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FURTHER OBSERVATIONS ON SPOROTRICHUM AND SOME SIMILAR FUNGI

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(With four Text-figures)

Sporotrichum azureum Wright & v. Arx, isolated from wood in Argentina, is described and illustrated. The relationship of the genus *Sporotrichum* with *Ptychogaster* is discussed, both may represent conidial states of basidiomycetes (*Tyromyces*, *Oligoporus*).

The redescription of the genus *Sporotrichum* Link ex Fr. with *S. aureum* Link ex S. F. Gray as type was based on a comparison of the type specimen with a recently isolated strain (Nicot, 1970; von Arx, 1971). Some more strains belonging to the genus and to similar taxa became available in the meantime. Among them a second strain of the species described as *Sporotrichum dimorphosporum* v. Arx was sent by Dr. J. Boidin (Lyon). Other strains proved to be a fungus known as *Ptychogaster rubescens* Brefeld, while a further culture could not be identified with any known species. This will be described below.

The genus *Sporotrichum* is characterized by the formation of basidiomycete-like hyphae which mostly have clamp connexions on the septa and by one-celled conidia with a thick, strikingly pigmented wall. The conidia are separated from the conidiogenous cell by a crosswall without constriction and have a truncate, broad base. They are liberated by histolysis of the stalk cell, remnants of which often remain attached to the base of the conidia. The conidia form powdery masses.

1. **Sporotrichum azureum** Wright & v. Arx, *spec. nov.*—Fig. 1

Hyphae progredientes fere tenuitunicatae, hyalinae, 2–3 μ crassae, fibulis amplis ("medallion") praeditae, ramis e fibulis oriundis; rami laterales aerii hyalini, 1.2–2.8 μ crassi; hyphae conidiogenae saepe erectae, plerumque e fibulis oriundae, saepe ramosae; conidia terminalia, saepe acervata, raro intercalaria, obovoidea vel pyriformia, sursum late rotundata, a cellula conidiogena septo 2–3 μ lato separata, hyalina vel caeruleo-incrustata, glabra vel irregulariter verrucosa, 10–16 × 5.5–8 μ.

Coloniae in agaro extracto cerasi addito 1.2–2 mm uno die 24 °C crescunt, velutinae, conidiis pulverulentis caeruleo-griseae.

Typus CBS 609.71, isolatus e ligno, Argentinia, Llavallol, 27 Apr. 1971, a J. E. Wright.

Advancing hyphae relatively thin-walled, hyaline, 2–3 μ wide, with rounded medallion clamp connexions (with a central space), branched at the clamps; lateral branches forming an aerial mycelium of hyaline, 1.2–2.8 μ wide hyphae; conidio-

genous hyphae often upright, mostly arising from clamp connexions, often branched; conidia borne terminally, often in brushes, rarely intercalary, obovoid or pyriform, broadly rounded above, separated from the conidiogenous cell by formation of a crosswall, 2–3 μ wide at the truncate base, hyaline or with a bluish encrustation of the wall, glabrous or irregularly verrucose, 10–16 × 5.5–8 μ in size.

The daily growth of the colonies on cherry-decoct-agar at 24 °C is 1.2–2 mm. The colonies become velvety and Deep Green-Blue Gray or Medici Blue (Ridgway, pl. XLVIII) owing to the powdery conidial masses.

Type: CBS 609.71, isolated from wood, Argentina, Llavallol, Santa Catalina, 27 Apr. 1971, by J. E. Wright.

The fungus grows well only on acidic fructose-rich cherry- or prune-decoct agar. At the CBS also dried cultures and a part of the original specimen are preserved.

2. PTYCHOGASTER RUBESCENS Boud. — Fig. 2.

Ptychogaster rubescens Boud. *in* J. Bot., Paris **1**: 10. 1887. — *Ceriomyces rubescens* (Boud.) Sacc., Syll. Fung. **6**: 387, 1888.

Myceliophthora fusca Doyer *in* Meded. phytopath. Lab. Willie Commelin Scholten **10**: 32. 1927.

