

***Physarum viride* (Bull.) Pers. – SM93 (= PDD 117249)**

Substrate: dead, decaying, unidentified tree roots covered with moss and debris

Collection site: Battle Hill Farm Forest Park is located on the Paekakariki Hill Road. It is 6 km from State Highway 58 at Pauatahanui, or 10 km from State Highway 1 at Paekakariki. Battle Hill contains a remnant of the original kohekohe forest with tawa, pukatea and kahikatea.

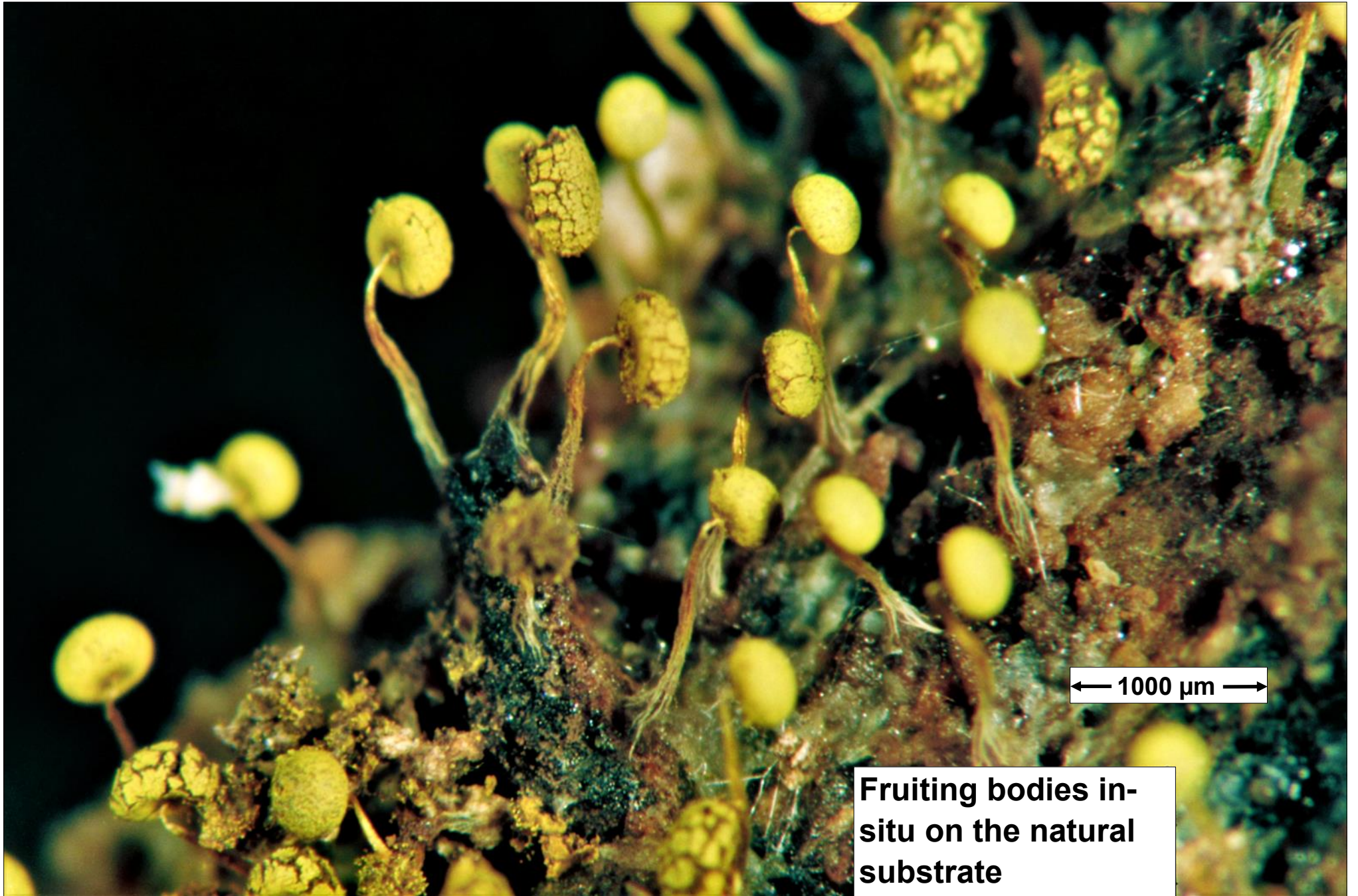
Collection date: 19 December 2020

Collector: Ann Bell; **Identifier:** Dan Mahoney

Voucher materials: dried herbarium material SM93 (= PDD 117249) accompanied by one semi-permanent Shear's mounting fluid (SMF) slide; Dan's Zeiss dissecting scope photos of in-situ fruiting bodies (digitized) and his Olympus BX51 compound scope with DP25 camera digital photos of microscopic detail; Dan's description and comments.

