

NOTES AND BRIEF ARTICLES

ASCOBOLUS XYLOPHILUS REDESCRIBED FROM FRANCE WITH
REMARKS ON ITS TAXONOMIC POSITION

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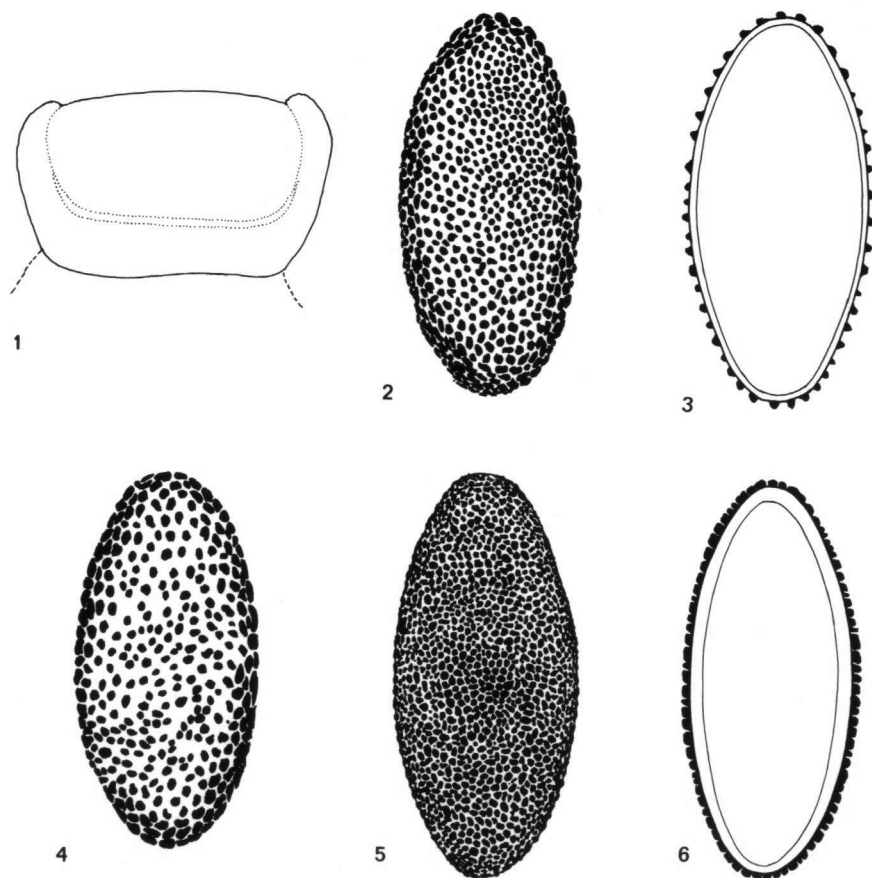
During a collecting trip in the High Pyrenees (France) the second author has collected several fruit bodies of *Ascobolus xylophilus* Seaver on a log of rotten coniferous wood in a mountain stream. Till then this fungus was only known from the original specimens, collected by Prof. E. Bethel & Dr. F. J. Seaver, September 1910 in the Geneva Creek Canyon, Colorado, U.S.A. (van Brummelen, 1967: 153). As the material of the type specimen is rather scarce and consists of a few very old fruit bodies, from which it was difficult to make a complete description, the species has been redescribed and pictured from the newly collected European material.

ASCOBOLUS XYLOPHILUS Seaver—Figs. 1-7

Ascobolus xylophilus Seaver in *Mycologia* 3: 61. 1911; Seaver, North Am. Cup-fungi (Operculates) 90. 1928.

