

Taxonomy of *Corioloopsis zeylanicus* Comb. Nov.

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Detailed observations on morphological and cultural characters of *Polyporus zeylanicus* Berk. are given and in the light of these observations the taxonomy of the fungus is discussed. The new combination *Corioloopsis zeylanicus* (Berk.) Roy & De is proposed.

Key words : Taxonomy, *Corioloopsis zeylanicus*

INTRODUCTION

In India *Polyporus zeylanicus* Berk. commonly grows on dead hardwoods where it causes a white rot. The fungus also grows in Sri Lanka. The present paper reports the results of detailed studies on the morphological and cultural characters of *Polyporus zeylanicus*. The taxonomy of the species is also discussed in the light of these findings.

MATERIAL AND METHODS

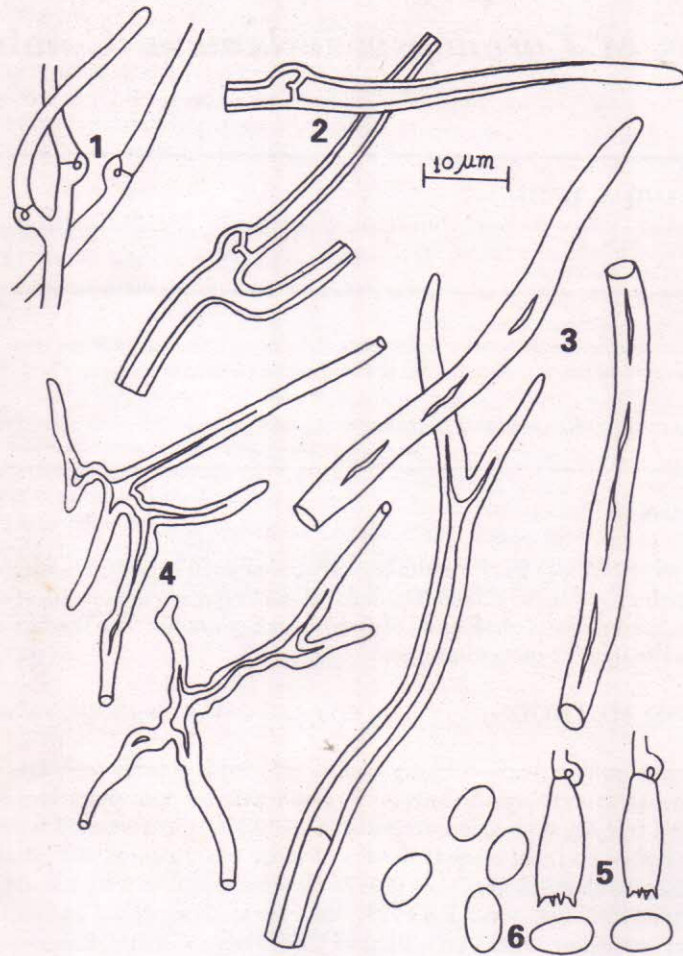
Observations were based on fresh specimens collected by the authors from Dhoni forest (Kerala), Khandala (Maharashtra) and Kumaun hills (U.P.) India. Microscopic characters of the basidiocarps were studied from free hand sections mounted in 10% KOH and stained with 1% Cotton blue. Cultures were established from context tissues of these basidiocarps and studied following the methods of Nobles (1948) and Nobles *et al.* (1957). Oxidase reactions were tested by the Bavendamm method as described by Davidson *et al.* (1938). Voucher specimens and cultures are maintained in the Mycological Herbarium of the Visva-Bharati University (VBMH), Santiniketan, West Bengal, India.

Description of Basidiocarp

Corioloopsis zeylanicus (Berk.) Roy & De, comb. nov. - *Polyporus zeylanicus* Berk., Ann. Mag. Nat. Hist. 10 : 374, 1843 (Basionym).

Basidiocarp annual, resupinate to reflexed, mostly imbricate, sometimes laterally fused, flabelliform to reniform, flexible, upto 8.0 x 0.4 cm; pileus surface dirty brown to straw coloured, densely hirsute to strigose hirsute, hairs in some zones more dense towards the base and thinner towards the margin, mostly biforked or triforked, upto 5 mm long; margin lobed; context yellowish, upto 2 mm thick; pore surface yellow to brownish, pores angular to dentate to irpicoid, 1-2 per mm, pore tubes upto 2 mm long.