Brief description and comments: (for measurements, see photos on the following pages) **Fruiting bodies** numerous, crowded but separate, and covering a roughly 0.5 m long ellipse over the dead roots (maturity levels observed: varied from mature fruiting bodies with intact yellow sporothecae to those with peridium dehiscence complete and most spores dispersed – no plasmodial or early fruiting stages were observed); **stalks** longitudinally fibrillar, darker (blackish) and broader basally, reddish above that and gradually tapering upwards to a lighter, narrower, nodding apex that supported a slightly umbilicate oblate yellow **sporotheca**; **Columella or pseudocolumella** lacking; **Peridium** thin, membranous, yellow, encrusted with lime, splitting into irregular fragments above and more persistent floriform lobes below (this stage of dehiscence predominating in our dried herbarium specimen). **Capillitial threads** radiating from the inner base of the peridium, abundant, narrow, branching (often dichotomously), hyaline, with numerous small, yellow, usually fusiform or spindle-shaped, lime nodes. **Spores** globose, ornamented with many evenly-spaced small warts (these sometimes darker in small clusters), dark brown to blackish in mass but lighter violaceous to violaceous-brown when observed individually in transmitted light.

This species has long been considered extremely variable with the monograph by Martin and Alexopoulos (1969) listing many synonyms. Online fruiting-body photos are testimony to its cosmopolitan distribution and morphological variation. The Landcare PDD website lists nearly 90 New Zealand records of which 5 were contributed by Ann and myself [excluding SM93 (= PDD 117249) recorded here].



