

***Trematosphaeria crassiseptata* Kaz. Tanaka, Y. Harada & M.E. Barr – AEB 1092 (= PDD 98336)**

Substrate: dead wood

Collection occasion and site: **Occasion:** The 23rd New Zealand Fungal Foray; **Site:** Lake Papaitonga, a regenerating lowland dune lake/swamp forest, about 20 min N of Waikanae off SH 1 at the end of Buller Road in a lakeside reserve.

Collection date: 12 May 2009

Collector: Dan Mahoney

Identifier: Ann Bell

Voucher materials: a dried specimen AEB 1092 (= PDD 98336) accompanied by two Shear's mounting fluid (SMF) slides; Ann's notes; Dan's digital photos of the sterile elements, asci & ascospores from the SMF slides; Dan's brief comments.

Comments: Collection AEB 1092 nicely matches the information provided by Tanaka et al. 2005 – see the next two pages for their description, photos and notes. Following these are Dan's photos and their legends that provide details for AEB 1092.

Tanaka, K., Harada, Y. and Barr, M.E. (2005). *Trematosphaeria*: taxonomic concepts, new species from Japan and key to species. *Fungal Diversity* 19: 145–156.

Trematosphaeria crassiseptata Kaz. Tanaka, Y. Harada & M.E. Barr, **sp. nov.** (Figs. 1–8, 20–22)

Etymology: From the Latin prefix *crassi-* meaning “thick-” and *septatus* meaning “septate” in reference to the thick-walled septa of ascospores.

Ascomata 300–500 µm high, 400–530 µm diam, subglobose, scattered to clustered, erumpent to superficial, with a rounded ostiole. **Beak** 90–120 µm long, 100–130 µm diam, central, papillate. **Ascomal wall** at sides 17–25 µm thick, composed of brown compressed cells of 5–12.5 × 2.5–4 µm; at the base 7–13 µm thick; around the beak composed of thick-walled small black cells. **Hamathecium** trabeculate, 1.5–2.5 µm thick, branched and anastomosed, with septa at 8–15 µm intervals. **Asci** (98–)118–145(–160) × 17.5–24.5 µm (mean = 133 × 20.8 µm, *n* = 21), clavate, fissitunicate, rounded to somewhat obtuse at the apex, with an apical chamber, short-stalked (12–45 µm long), (4-)8-spored. **Ascospores** (27–)28.5–35(–38) × 8–10.5(–11.5) µm (mean = 31.8 × 9.7 µm, *n* = 100), L/W 3.0–3.7 (mean = 3.3, *n* = 100), broadly fusiform with slightly rounded ends, slightly curved, 5-septate, with a primary septum near median (mostly submedian; 0.49–0.54, mean = 0.51, *n* = 70), weakly constricted at the primary septum, not constricted at other septa, widest at the third cell from the apex, brown to reddish brown at 4 central cells, pale yellow at both end cells, smooth, guttulate, without sheath or appendages.

Anamorph: Unknown.

