
Taxonomy of *Polyporus palustris* Berk. and Curt.

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Morphological and anatomical characters of *Polyporus palustris* Berk. and Curt. have been studied in detail and in the light of these findings the taxonomy of the fungus is discussed. The new combination *Postia palustris* (Berk. and Curt.) De is proposed.

Key words : *Polyporus palustris*, taxonomy, *Postia palustris*

INTRODUCTION

In India *Polyporus palustris* Berk. and Curt. grows on living trees and timbers of *Cassia nodosa* Ham., *Shorea robusta* Gaertn. and *Pinus roxburghii* Sargent where it causes a brown rot. The fungus is also distributed in the U. S. A. (Bakshi, 1971), French Antilles and Guiana (David and Rajchenberg, 1985). A review of the literature shows that very little work has been done on it. The present paper reports the results of detailed studies on the morphological and anatomical characters of *P. palustris*. The taxonomy of the species is also discussed in light of these findings.

MATERIAL AND METHODS

Basidiocarps used in the present study were obtained from the Mycological Herbarium of Burdwan Raj College (BRCMH), Burdwan, West Bengal, India and the Herbarium of A. David at Lyon University, France. Macroscopic and microscopic characters of the basidiocarps were studied following De and Roy (1981) and Boidin (1958).

DESCRIPTION

Polyporus palustris Berk. and Curt., Grevillea, 1 : 51, 1872. = *Tyromyces palustris* (Berk. and Curt.) Murr., *North Amer. Flora*, 9 : 31, 1907.

Basidiocarps lignicolous, annual, solitary or imbricate, sessile with a broad base, dimidiate, watery when fresh, hard and rigid on drying, $2.8-6.5 \times 1.5 - 3.8 \times 0.5 - 1.2$ cm; upper surface white becoming light yellow to reddish brown when dry, azonate or lightly zonate; margin acute, strongly incurved when dry; context white, fleshy when fresh, corky when dry, upto 4.2 mm thick; hymenial surface white when fresh, smoky when dry, with a silky sheen, pores round to somewhat angular, 4-5 per mm; pore tubes white to light yellow, upto 6 mm long.

Hyphal system monomitic; generative hyphae hyaline, with clamp connection, moderately branched, thin-walled (Fig.1a) or thick-walled to solid, hyphal walls metachromatic, distinctly stained in Cresyl blue, frequently broken at clamps (Fig.1b), occasionally inflated, often collapsed, $2.5-6.2\ \mu$ in diameter; basidia (Fig.1c) hyaline, thin-walled, narrowly clavate, $11.0-16.2 \times 5.0-6.8\ \mu$ with four sterigmata, each $1.5-1.8\ \mu$ long; basidiospores hyaline, thin-walled, cylindrical, smooth, inamyloid, $5.2-8.5 \times 2.5-3.3\ \mu$ (Fig.1d).