Advancing hyphae 3–4 μ wide, hyaline, regularly provided with round medallion clamp connexions, branched at the clamps; lateral branches forming an aerial mycelium, at first lanose and hyaline, in age funiculose or fasciculate, soon becoming Purple Drab or Vinaceous Drab (Ridgway, Pl. XLV) owing to the powdery conidial masses; conidia borne terminally, laterally or intercalarily, mostly in branched chains, on branched hyphae with clamp connexions, obovoid or broadly clavate, with a truncate, 2–3 μ wide base or truncate at both ends, separated from each other by clamp connexions, rather thick-walled, at first hyaline, soon becoming reddish or rust brown, smooth or finely verrucose, 5.5–8.5 × 4–6 μ in size.

The daily growth rate on malt or cherry agar at 24 °C is 4–6 mm. The aerial mycelium may become dense and may form a thick, cushion-like, prosenchymatic mat.

STRAINS EXAMINED:

CBS 190.25, found in a culture of *Serpula lacrymans*, type of *Myceliophthora fusca*, 1925.

CBS 259.38, isolated from mine timber, Transvaal, S. Africa, 1938.

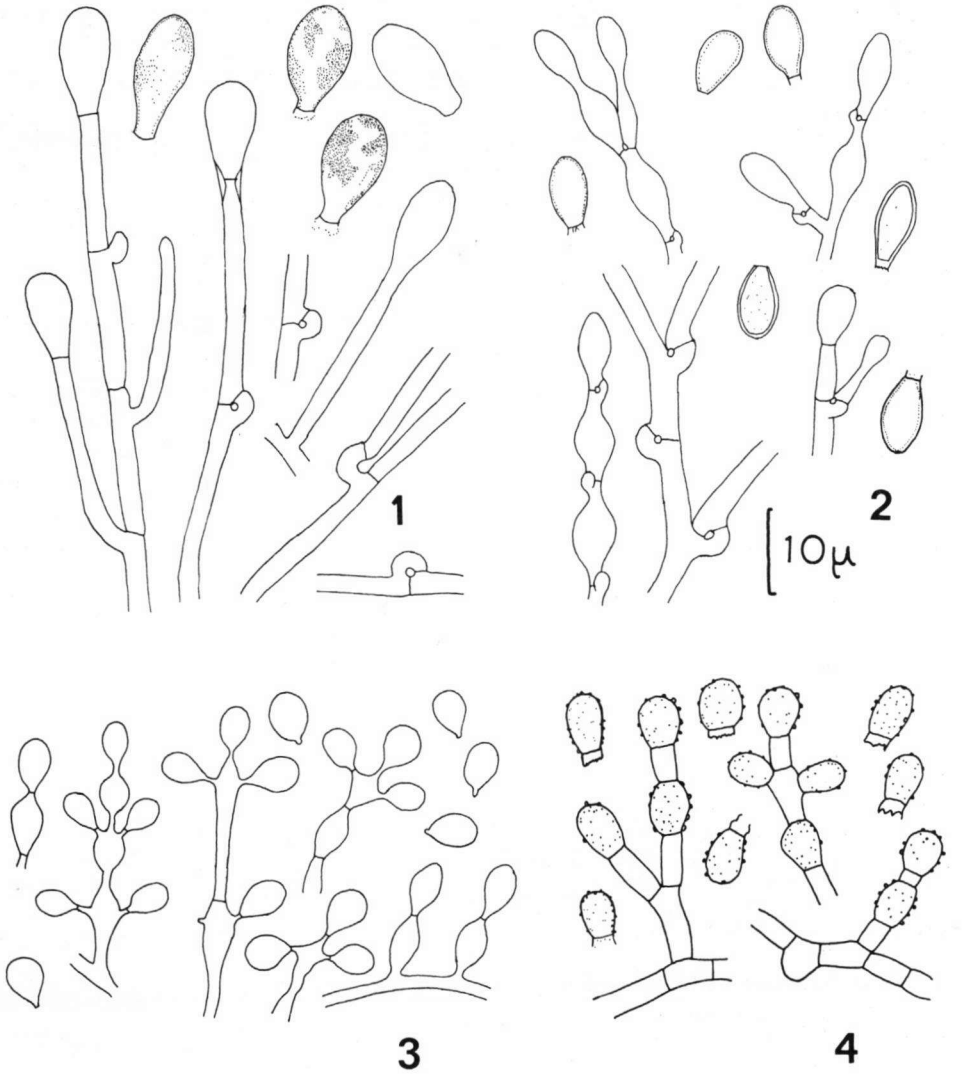
CBS 407.72, isolated from an unidentified fruitbody probably of a polypore on wood, Bareilly, U.P., India, by J. N. Kapoor, 1971.