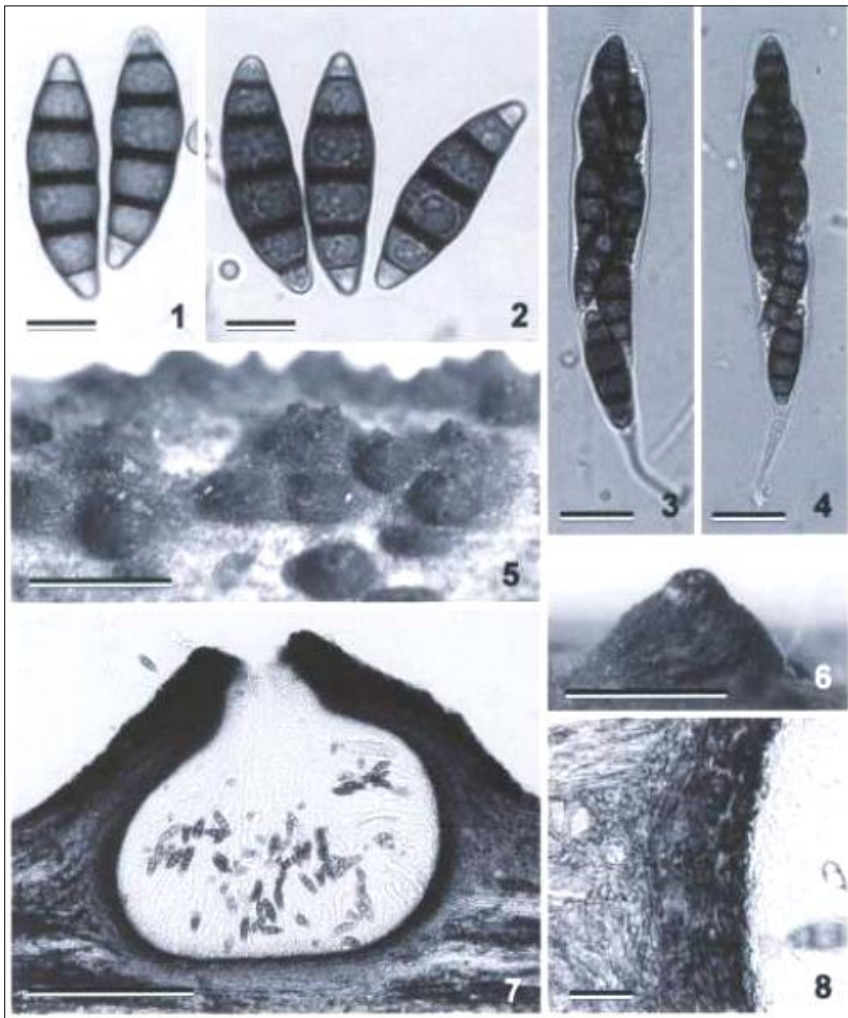
Habitat: Saprobic on dead twigs of an unknown plant near river.

Known distribution: Northern JAPAN.