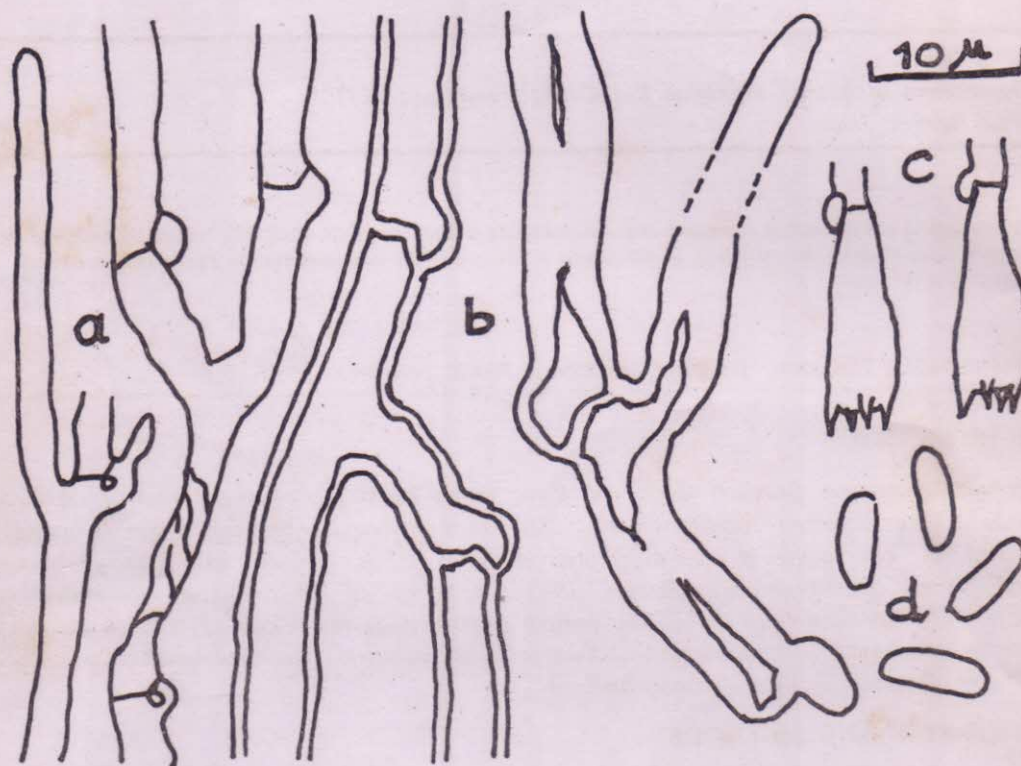


Fig. 1. Microscopic structure from basidiocarps of *Polyporus palustris* Berk. and Curt. a, Thin-walled generative hyphae, b, Thick-walled generative hyphae, c, Basidia, d, Basidiospores.

Specimens examined : BRCMH 8225, 8226 and 8228 on living tree of *Shorea robusta* Gaertn.; BRCMH 8329 and 83210 on living tree of *Cassia nodosa* Ham.; BRCMH 84211 on living tree of *Pinus roxburghii* Sargent; LYAD 1310, 1425 and 2465.

DISCUSSION

The aforesaid description indicates that *Polyporus palustris* Berk. and Curt. is monomitic with two types of nodose-septate hyphae : (i) hyaline, thin-walled, branched, and (ii) hyaline, thick-walled to solid, branched, frequently broken at clamps. The present description on basidiocarp of *P. palustris*, therefore, agrees broadly with the earlier description given by different workers (Bakshi, 1971; David and Rajchanberg, 1985;

Overholts, 1953; Wright *et al.*, 1973) excepting that of Lowe (1975) who described it as trimitic. But this view of Lowe (1975) can not be agreed upon as close examination on a specimen of *P. palustris* (*P. palustris* No. 4826, U.S.A., Mississippi, on pine stump, leg. and det. J. L. Lowe 8.8.51) supplied by Lowe revealed the presence of only nodose-septate hyphae (David and Rajchenberg, 1985).

The hyphal system i.e. monomitic, dimitic or trimitic, of a species has been considered to be taxonomically important in circumscribing genera (Bondartzeva, 1961; Donk, 1964; Fidalgo and Fidalgo, 1967; Teixeira, 1962). Modern mycologists would not include two species with different hyphal systems in the same genus. Thus *P. palustris*, possessing a monomitic hyphal system, can not be placed under the dimitic genus *Polyporus* Mich. ex Fr.

Murrill (1907), however, referred this species to genus *Tyromyces* Karsten which is characterized by soft, light coloured poroid basidiocarps, mono or dimitic hyphal system, clamped septate generative hyphae, hyphal walls not metachromatic and not stained in Cresyl blue, hyaline and inamyloid spores, cystidia absent or inamyloid, white rot, tetrapolar sexuality and astatocoenocytic type of nuclear behaviour. Although *P. palustris* possesses many of these characters but it differs from the members of *Tyromyces* by the following features - (i) hyphal walls are metachromatic, (ii) hyphal walls become distinctly stained in Cresyl blue, (iii) causes brown rot, (iv) shows bipolar sexuality (David and Rajchenberg, 1985) and (v) normal type of nuclear behaviour (David and Rajchenberg, 1985). Differences in so many characters rule out the possibility of inclusion of *P. palustris* under the genus *Tyromyces*.

Mention may be made in this connection that contrary to Lowe's revision (Lowe, 1975), David (1980, 1982) divided the genus *Tyromyces* into a number of smaller genera and one of them is *Spongiporus* Murrill in which *P. palustris* fits well. But Julich (1982) stated, "David (l.c.) used the name *Spongiporus* Murrill 1905, but an older name is available which has to be used, viz. *Postia* Fr. 1874". Thus *Postia* antedates *Spongiporus*. Evidently, the most natural place for *P. palustris* is in the genus *Postia*. *P. palustris* shows resemblance with the members of *Postia* by the following features : i) lignicolous, soft, pileate, sessile basidiocarp with poroid hymenial surface; (ii) monomitic hyphal system comprising hyaline, thin to thick-walled nodose-septate generative hyphae; (iii) hyphal wall metachromatic, distinctly stained in Cresyl blue; (iv) without imperfect state in nature; (v) hyaline, narrowly clavate, tetrasterigmatic basidia; (vi) hyaline, thin-walled, smooth cylindrical, inamyloid basidiospores; (vii) absence of cystidia; (viii) cause brown rot of wood.

The following new combination is, therefore, proposed : *Postia palustris* (Berk. and Curt.) De, comb. nov. (Basionym : *Polysporus palustris* Berk. and Curt., *Grevillea*, 1, 51, 1872).

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