Hyphal system trimitic. Generative hyphae hyaline, clamped, mostly thick-walled (Fig. 2), few thin-walled (Fig. 1), 1.3 - 4.0 µm wide. Skeletal hyphae (Fig. 3) abundant, golden yellow to brown, thick-walled to solid, flexuous, sometimes apically biforked, with occasional pseudosepta, 2.6 -



Figures 1-6 : Microscopic structures from basidiocarp of *Coriolopsis zeylanicus*: 1. thin walled generative hyphae, 2. thick walled generative hyphae. 3. skeletal hyphae. 4. binding hyphae. 5. basidia. 6. basidiospores

4.0 µm wide. Binding hyphae (Fig.4) equally abundant as skeletal hyphae, hyaline to yellowish, much branched, with long and short tortuous branches, thick-walled to solid, 1.3 - 2.8 µm wide. Basidia (Fig. 5) clavate, 11.7 - 15.0 x 5.2 - 6.5 µm, 4-strigmate. Basidiospores (Fig. 6) hyaline, thin-walled, oblong-ellipsoid, 6.5 - 9.8 x 4.0 - 4.5 µm.

Specimens examined : 791151 on dead wood of *Dipterocarpus indicus* Bedd.; 891152 on dead wood of *Memecylon* sp.; 891153 on dead branch of *Psidium quyava* L.; 911154 on dead wood of *Quercus incana* Roxb.; 921155 on dead wood of *Schleichera trijuga* Willd.; and 921116 on log of *Shorea robusta* Geartn. f.

Rot : Associated with white rot.

Description of Culture

Growth characteristics : Growth moderately rapid, plate covered in 2 weeks. Advancing zone sharp, mycelium extended to the limit of growth. Mat at first floccose woolly, more dense in the younger region than the older part, soon becoming woolly-felty to felty producing somewhat downy and translucent areas around the inoculum, mostly white, developing pink patches around the inoculum after 3 weeks, the latter ultimately changing to light cinnamon in colour (Fig. 7). Reverse bleached.

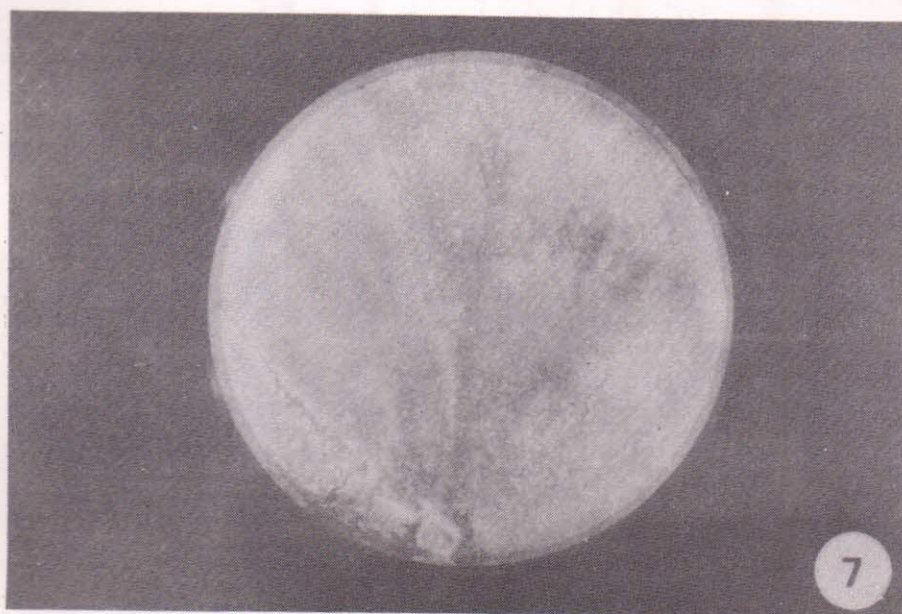
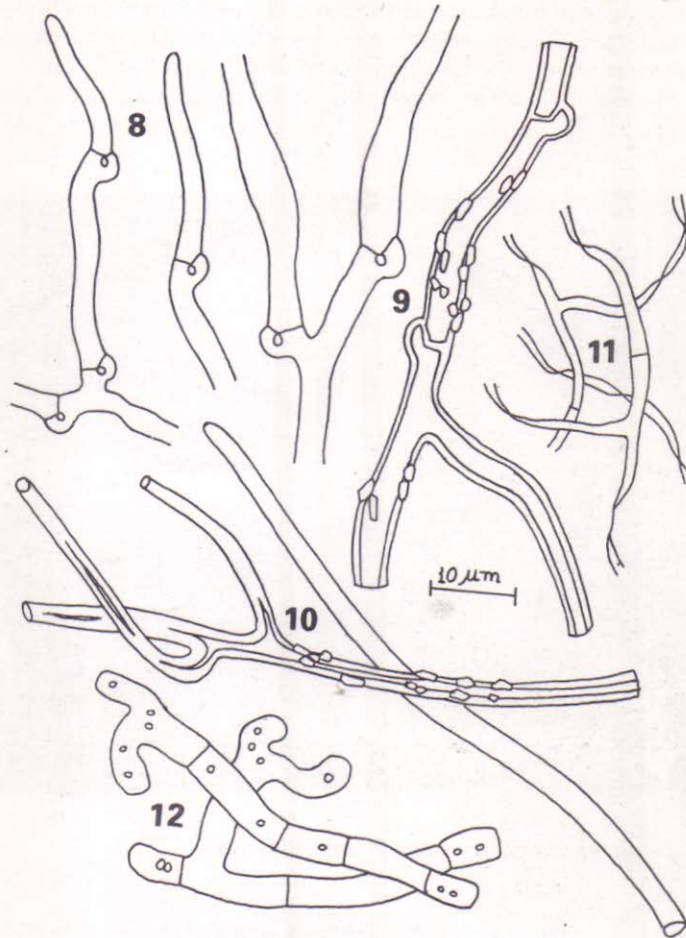