This fungus has been discussed in detail by Brefeld (1888) and by Falck & Falck (1937) as a wood-attacking organism in buildings. Fidalgo (1958) considered this fungus to be the conidial state of *Polyporus guttulatus* Peck = *Tyromyces guttulatus* (Peck) Murrill. A comparison of 2 strains (CBS 371.29 and CBS 358.33) with *Ptychogaster rubescens*, however, revealed differences in growth rate, colour of the colony, and other characters, as indicated by Davidson & al. (1946).

The genus *Ptychogaster* was described by Corda (1838) for *Ptychogaster albus* Corda = *Ceriomyces albus* (Corda) Sacc. (1888) = *Ptychogaster fuliginoides* (Pers. ex Steudel) Donk (1972). It is the conidial state of *Oligoporus ustilaginoides* Bref. (1888) = *Tyro-*

myces ptychogaster (Ludwig) Donk (1933). Both states were described and illustrated by Brefeld (1888).

Morphologically similar is *Ptychogaster citrinus* Boudier (1887) = *Ceriomyces citrinus* (Boudier) Sacc., which was also studied by Brefeld (1888), and of which the basidiiferous state *Oligoporus rennyi* (Berk. & Br.) Donk (1971) was described as *Polyporus*



Figs. 1–4. Conidiogenous cells and conidia. — 1. *Sporotrichum azureum.* — 2. *Ptychogaster rubescens.* — 3. *Myceliophthora lutea.* — 4. *Chrysosporium merdarium.*

rennyi Berk. & Br. (1875) = *Oligoporus farinosus* Bref. = *Oligoporus citrinus* Falck & Falck (1937) = ? *Oligoporus friesii* Falck & Falck (1937).

The genus *Ptychogaster* Corda has been identified with *Ceriomyces* Corda by Saccardo (1888). According to Donk (1972), however, the type species *Ceriomyces fischeri* Corda has been based on a gall. The genus *Ptychogaster* without doubt is very closely related to *Sporotrichum*. It can be distinguished especially by the conidia, which in *Ptychogaster* are mostly formed in chains and are separated from each other by clamp connexions.

Another related fungus with larger, non-catenulate conidia, and forming also basidia in pure culture on wood has been described by Falck & Falck (1937) as *Multiporus chlamydoformans*. No material of it is preserved, but it may be identical with *Tyromyces destructor* (Schrad. ex Fr.) Bond. & Singer.

Sporotrichum-like fungi with hyphae lacking clamp connexions should be classified in *Chrysosporium* Corda. Such a fungus is *Sporotrichum thermophilum* Apinis. Typical species of the genus *Chrysosporium*, however, represent conidial states of Ascomycetes, especially of Gymnoascaceae. The small, hyaline conidia are separated from the conidiogenous cell by a crosswall; the conidia therefore are clavate (or cylindrical when catenulate) and have a broad, truncate base (Fig. 4).

Carmichael (1962) accepted *Chrysosporium* in a wider sense comprising also fungi forming conidia with a narrow, often apiculate base, hitherto classified in the genera *Myceliophthora* Costantin (Costantin & Matruchot, 1894) and *Emmonsia* Ciferri & Montemartini (1959). The two genera are closely related to each other and also to *Chrysosporium*, but can be easily distinguished from the latter by the formation of 'blastoconidia' with a narrow base and by the presence of thick-walled chlamydospore-like cells. *Myceliophthora lutea* Cost. (fig. 3) is a parasite of the cultivated mushroom; *Emmonsia parva* (Emmons & Ashburn) Cif. & Montem. and *Emmonsia crescens* Emmons & Jellison are parasites in the lungs of animals.

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