

***Tremella aurantia* Schw.: Fr. 1822**

(Figs. 116-121)

Fries, Syst. Myc. 2: 213.

=*Tremella aurantia* Schw. Naturf. Ges. Leipzig Schrift. 1: 114. 1822.=*Naematelia quercina* Coker, Jour. Mitch. Soc. 35: 135. 1920.=*Naematelia aurantia* (Schw.) Burt, Ann. Missouri Bot. Gard. 8: 368. 1921.**Macromorphology**

Basidiocarps yellow to bright orange, elongate when young, hemispherical when mature, almost foliaceous, the lobes rugose and plicate, larger than 1 cm ø, growing up from the surface or side of host basidiocarps; dry yellowish brown, stout, firm.

Micromorphology

Basidia: two types: type I, globose, subglobose, 10.5-13.0(-14.0) x 10.5-13.0 (-14.0) µm [Q=(0.92-) 1.00-1.18]; type II, pyriform to clavate, 10.5-15.5(-24) x 10.5-13.0(-14.0) µm [Q=1.07-1.41(-2.09)] (including stalks); stalks mostly 2-3 µm, up to 5 µm in length, 2-3 µm in width; longitudinally or obliquely cruciate-septate, 4-spored; sterigmata 2-3 µm ø, up to 50 µm in length, apically swollen up to 5 µm ø.

Spores: broadly ellipsoid to ovoid, 7-9 x 6-7 µm [Q=(1.08-)1.14-1.33(-1.71)], hyaline, smooth, germinating by budding or repetition.

Conidia: monokaryotic, variable in shape, abundant, mostly subglobose to oval, 3-5 x 2.5-3.5 µm [Q=1.15-1.67], occurring in young basidiocarps in the hymenium and subhymenium close to the substrate.

Vesicles: absent

Swollen cells: two types: type I, mostly ovate to clavate, (9-)11-16 x 4-7(-8) µm [Q=(1.38-) 1.57-3.56(-4.25)], type II, globose to subglobose, 6.5-12.5 x 6.5-11 µm [Q=1.00-1.08], existing in the subhymenium and inner part of basidiocarps.

Hyphidia: intertwined in the hymenium, smooth, hyaline, mostly 2-3(-4) µm ø, clamped.

Hyphae: smooth, hyaline, mostly 1.5-3.0 µm ø; clamps abundant, sometimes clamps germinating to a hypha conjugating with another cell, or to be a clamped haustorium or young basidium; hymenia amphigenous, loose.

Haustoria: mostly 3-5 x 2.5-4.5 µm [Q=1.00-1.40], single hyphae, rarely branched.

Habitat and substrate: on *Stereum hirsutum* growing on wood of angiosperms.

Specimen studied: Canada, British Columbia, Squamish, leg. R. B. Bandoni, 26. IX. 1959, BC639.

Type locality: North Carolina.

Distribution: North America, Canada, Europe (Bandoni, 1957a; Breitenbach & Kraenzlin, 1986; Llowy, 1955; Roberts, 1995; Wojewoda, 1981).

Remarks

Although the basidiospores are a little bit smaller, the characters of the studied specimen fit to the description of *Tremella aurantia* (Bandoni, 1957a). The swollen cells are perhaps aborted basidia, but according to the quite different structures and the variable shapes and sizes, it is predictable that not all of them are aborted basidia but a kind of cells which can re-grow when re-soaking water after dry weather. Such structures can also be observed in *T. encephala*.

Unlike in the Foliacea and Fuciformis groups, the hymenial structure of *T. aurantia* is loose and anastomoses do not occur frequently. Host hyphae grow parallel up to the subhymenium or even to the hymenium of the parasite. This can be detected obviously from the hymenial structure, especially in young basidiocarps.

The monokaryotic conidia are produced by budding from the end or middle of hyphae. Similar monokaryotic conidia can also be observed in *T. microspora* and *T. australiensis* but different type of conidiogenous cells.

Tremella loculata Bandoni (1957a) is presumable related to *T. aurantia* in many respects. Bandoni (1957a) did not mention any host hyphae, but according to his description "hyphae thin-walled with clamps, about 1.5-4 μm in diameter, a few inflated to as much as 13 μm " it is predictable that inflated hyphae up to 13 μm could be host hyphae, probably *Stereum*-like. Such large hyphae are never observed in the *Tremella* species. The spore measurements of *T. loculata* are distinct from that of *T. aurantia*, however, the basidia, conidia and swollen cells are similar.