← 1000 μm →

Fruiting bodies in-situ on the natural substrate



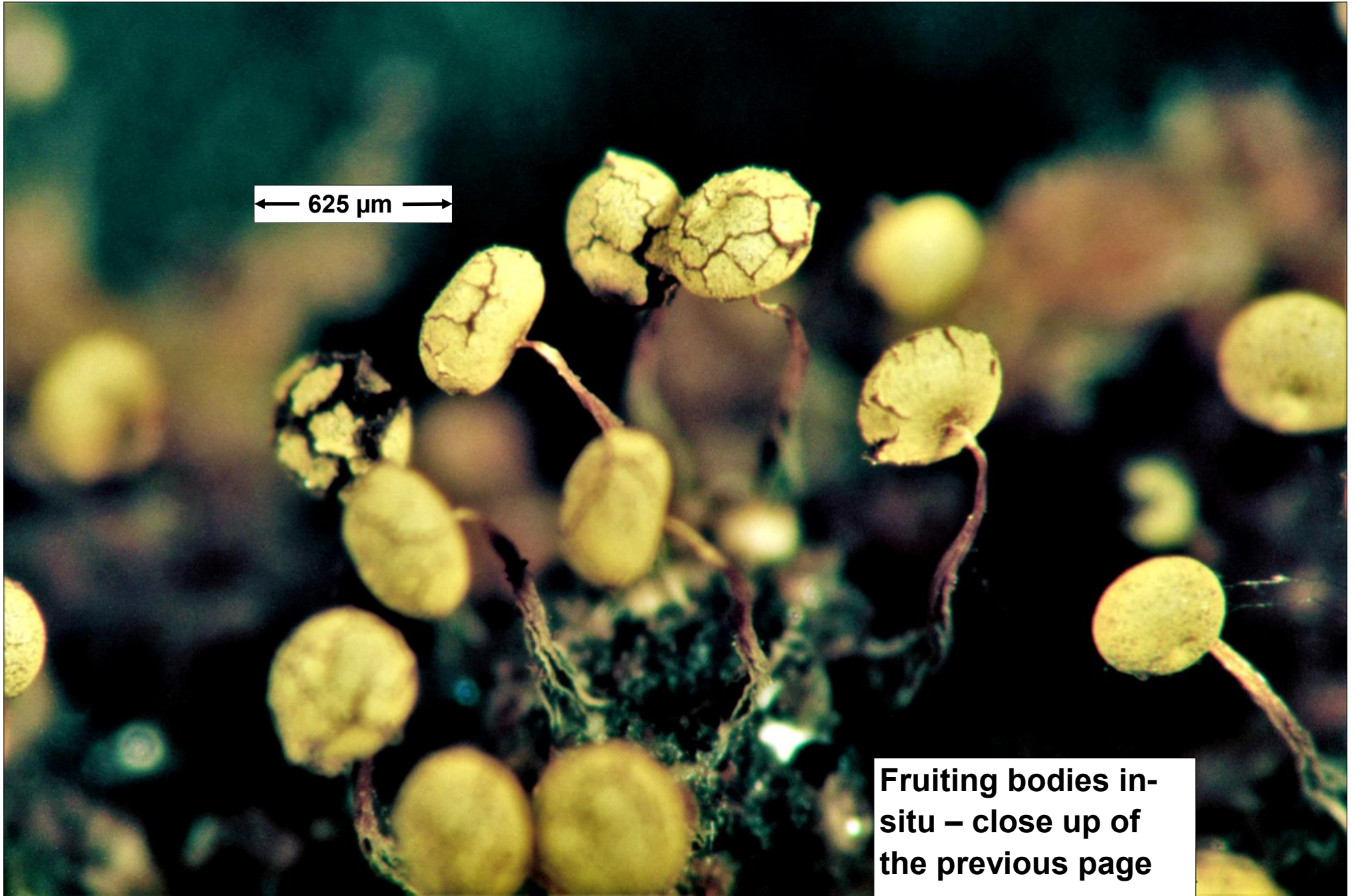
← 625 µm →

Fruiting bodies in-situ – close up of the previous page



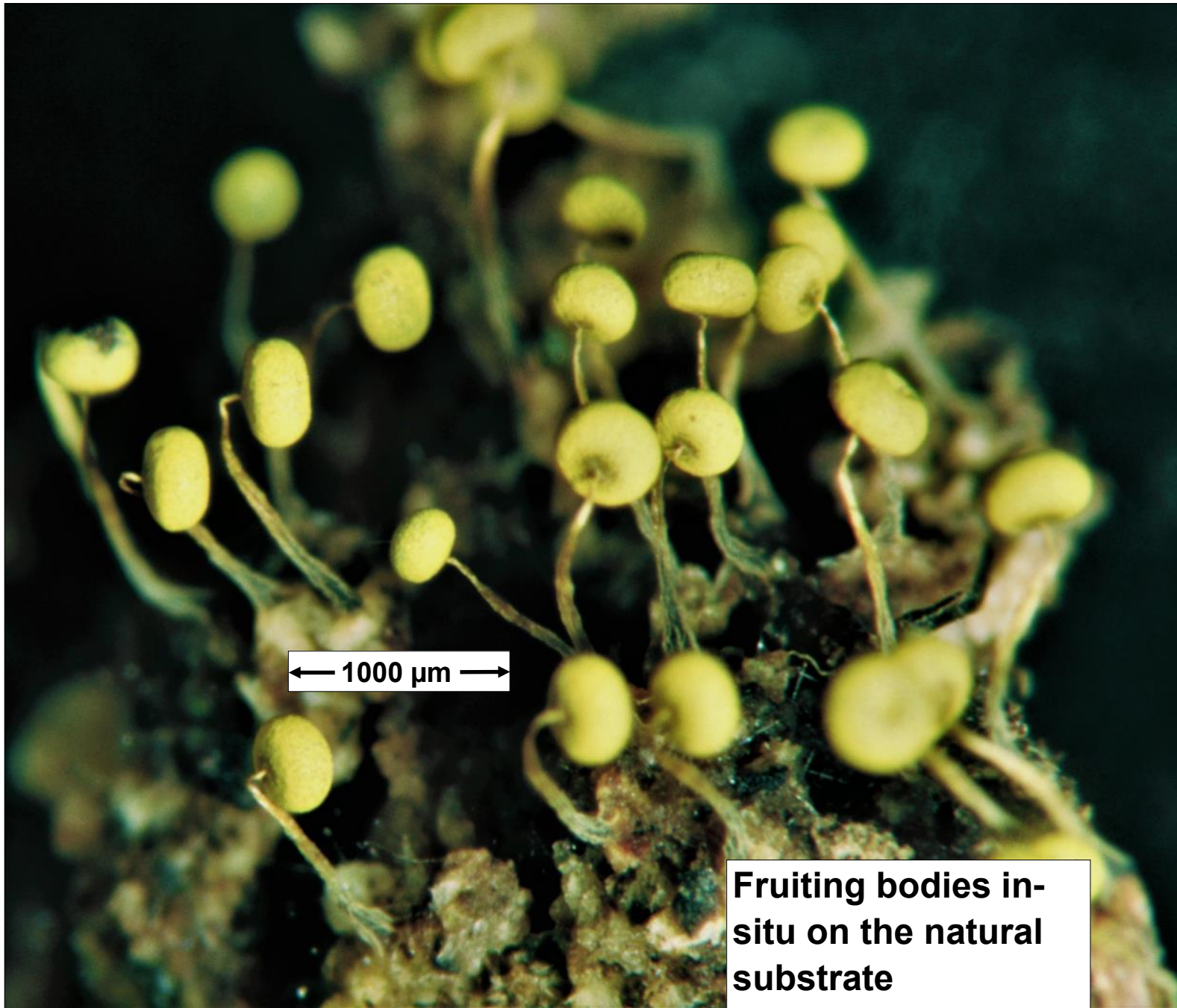
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Fruiting bodies in-situ on the natural substrate