Fig 7. *Corioloopsis zeylanicus* : 6 weeks old mycelial mat

Oxidase reactions positive on both gallic acid and tannic acid agar, growth nil on the former and about 1.5 cm in diameter on the latter.

Microscopic characteristics : Advancing mycelium - hyphae hyaline, thin-walled, clamped, infrequently branched, 1.3 - 2.6 μm wide (Fig. 8). Aerial mycelium - (a) hyphae hyaline, clamped, branched, irregularly swelled, sometimes thick-walled, occasionally encrusted, 2.6 - 4.2 μm wide (Fig. 9); (b) fibre hyphae (Fig. 10) hyaline, thick-walled with narrow lumina, occasionally branched, may be encrusted, 2.8-4.0 μm wide; (c) hyphae hair-like, hyaline, thin-walled, branched, often twisted, abundant in the felty mat, 1.2 - 1.5 μm wide (fig. 11); (d) hyphae short, hyaline, thin- to slightly thick-walled, simple septate, with a few short branches, protoplasm deeply stained, containing abundant oil droplets which may be often yellowish, 2.6-4.2 μm wide, scattered in the translucent mat (Fig. 12)



Figures 8-12 : Microscopic structures from culture of *Corioloopsis zeylanicus*: 8. hyphae from advancing zone. 9. clamped aerial hyphae. 10. fibre hyphae. 11. hair like hyphae. 12. simple septate hyphae containing abundant oil droplets

Sexuality : The result of pairing of 20 monosporous cultures obtained from a fresh basidiocarp (VBMH; 921155) shows the species to be tetrapoar with the following distribution of mating types among the basidiospores.

A_1B_1 : 1,4,13
 A_2B_2 : 5,7,9,16,19

A_1B_2 : 2,8,10,14,18
 A_2B_1 : 3,6,11,12,15,17,20

Species Code : 2.3.8.26.32.36.40.42.54 [following the system of Nobles (1965)].

Cultures Examined : VBMH 891152, 911154, 921155, 921156.

DISCUSSION

From the above description it is evident that *Polyporus zeylanicus* Berk. possesses trimitic hyphal system. The hyphal system i.e., monomitic, dimitic, or trimitic, or a species has been considered to be taxonomically important in circumscribing genera (Bondartzeva, 1961; Teixeira, 1962; Donk, 1964; Fidalgo and Fidalgo, 1967). These authors would not include two species with different hyphal systems in the same genus. Thus *P. zeylanicus*, possessing a trimitic hyphal system, can not be placed under a dimitic genus *Polyporus* Mich. ex Fr. (Gilbertson and Ryverden, 1987; Roy *et al.*, 1994).

On the other hand, critical observations on the morphological, cultural and certain biological characters of *P. zeylanicus* reveal its close relationship with *Corioloopsis occidentalis* (K1) Murr., the type species of the genus *Corioloopsis* Murr. *C. occidentalis* produces basidiocarps with a trimitic hyphal system (Fidalgo and Fidalgo, 1966; Van der Westhuizen, 1971; Wright *et al.*, 1973) including subhyaline to brown skeletal hyphae, as also does *P. zeylanicus*. The cultural characters of *C. occidentalis* (Nobles, 1965; Van der Westhuizen, 1971; Stalpers, 1978) are also very close to those of *P. zeylanicus* as will be evident by comparing the species code of *C. occidentalis* which is 2.3.8.35.36.(48) 50.54.60 (Nobles, 1965) with that of *P. zeylanicus* given above. Moreover, both the species cause white rots and show tetrapolar sexuality. Such great similarities between the two species regarding morphological, cultural and certain biological characters indicate a phylogenetic relationship.

Therefore, it is concluded that *P. zeylanicus* and *Corioloopsis occidentalis* are congeneric, and the following transfer is proposed : *Corioloopsis zeylanicus* (Berk.) Roy & De, comb. nov.

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