Table 19. Comparison of *T. aurantia* and *T. loculata* in basidia, spores, conidia and swollen cells.

Characters	<i>T. aurantia</i>	<i>T. loculata</i>
Basidia	globose, subglobose, pyriform to clavate 10.5-13.0(-14.0) x 10.5-13.0(-14.0) μm (data without stalks, stalks up to 5 μm long)	pyriform to clavate (13-)17-30 x 11-15 μm
Spores	broadly ellipsoid to ovoid 10.5-13.0(-14.0) x 10.5-13.0(-14.0) μm	oval 8-10.5 x 5-8 μm
Conidia	subglobose to oval 3-5 x 2.5-3.5 μm	globose to oval 2-4 μm \varnothing
Swollen cells	mostly ovate to clavate (9-)11-16 x 4-7(-8) μm	subglobose to ovate 8-12 x 5-7 μm

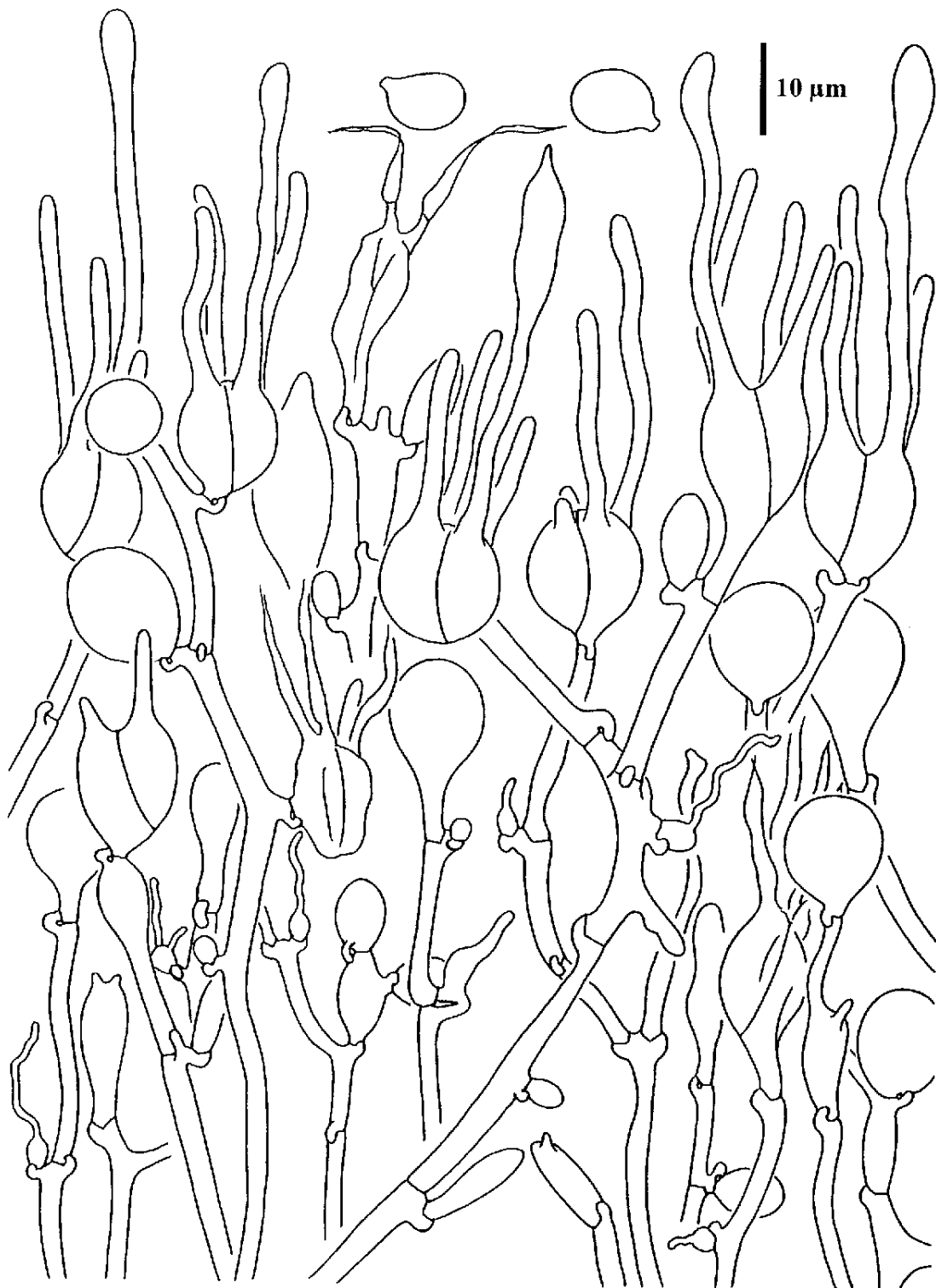


Fig. 116. *Tremella aurantia* BC639. Part of hymenial structure on the surface of a mature basidiocarp with basidia of different developmental stages, two basidiospores, and several haustoria.