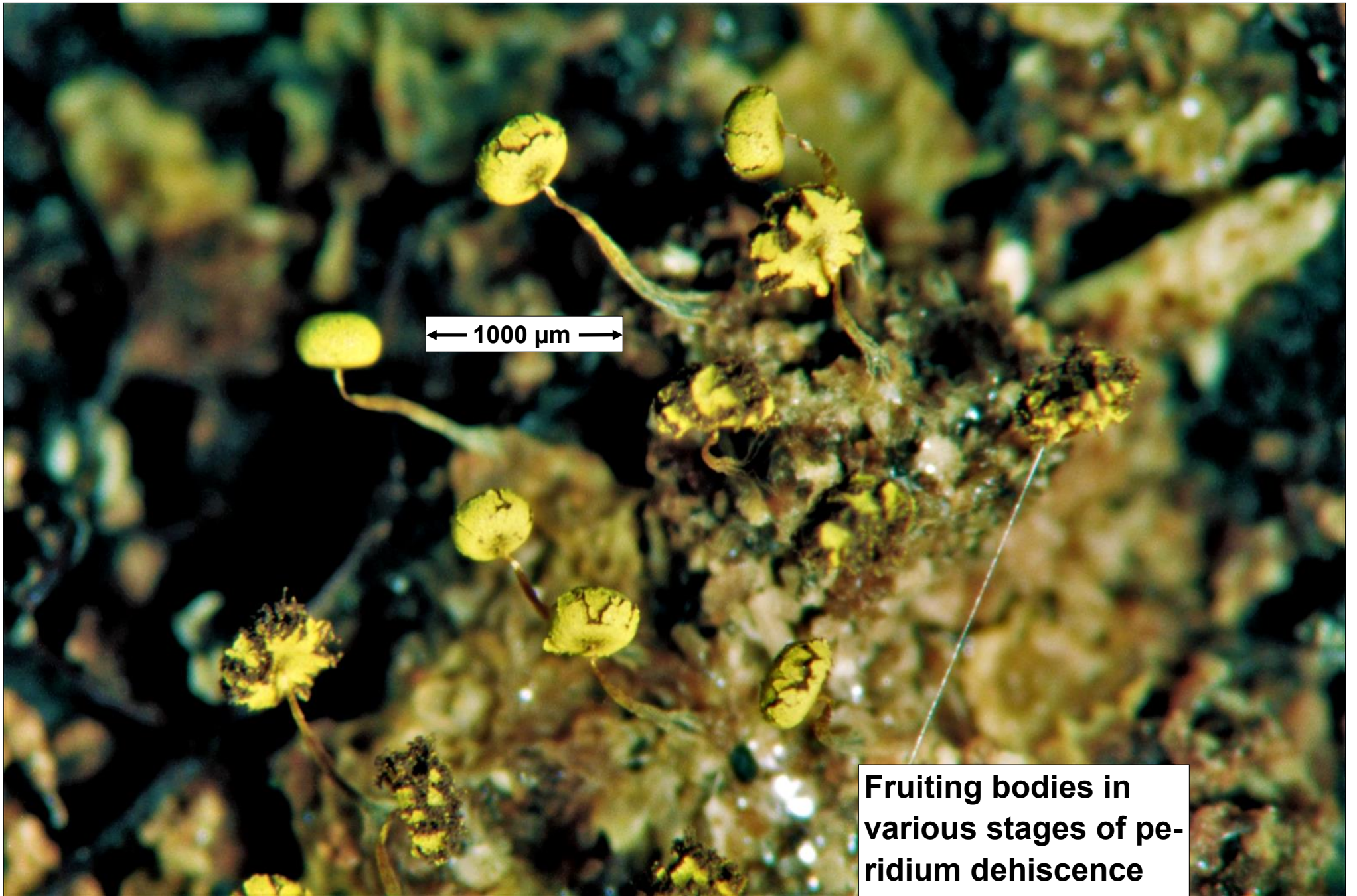
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Fruiting bodies in-situ – close up of the previous page



