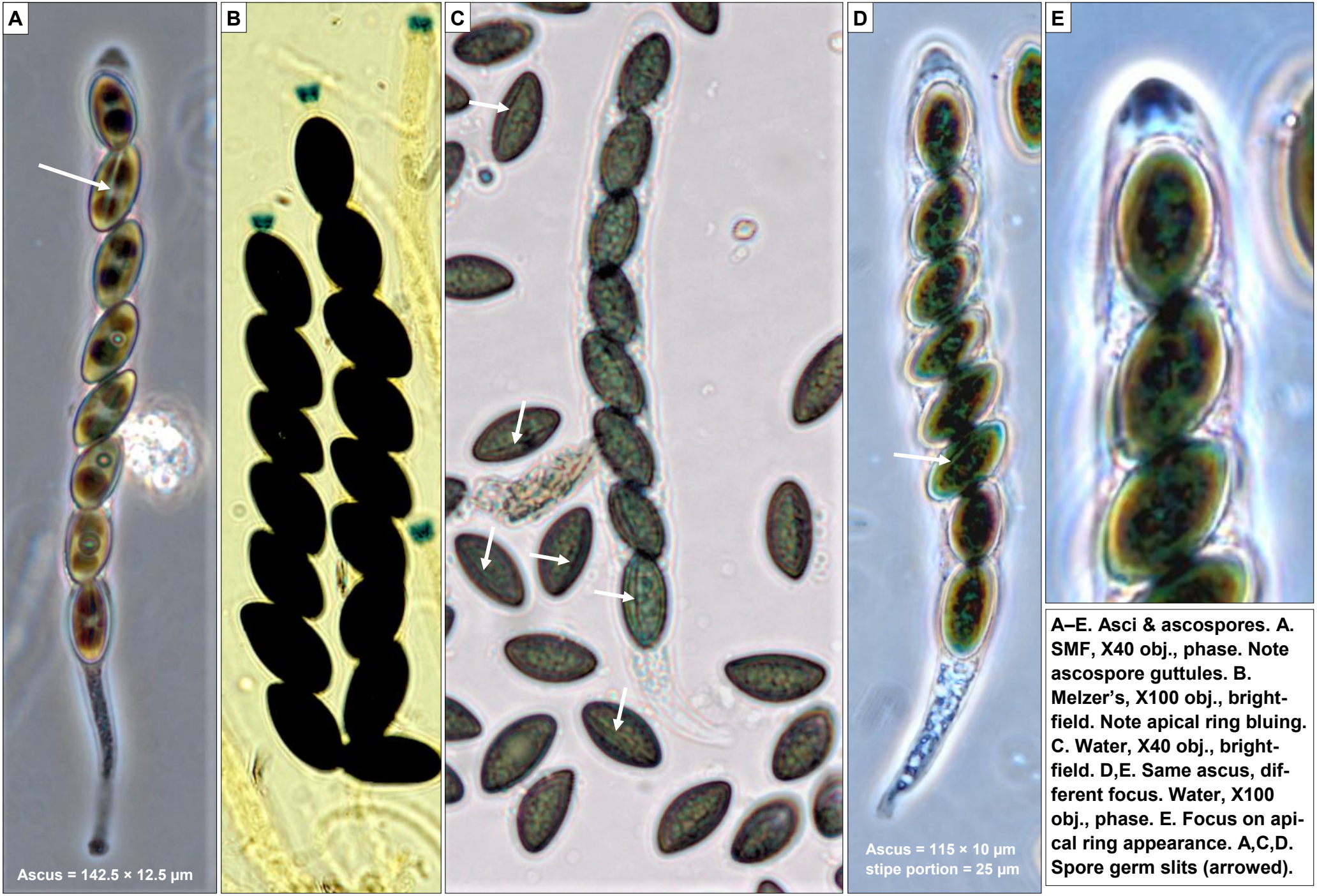
Geniculosporium **conidiophores forming a complex, variously branched shrub-like growth with their sporogenous apices (arrowed) extending sympodially to produce closely formed, single, dry, holoblastic conidia. In this photo the conidia have fallen away, leaving their dark detachment scars behind. Aniline blue lactic acid mount, X100 objective, brightfield microscopy.**



Geniculosporium **conidia. Conidia smooth, hyaline, obovoid and basally truncate with a very small 'detachment fringe'. Conidia mostly 3 × 2 µm. All photos from water/aniline blue lactic acid mounts under X100 objectives. Those on the right using brightfield microscopy, others using phase.**



Hymenial squash showing asci, ascospores and especially paraphyses. The latter much longer than the asci, hyaline, septate, simple, narrow and tapering slightly apically. SMF mount, ×20 objective, phase microscopy.



A–E. Asci & ascospores. A. SMF, X40 obj., phase. Note ascospore guttules. B. Melzer's, X100 obj., bright-field. Note apical ring bluing. C. Water, X40 obj., bright-field. D,E. Same ascus, different focus. Water, X100 obj., phase. E. Focus on apical ring appearance. A,C,D. Spore germ slits (arrowed).