

Sydowia, Annales Mycologici Ser. II.

Vol. 38: 106–113 (1985)

Verlag Ferdinand Berger & Söhne Gesellschaft m.b.H., 3580 Horn, Austria

***Phaneromyces* SPEG. & HARIOT, a Discomycetous Genus
of Critical Taxonomic Position**

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Abstract. – After an analytical study of species belonging to *Phaneromyces* it is concluded that it is a good taxonomic genus, whose description is enlarged. *Ph. macrosporus* (BOUD.) SPEG. & HAR. (LPS 15916) is chosen as neotype since the original syntype could not be found. The genus is assigned to the new family Phaneromycetaceae characterized by its crystalline excipulum, bitunicate asci (J-) and hyaline phragmospores.

Introduction

Phaneromyces SPEG. & HARIOT (in SPEGAZZINI, 1889: 93) was described with the following characteristics: “Ascomata marginata, subscutellata, erumpenti-superficialia, ceraceo-subcornea; asci octospori; sporidia 5-septata, hyalina. Genus singulare, habito lichenino, natura tamen Patellariis et Sticteis accedens”.

Type species: *Phaneromyces macrosporus* (BOUD.) SPEG. & HARIOT, Rev. Mycologique 11 (41): 93 (1889)

A second species, *Phaneromyces? plantensis*, was added later by SPEGAZZINI (1909:454).

SACCARDO (1889: 647) repeated the original description of genus and type species and placed it in fam. Sticteae Fr., Sect. Phragmosporeae SACC. (near *Xylogramma* WALLR. and *Eupropolis* de NOT.).

Nobody took any notice of the genus until SHERWOOD (1977:72) made a reference; she repeated the original diagnosis and added: “it is unlikely that the species (*Ph. macrosporus*) is ostropalean, but it would be desirable to examine the type to discover what the exact taxonomic position of the genus is. It may be a member of the Patellariaceae”. In her key (p. 28), with doubt, she places the genus in the Lecanorales.

In view of this comment and particularly because we are interested in subantarctic discomycetes, we think it is worthwhile to follow Dr. SHERWOOD's suggestion. As we did not find a trace of the original material, both in Paris and Lyon, we studied HARIOT's collection from Hermite Island, near the locality where part of the type was collected (San Martín Bay, Hermite Island). We are desig-

nating the former material as the neotype of *Phaneromyces macrosporus*.

Taxonomy

1. *Phaneromyces macrosporus* (BOUD.) SPEG. & HARIOT, Rev. Mycologique 11 (41): 93 (1889). – Fig. 1, A–H

Bas.: *Niptera macrospora* BOUD. in HARIOT, Champignons Cap Horn V: 193 (1889)

Apothecia at first erumpent, then superficial, emerging from the wood, patelliform, 500–1000 µm; external surface and margin covered by an irregular, crystalline, white crust that shows now and then a dull ochraceous, glabrous surface; margin inflexed, thick; hymenium concave, dark, olivaceous when dry, chestnut brown when soaked in water. Flesh gelatinous (Fig. 1, A.). – Paraphyses abundant, filiform, profusely branched at the top, hyaline with gelified walls, 0.5–1.5 µm diam. (Fig. 1, E). – Asci usually 8-spored, sometimes with 3–4 spores, with a very thick and refringent wall, 1–2.4 µm thick in the lateral part, 4.8–5.8 µm at the apex, claviform, tapering at the base. Immature asci show an inverted conical apparatus with “oculus”, 150–173 × 20–23 µm, inamyloid (Figs. 1, D–E). – Ascospores uniseriate, hyaline, smooth, fusoid, with 3–5 septa, filled with small guttules in the young state, later with thick lateral walls, 30–40 × 9–12 µm (Fig. 1, C). – Excipulum well developed, highly gelified, totally of “textura intricata” formed by hyphae with gelified walls and lumen 1–3 µm; 120–150 µm thick at the base, where some of the hyphae penetrate the xylem and medullary rays to a good extent; 50–80 µm thick at the lateral surface, incrustated with compound crystals of probably calcium carbonate (dissolves in diluted HCl) all over except the margin. (Figs. 1, B, F, G, H).