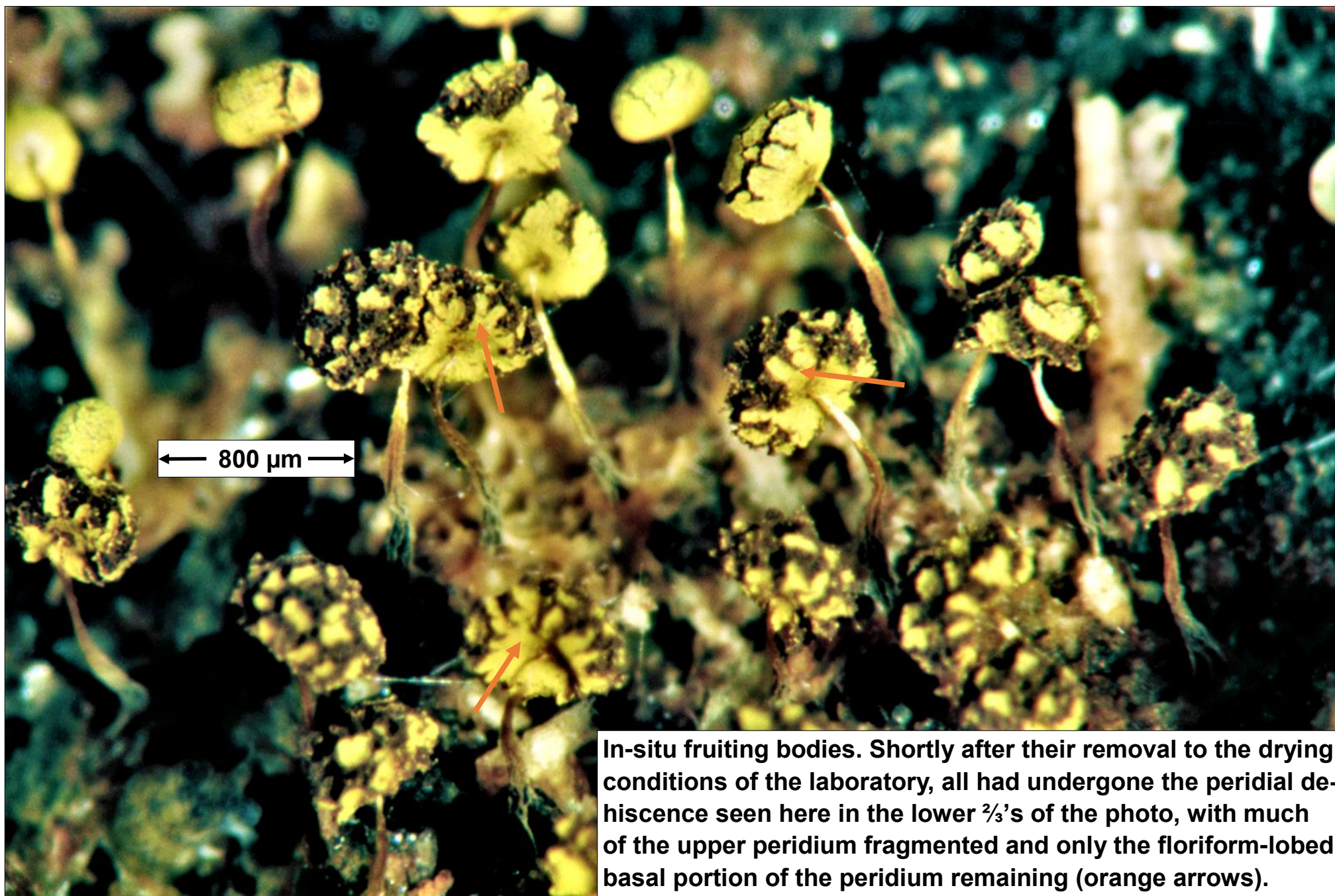
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Fruiting bodies in-situ on the natural substrate