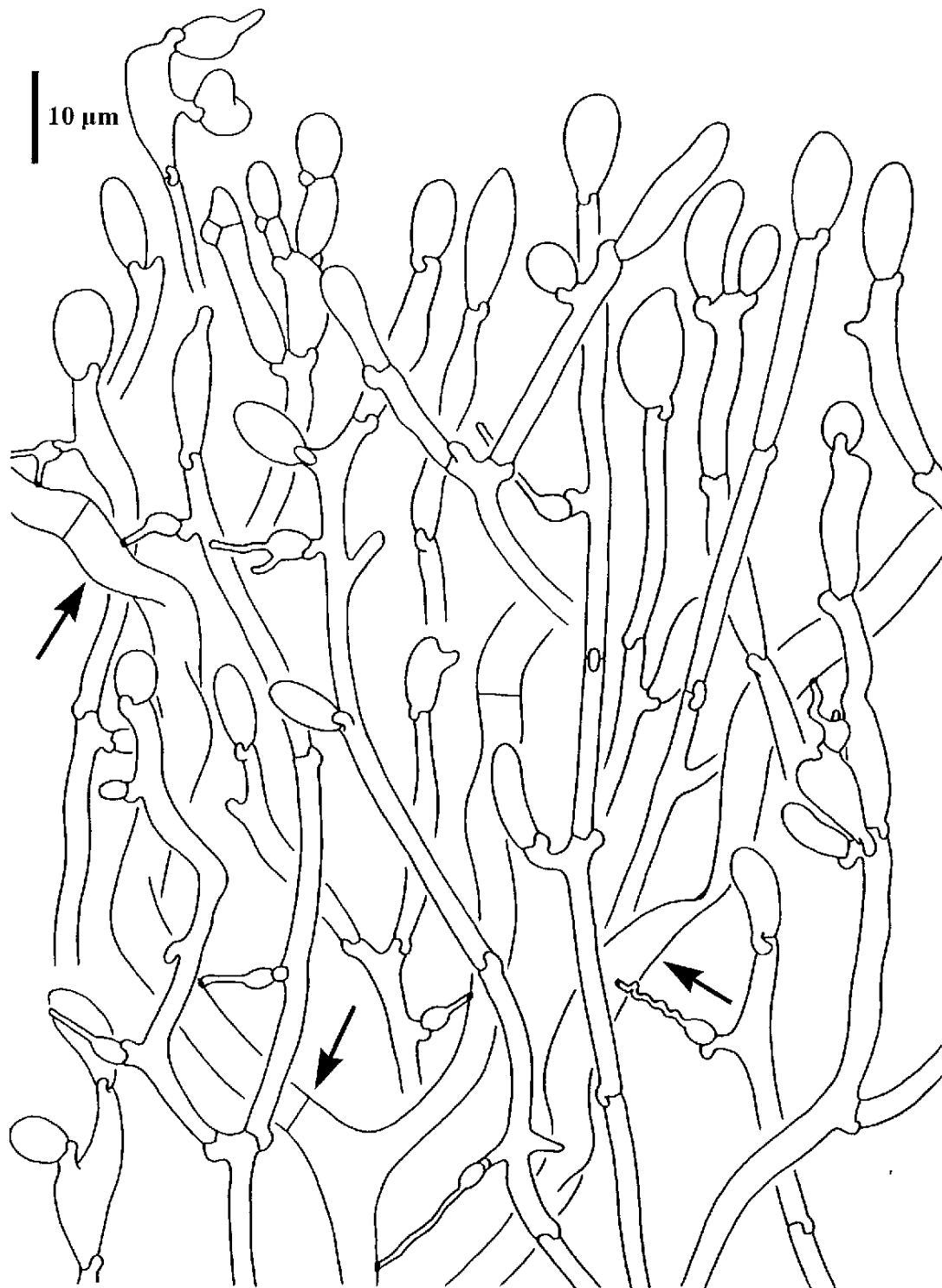


Fig. 117. *Tremella aurantia* BC639. Part of hymenial structure on the bottom area close to the substrate with several haustoria attaching to the host hyphae. Note that host hyphae mix with the hyphae of the parasite. Arrows indicate the host hyphae.