Apothecia scattered, superficial, sessile, 0.5-2.0 mm diameter, about 0.5 mm high. Receptacle at first subglobular, then expanding and becoming lenticular to discoid, finally scutellate, purplish brown; surface smooth; margin scarcely differentiated, slightly elevated on drying. Disc at first concave, then flat, roughened by the protruding tips of ripe asci, becoming purplish with maturity. Hymenium about 250 μ m thick. Hypothecium not very compact (30-40-75 μ m thick, consisting of groups of isodiametric to oblong thin-walled cells 7-15 \times 5-8 μ m, the contents of which intensively stain with methyl blue. Flesh not clearly differentiated from the excipulum, of subparallel or somewhat intertwined colourless thin-walled hyphae 2-5 μ m wide. Excipulum at the margin 35-50 μ m wide, pale purplish violet, consisting of thin-walled septate subparallel hyphae 2.5-5 μ m thick (textura porrecta) and of rather strongly intricated hyphae (textura intricata) in the outer layers especially near the base. Asci cylindric-clavate to clavate with a stem-like base, rounded above, 210-240 \times 25-28 μ m, 8-spored; the wall deep blue in Melzer's reagent. Ascospores at first uniseriate, finally irregularly biseriate, ellipsoid or more rarely slightly asymmetrical (length/breadth ratio 1.8-2.2, average 1.98), at first hyaline, then purplish violet, purplish brown at maturity, 28.0-33.5 \times 13.0-16.3 μ m (without ornamentation), with homogeneous contents, ornamented with rather densely placed warts or punctate. Paraphyses abundant, septate, slender filiform, simple, hyaline, about 2 μ m thick, not or scarcely enlarged (up to 3.5 μ m) at the tip.

HABITAT.—On a fallen trunk of *Abies* in the water of a small mountain stream, accompanied by fruit bodies of *Pachyella babingtonii* (Berk.) Boud.



Figs. 1–6. *Ascobolus xylophilus*. — 1. Diagrammatic section of fruit body $\times 50$. — 2, 4, 5. Ascospores $\times 1600$. — 3, 6. Ascospores in optical section $\times 1600$. (1–4, from Candoussau, 2.X.1972; 5, 6, from 'cotype' of *A. xylophilus*, BPI.)

SPECIMEN EXAMINED.—France. Payolle near Bagnères de Bigorre, Hautes Pyrénées, 2.X.1972, F. Candoussau (L).

The gross and microscopic characters of the French material agree well with the descriptions of the American type specimen (Seaver, 1911, 1928; van Brummelen, 1967).

Both specimens were found growing on rotten coniferous wood at high altitudes.

The large ascospores with finely warted sculpturing are especially a characteristic feature of this species, and provide a valuable aid to its identification.

Macroscopically the fruit bodies in this species resemble somewhat eroded fruit bodies of *Ascobolus carbonarius* P. Karst., while the ascospores in both species show a similar warted ornamentation. Consequently, in absence of knowledge about the development of the fruit