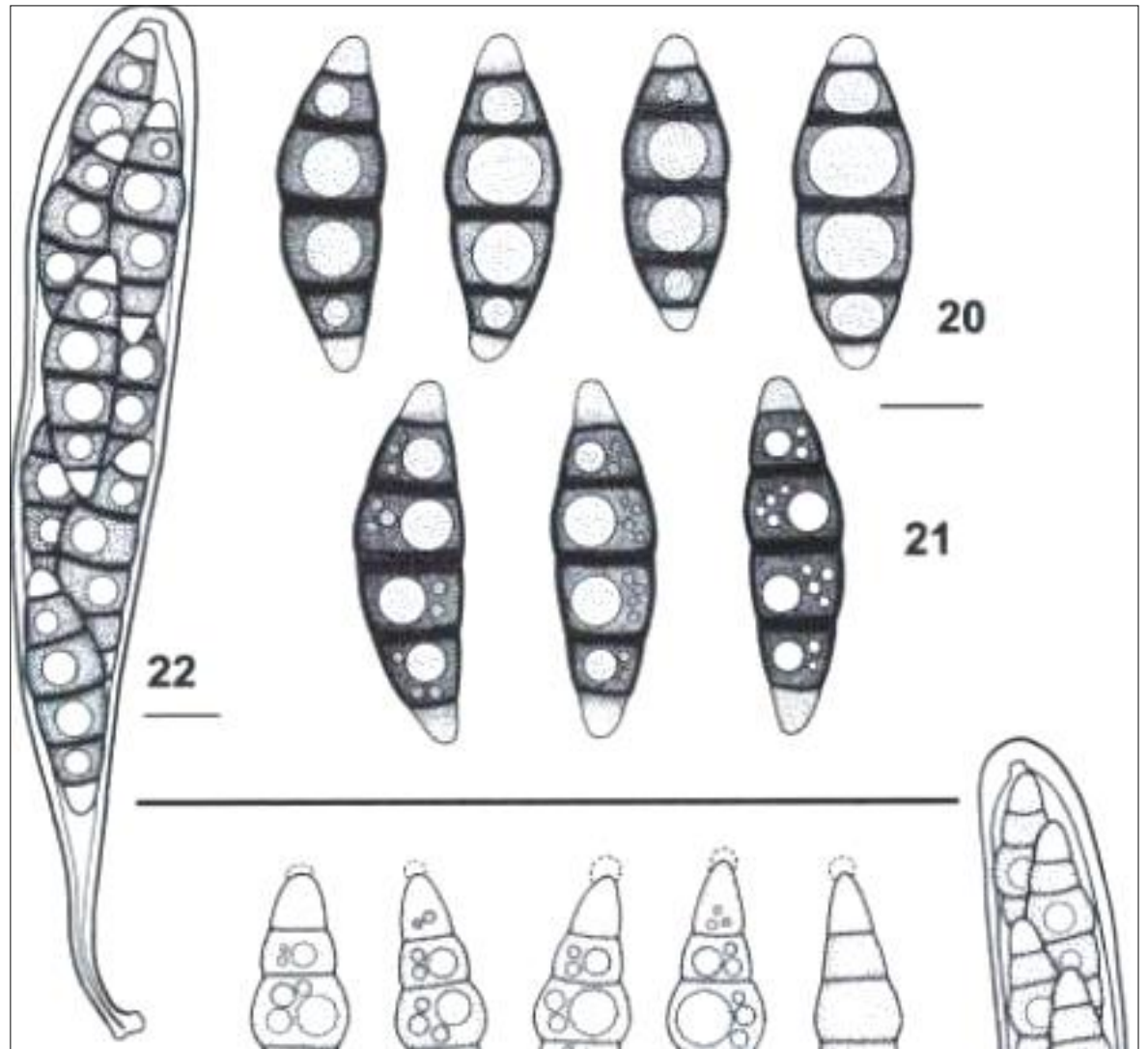
Notes: On the basis of the following morphological features, our collected fungus is best accommodated in *Trematosphaeria*: the large-sized carbonaceous ascomata, trabeculate hamathecium, clavate asci with fissitunicate dehiscence, and 5-septate reddish-brown ascospores with pale end cells. This species somewhat resembles *T. wegeliniana* L. Holm and K. Holm (1988), but the latter has ascomata with cristate beak and longer ascospores (36–50 × 8–10 µm). The ascospore dimensions of *T. crassiseptata* are identical to those of *T. confusa*, but the latter is different in having 3-septate ascospores (Boise, 1985).

Key to *Trematosphaeria* species

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|--|---------------------|--|---------------------------|
| 1. Ascospores 1-septate | 2 | 11. Ascomata with a cristate beak; ascospores 36-50 × 8-10 µm | <i>T. wegeliniana</i> |
| 1. Ascospores more than 1-septate | 3 | 11. Ascomata without a cristate beak | 12 |
| 2. Ascospores small, 20-30 × 6-8 µm..... | <i>T. vicina</i> | 12. Ascospores 34-48 × 7-10 µm, with striate surface | <i>T. lineolatispora</i> |
| 2. Ascospores larger, 75-85 × 24-26 µm | <i>T. crustacea</i> | 12. Ascospores surface without striate ornamentation..... | 13 |
| 3. Ascospores 1 to 3-septate | 4 | 13. Ascospores 40-52 × 7.5-10 µm, with an entire sheath..... | <i>T. pachycarpa</i> |
| 3. Ascospores 3 to 7-septate | 9 | 13. Ascospores mostly less than 40 µm long..... | 14 |
| 9. Ascospores large, more than 70 µm long..... | 10 | 14. Ascospores (27-)28.5-35(-38) × 8-10.5(-11.5) µm, without sheath or appendages..... | |
| 9. Ascospores smaller, mostly less than 50 µm long | 11 | | <i>T. crassiseptata</i> |
| 10. Ascospores fusiform, (71-)80-88(-92) × (12-)15-16.5(-18) µm; on wood | <i>T. hydrela</i> | 14. Ascospores 30-38(-41) × 9-11(-12) µm, with appendages at both ends . | <i>T. biappendiculata</i> |
| 10. Ascospores clavate to broadly fusiform, 72-94 × 14-18.5 µm; on palms | <i>T. abuensis</i> | | |



