

***Saccobolus minimus* Velen. 1934 – AEB 1362 (= PDD 120030)**

Collected: March 2023

Substrate: wild red deer (*Cervus elaphus*) dung

Collection site: NZTM grid ref. E1770875 N5447137, in manuka-kamahahi regenerating forest, above and to the west of Grace Nicholls Drive, Riverstone Terraces subdivision, Upper Hutt.

Collectors: Ian Flux & Merryl Park; **Identifiers:** Ann Bell & Dan Mahoney

Voucher materials: No dried herbarium specimen but 1 Shear's mounting fluid (SMF) semi-permanent microscope slide; microscopic views of a small but fertile apothecium and paraphyses, asci and ascospore clusters; Dan's comments.

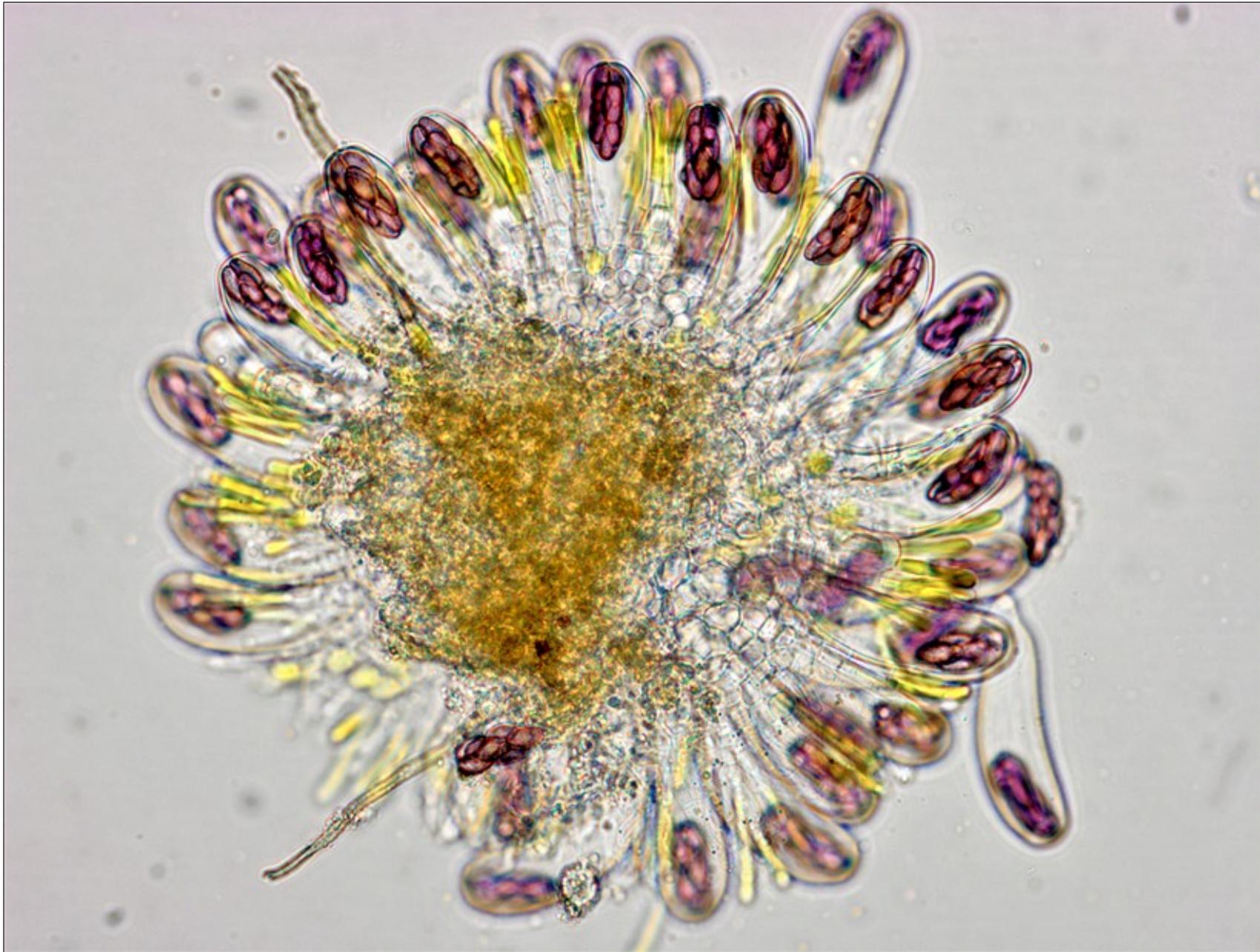
References consulted for *Saccobolus minimus*: (listed in chronological order)