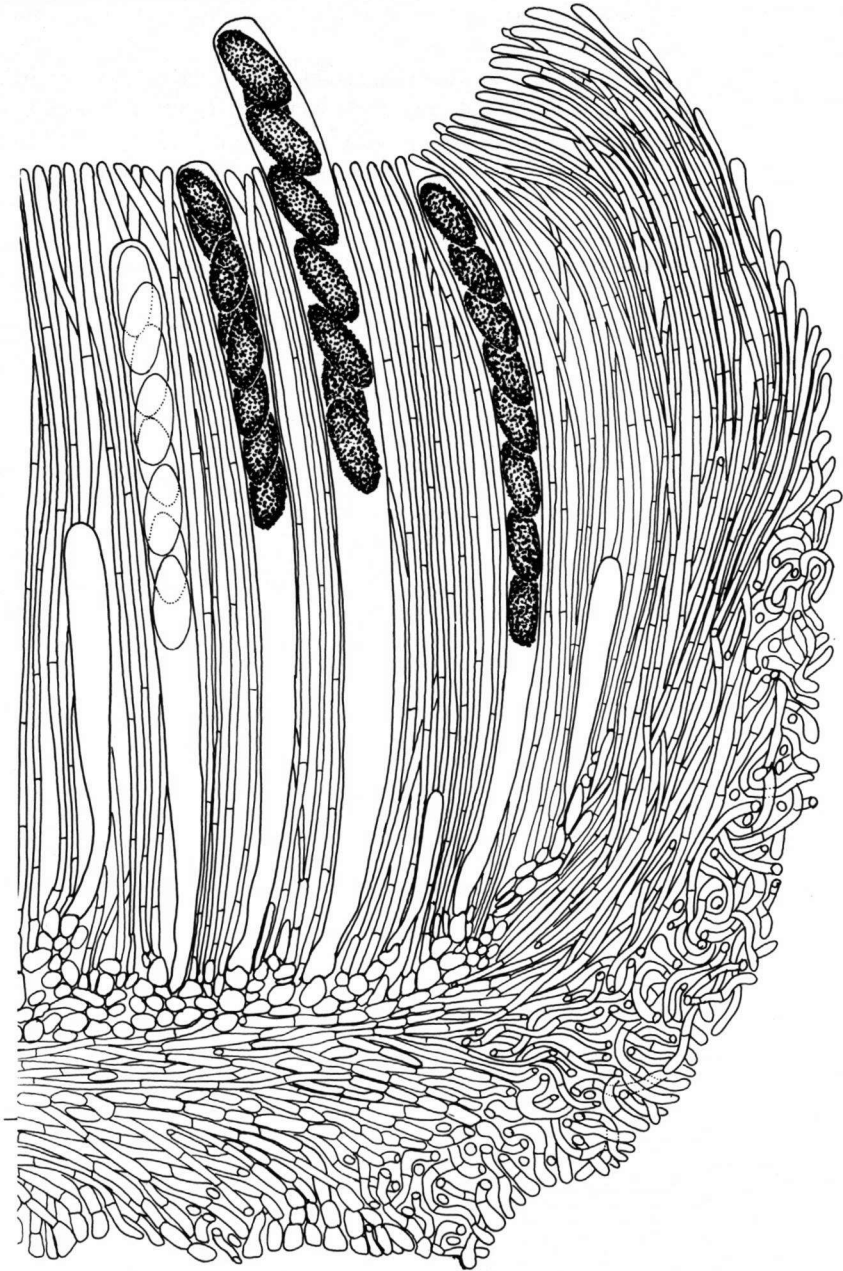


Fig. 7. *Ascobolus xylophilus* (from Candoussau, 2.X.1972), median section of margin of fruit body $\times 400$.

bodies, *Ascobolus xylophilus* was placed 'with doubt' in *Ascobolus* sect. *Ascobolus* (van Brummelen, l.c.).

From the better French material, the developmental type of the ascomata could be established. *Ascobolus xylophilus* showed eugymnohymenial ascomata with a well-developed excipulum, in which the hymenium is exposed from the first until the maturity of the asci (cf. van Brummelen, 1967, 1972). Such a type of development is characteristic of *Ascobolus* sect. *Gymnascobolus* Brumm. of which *Ascobolus scatigenus* (Berk.) Brumm. is the type and the best-known representative.

Both *A. xylophilus* and *A. scatigenus* show a structure of the excipular layer which is rare in the genus *Ascobolus*, viz. a tissue of fine intertwined or subparallel thin-walled hyphae with *textura intricata* or *porrecta*.

From our observations it is not yet clear if there is an active submarginal growing zone as found in other representatives of *Ascobolus* sect. *Gymnascobolus* (*A. scatigenus* and *A. castaneus* Teng.). Such a zone gives rise at the adaxial side to branches forming the paraphyses and at the abaxial side to branches which differentiate into the elements of flesh and excipulum. Structurally, such a zone is also present in *A. xylophilus* (see Fig. 7), but its activity could not be proven. The maximum size of the ascomata in *A. xylophilus* is considerably smaller than in the two other species mentioned. So its development could also be explained by activities of the more common interstitial and intercalary growth.

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