Fig. 118. *Tremella aurantia* BC639. Part of the inner basidiocarps of bottom area close to the substrate with monokaryotic conidia and conidiogenous cells, thick-walled hyphae, and haustoria partly attaching to the host hyphae. Arrows indicate the host hyphae.

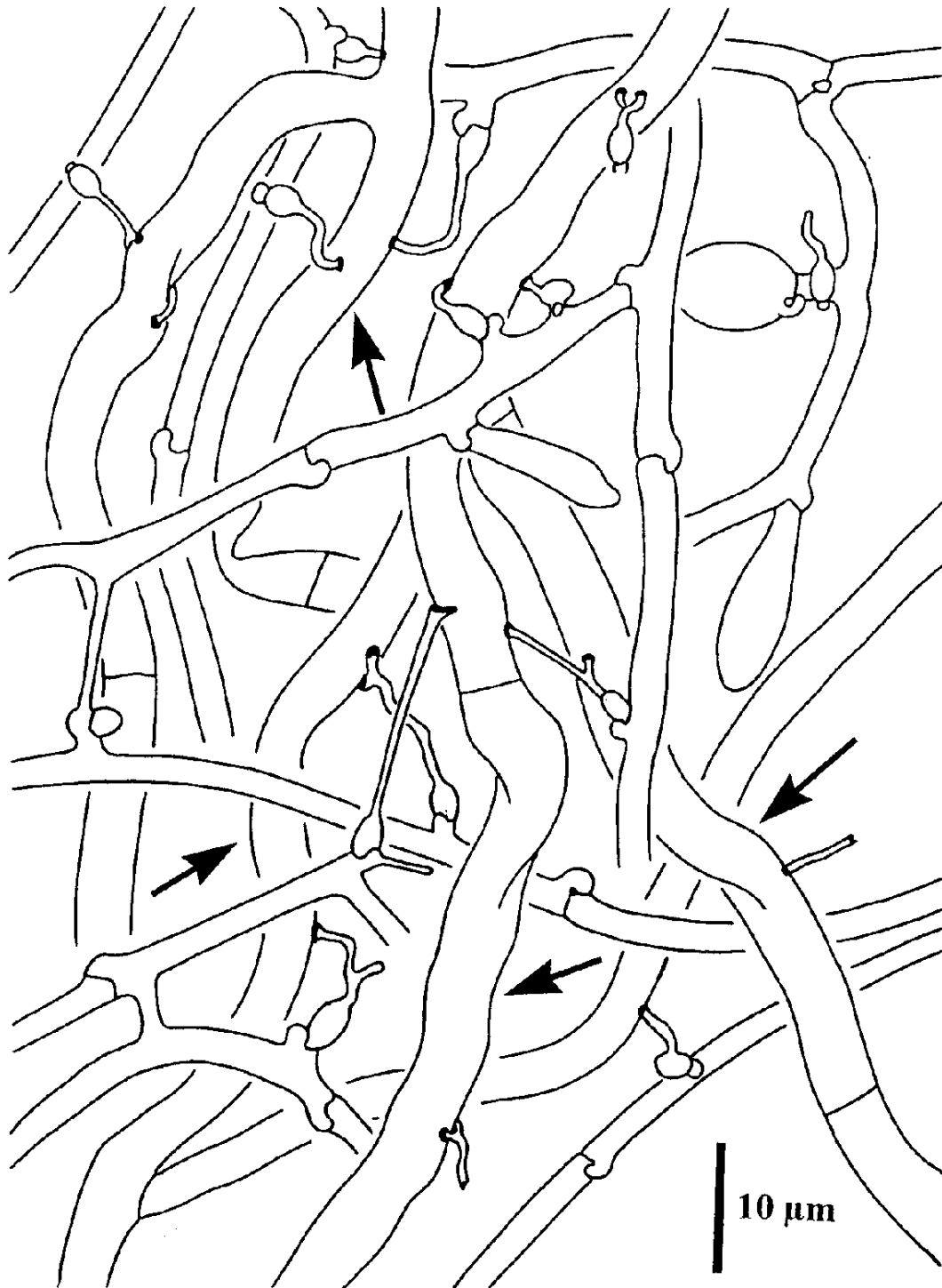
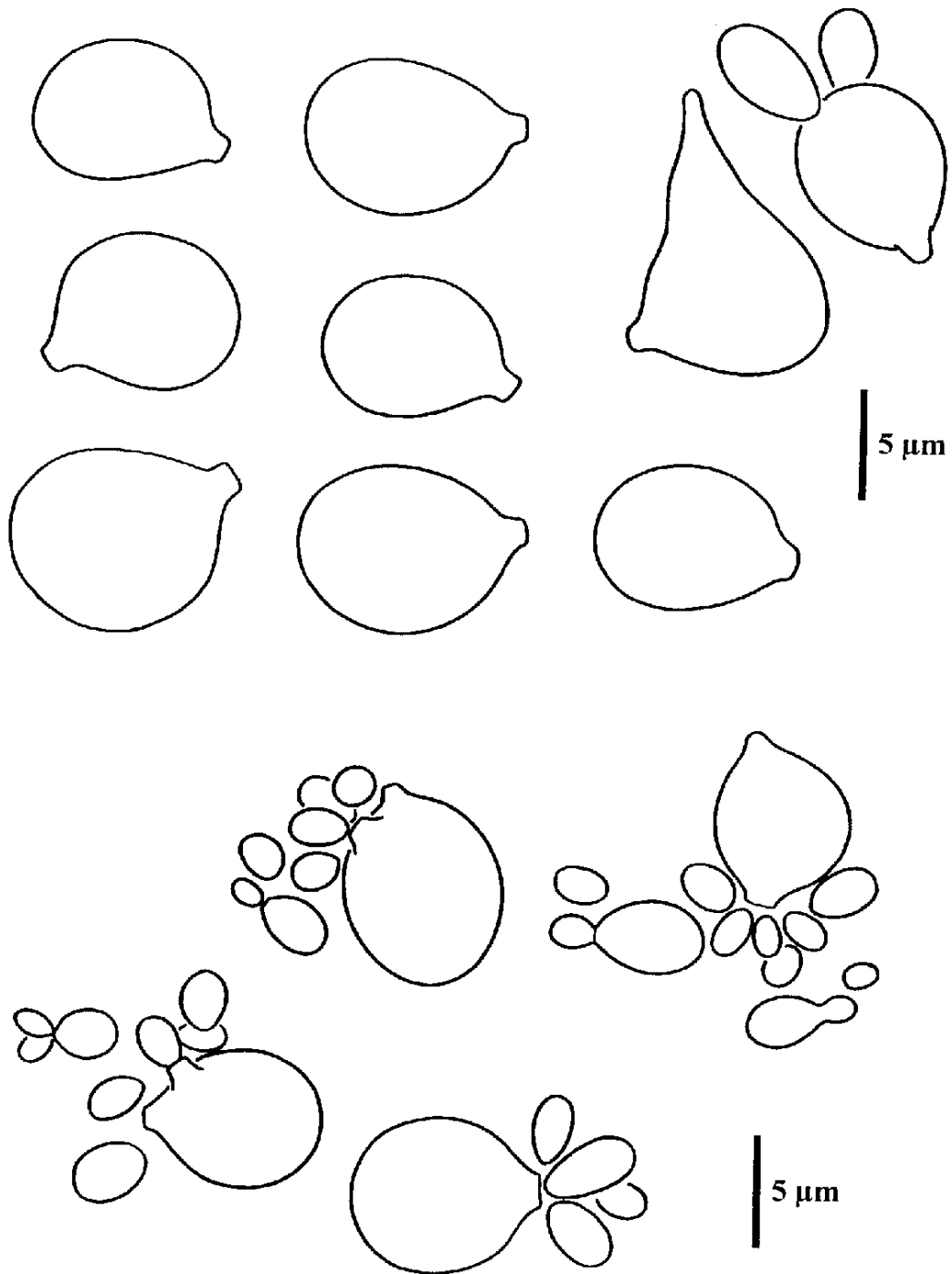


Fig. 119. *Tremella aurantia* BC639. Structure in the inner part of the basidiocarp with host hyphae (arrows), parasitic hyphae, many haustoria attaching to host hyphae, and two swollen cells.



Figs. 120-121. *Tremella aurantia* BC639. 120. Basidiospores, one of them producing a sterigma and one budding off yeasts. 121. Budding off yeasts in four basidiospores.