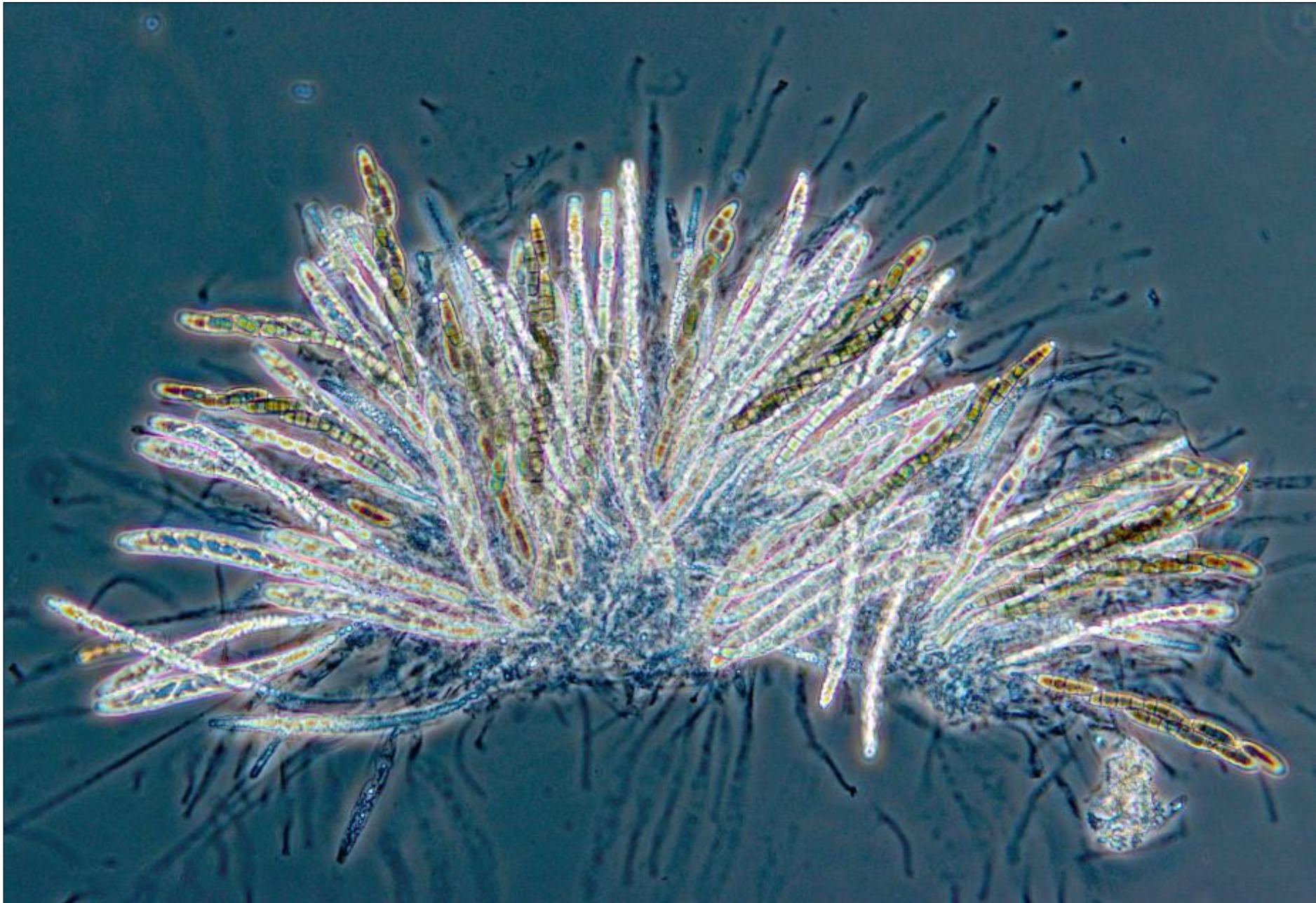
Figs. 1-8. Micrographs of *Trematosphaeria crassiseptata*. 1, 2. Ascospores. 3, 4. Asci. 5, 6. Ascomata on host surface. Note the rounded ostiole. 7. Ascoma in longitudinal section. 8. Ascomal wall at side. (1, 5-8 from HHUF 28601; 2-4 from culture MAFF 239516). Bars 1, 2 = 10 μm ; 3, 4, 8 = 20 μm ; 5 = 1 mm; 6 = 500 μm ; 7 = 200 μm .