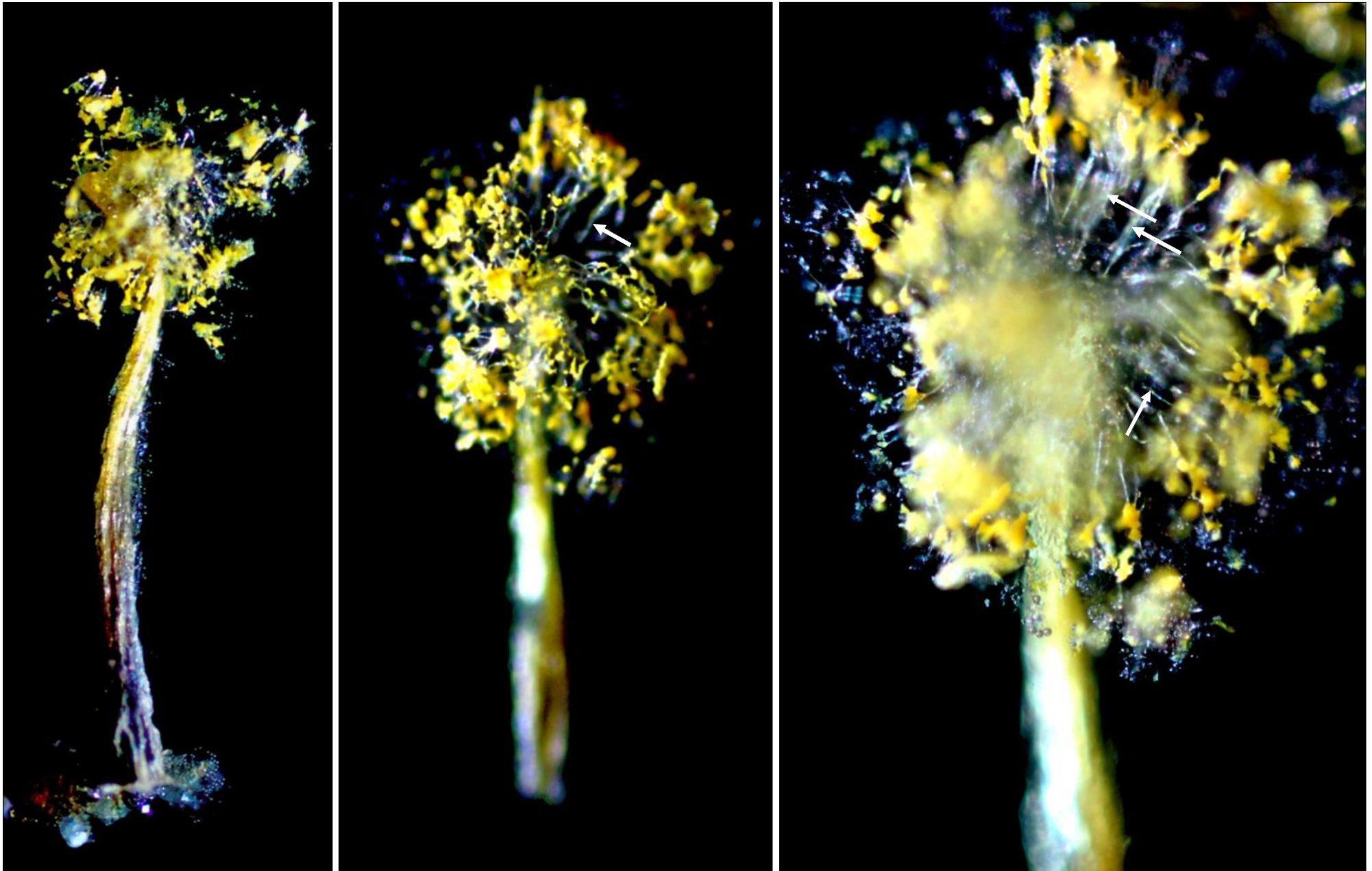


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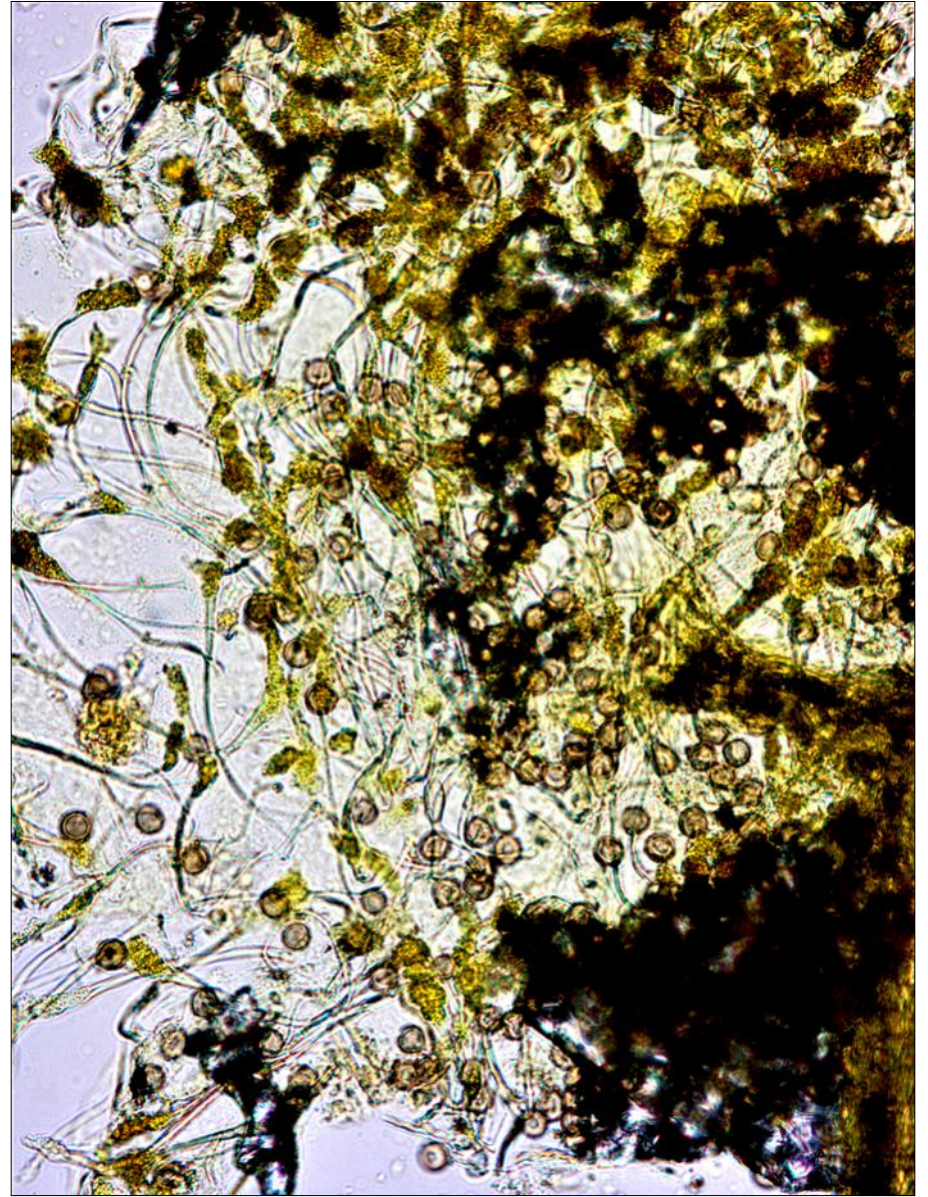