- 1) Brummelen J. (van). 1967. A World-monograph of the genera *Ascobolus* and *Saccobolus* (Ascomycetes, Pezizales). Persoonia, supplement, I: 1-260.
- 2) Bell A. 1983. Dung Fungi: An Illustrated Guide to Coprophilous Fungi in New Zealand. Victoria University Press, Wellington. 88 pages.
- 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.
- 4) Doveri F. 2014. An update on the genera *Ascobolus* and *Saccobolus* with keys and descriptions of three coprophilous species, new to Italy. Mycosphere, 5 (1): 86-135.
- 5) Fungi of Great Britain and Ireland. 2017. *Saccobolus minimus* A description, adapted from van Brummelen 1967, is provided by Paul Cannon. That description is reproduced on the next page.

Paul Cannon's description of *Saccobolus minimus*, adapted from van Brummelen 1967, is reproduced below.

Ascomata apothecia, solitary or gregarious, superficial, sessile, 100-200 μm diam., at first globular, becoming pulvinate, amber to ochraceous yellow, smooth, the margin not differentiated. Disk convex, amber to golden yellow, dotted with the almost black protruding tips of ripe asci. Hymenium 50-60 μm thick, hypothecium not clearly differentiated. Flesh thin, of subglobular cells 5-12 μm diam. Excipulum very thin, in the lower part of small subglobose cells, in the upper part consisting of a palisade of paraphysis-like hyphae. Paraphyses rarely branched, septate, filiform, 2.0-2.5 μm diam., with yellow contents especially in the upper part, not or scarcely thickened above (to ca 4 μm diam.). Asci 50-60 x 14-16 μm , cylindrical-clavate, gradually tapering into a rather broad base, the apex truncate, the wall blue in Melzer's reagent, 8-spored. Spore-clusters compact, 29-33 x 12-15 μm , ellipsoidal to elongate, surrounded by a common hyaline gelatinous sheath. Ascospores arranged according to pattern I (Brummelen 1967), (10-) 11.5-13.5 (-14.5) x 5.5-6.5 (-7) μm , ellipsoidal to fusiform-ellipsoidal, often somewhat asymmetrical, at first hyaline and then pinkish-violet, finally violet or purplish-brown, very finely punctate or smooth, often with some irregular cracks, the pigment in a thin layer, to ca 0.7 μm thick.

Dan's comments and measurements for AEB 1362: As reported by others on various dungs, apothecia viewed on the red deer dung were few. At first I thought they might represent the *Saccobolus citrinus* I had seen on goat dung, also collected by Ian and Meryll, but the smaller ascospore clusters (27–32.5 × 10–12.5 μm) and smooth, finely punctate ascospores (11–13 × 5–6 μm) proved otherwise. These sizes, the ascospore arrangement in each cluster (matching that described by van Brummelen) and the yellow apothecia with simple, septate & yellow paraphyses) easily identify it.



AEB 1362. A fresh somewhat-squashed apothecium (250 μm diameter) seen in a water mount using the X40 objective and brightfield microscopy. Note the violet-purplish ascospores, the bright yellow septate paraphyses & bits of the subglobular-celled epithecium.



AEB 1362. Ascospore clusters seen (more brownish here) in a SMF mount using the X100 objective & brightfield microscopy. Note the ascospore arrangements & their punctate surface.



AEB 1362. Another view of ascospore clusters seen in a SMF mount using the X100 objective & brightfield microscopy.



AEB 1362. Another view of ascospore clusters seen in a SMF mount using the X100 objective & brightfield microscopy.