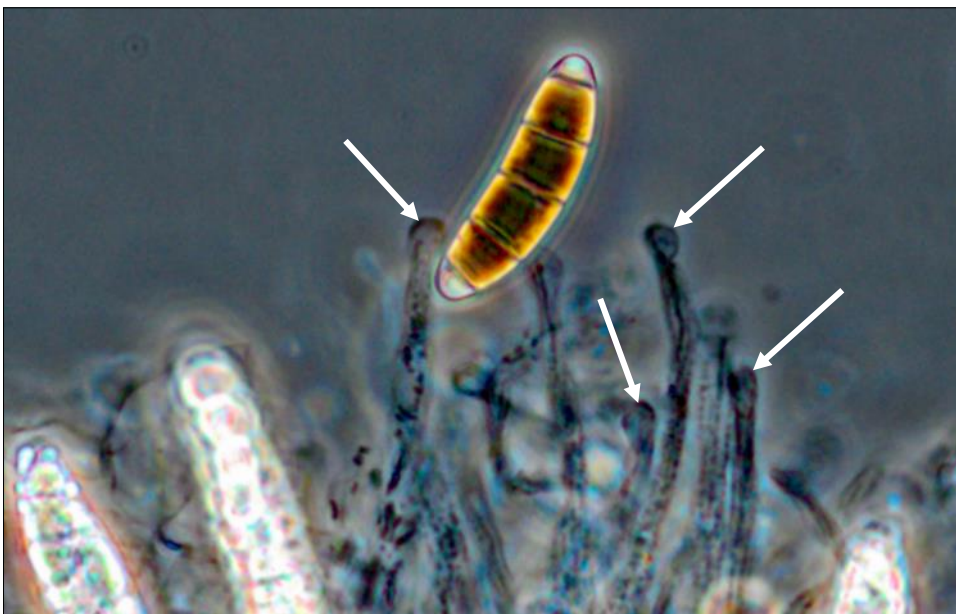
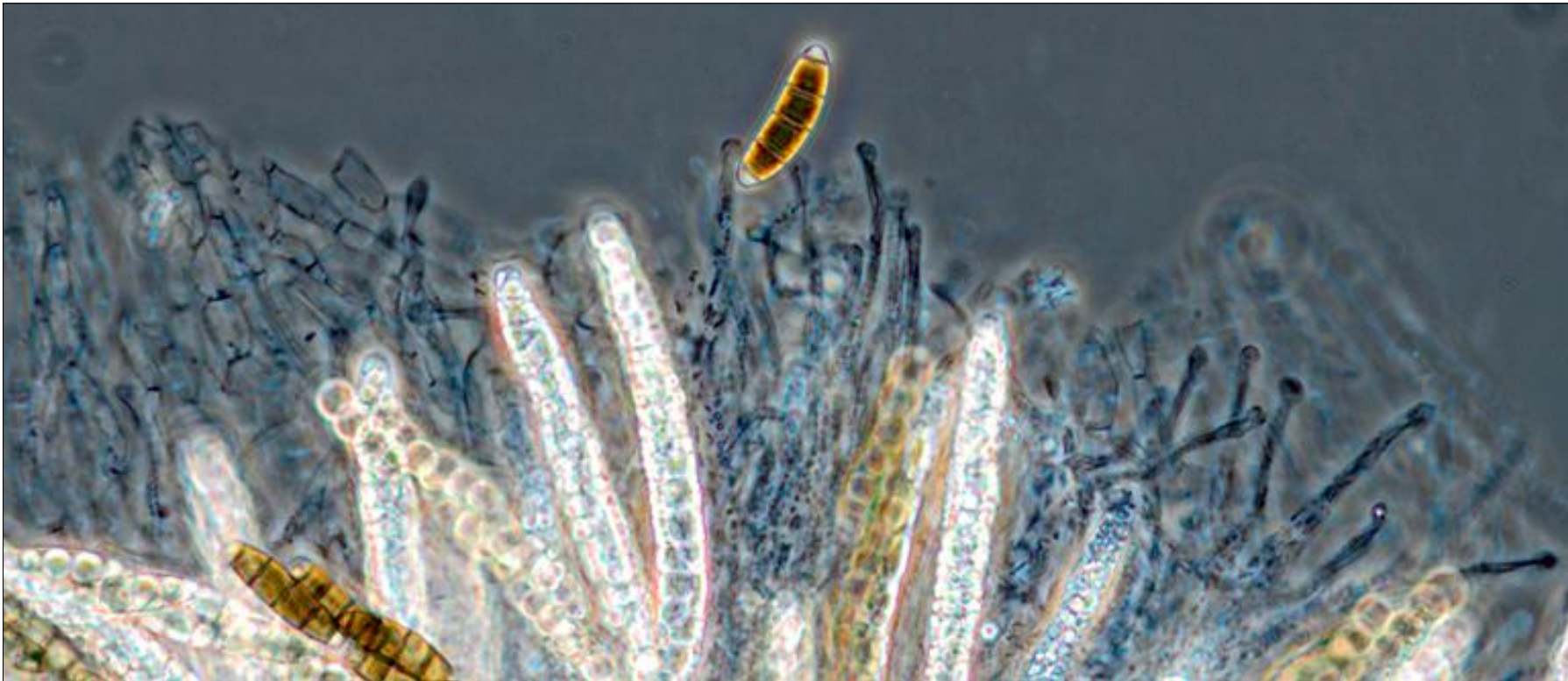
Figs. 20-22. *Trematosphaeria crassiseptata*. 20, 21. Ascospores (20 from HHUF 28601; 21 from culture MAFF 239516). 22. Ascus (from culture MAFF 239516). Bars: 20-25 = 10 μm



AEB 1092. Ascoma squash in SMF. Left photo: showing sterile elements, asci & ascospores using the X20 objective & brightfield microscopy. Right photo: showing the enlarged ascus & ascospores from the red circled area in the left photo.



AEB 1092. Same ascoma squash in SMF as shown on the previous page but here using phase microscopy. Note the numerous sterile elements that extend from the hymenial spread of asci and ascospores.



AEB 1092. Ascoma squash in SMF. Top photo: showing sterile elements, asci & mostly young ascospores using the X40 objective & phase microscopy. Bottom photo: Same field of view but enlarged and emphasizing the versicolorous 5-septate ascospore with its hyaline end cells and interior brown cells ($32.5 \times 8 \mu\text{m}$). Note also the slight capitate swelling at the tips of the sterile elements (arrowed).



AEB 1092. Ascoma squash in SMF. Left photo: showing 4 versicolorous ascospores using the X100 objective & brightfield microscopy (spores top to bottom 25×7.5 , 27×7 , 25×7 & $32 \times 8 \mu\text{m}$). Right photo: showing another 4 versicolorous ascospores (spores left to right 33×8.5 , 23×8 , 25×8 & $27 \times 7 \mu\text{m}$).