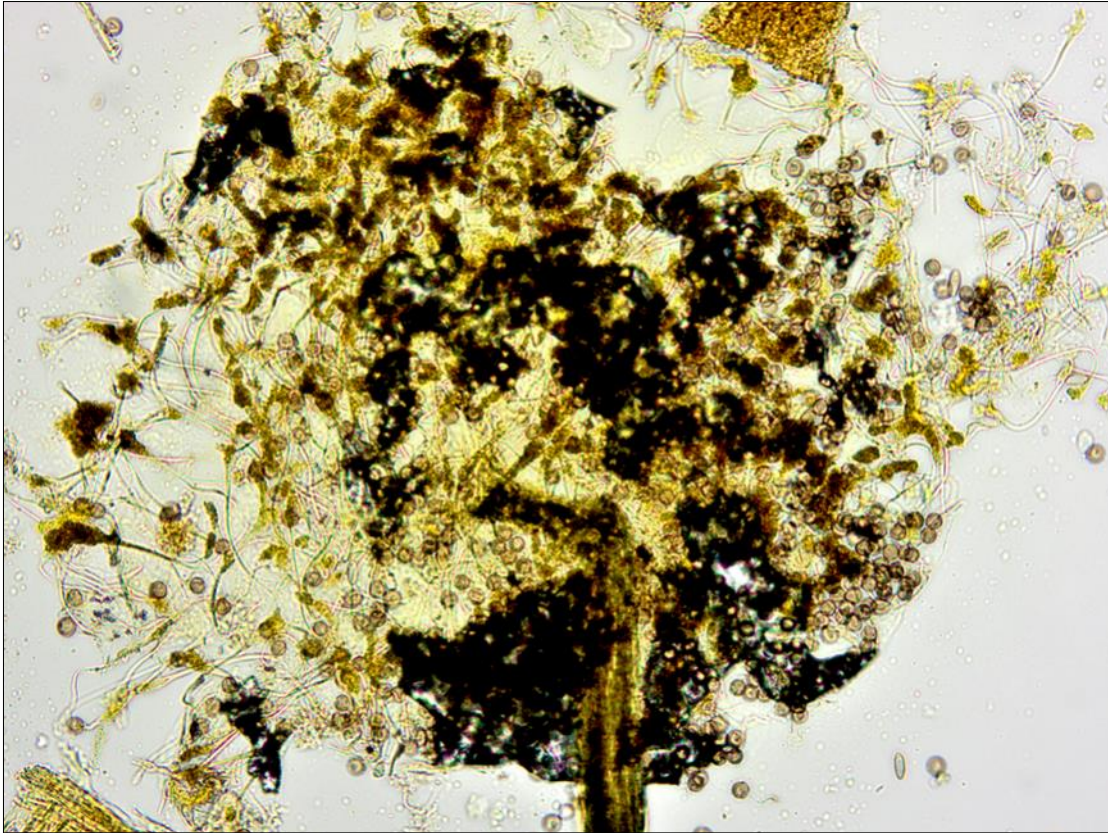
Fruiting bodies in various stages of peridium dehiscence



In-situ fruiting bodies. Shortly after their removal to the drying conditions of the laboratory, all had undergone the peridial dehiscence seen here in the lower $\frac{2}{3}$'s of the photo, with much of the upper peridium fragmented and only the floriform-lobed basal portion of the peridium remaining (orange arrows).



Reflected lighting from a fiber-optic illuminator directly onto a slide of water-mounted fruiting bodies (no coverslip) from which most of the peridium and spores had been dispersed. Note the capillitial threads (arrowed) & yellow lime nodes. The left 2 photos were taken using a X4 objective, the far-right photo using a X10 obj. The latter is a close-up of the field of view in the photo directly to its left. An Olympus BX51 microscope with a DP25 camera was used.



The same sporotheca: Left photo X20 objective, right photo X40 obj.; 70% EtOH slide mount (teased apart) then irrigated with SMF; brightfield microscopy. Note the numerous capillitial threads & the darker yellow fusiform to spindle-like lime nodes. The diffuse lighter-yellow (best seen left photo) is the thin remnant membranaceous basal portion of the peridium. Spores are globose and violaceous in the transmitted light.

Spores in a slightly heated SMF slide mount, seen under a X100 objective using brightfield microscopy. Globose, 8–9(–10) μm in diameter, brown in this photo but darker in mass and violaceous in transmitted light, finely warted with the occasional cluster of more darkly pigmented warts – arrowed).