Material examined: CHILE: Hermite Island, leg. HARIOT, on decorticated wood in forest; det. SPEGAZZINI, LPS 15916, NEOTYPE.

Although we could not see dehiscent asci, we presume that asci are bitunicate. They are neither of the *Stictis*-type, viz. cylindrical with the apex only thickened, as shown by Bellemère (1977: 246, pl. 5, C–F) nor as in *Schizoxylon berkeleyanum* (loc. cit., fig. E), but there is a certain resemblance with the *Rhytidisterium*-type, as shown in the genus *Melaspilea* (op. cit., pl. 6).

BOUDIER's description of the syntype, agrees well with our description. The syntype is based on two collections: one from Orange Bay (Hoste Island), leg. HYADES; the second is from San Martín Bay (Hermite Island), leg. HARIOT, and both are on decorticated wood. It is emphasized that the material of the neotype and of the syntypes are from the same Island and both are collected by HARIOT.

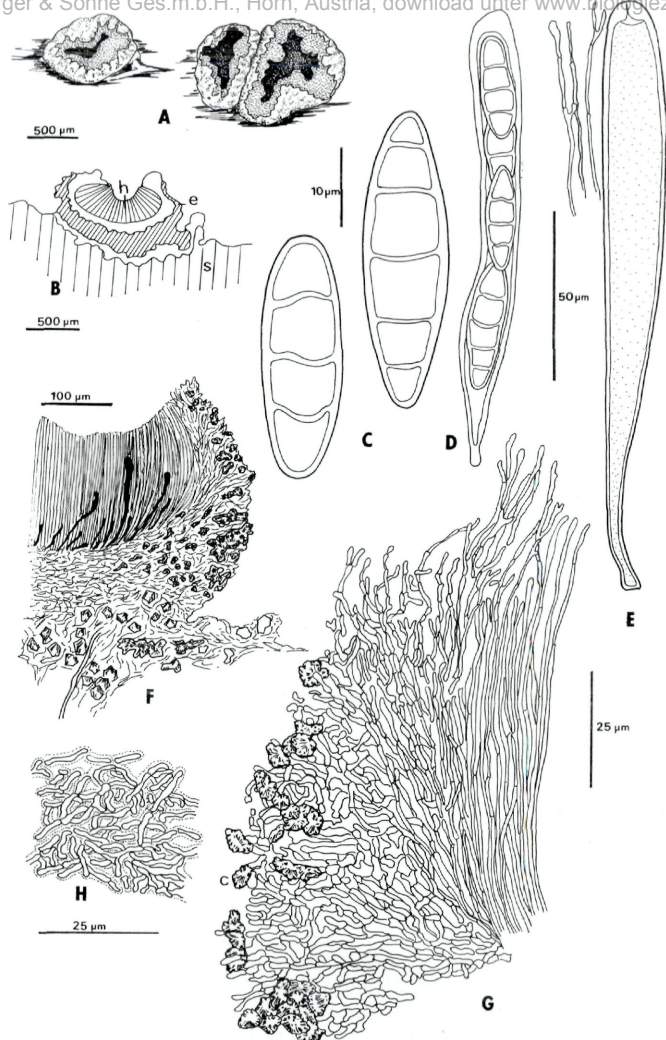


Fig. 1: *Phaneromyces macrosporus* (BOUD.) SPERG. & HARIOT emend. GAMUNDI & SPINEDI: A. Group of apothecia. – B. Diagrammatic section of apothecium: h, hymenium; e, excipulum; s, substrate. – C. Ascospores. – D. Mature ascus. – E. Immature ascus with paraphyses. – F. Section of apothecium. – G. Detail of the margin. – H. Inner excipulum.

Except a few minor points SPEGAZZINI's and HARIOT's description is in accordance with the one given by BOUDIER:

BOUDIER	SPEGAZZINI, HARIOT
disc: pale dull	disc: "olivascence-fusco"
asci: 260–300 × 20–25 µm	asci: 150–170 × 22–22 µm
spores: 5–7 septa	spores: 3–5 septa
40–45 × 10 µm	30–35 × 9–10 µm

The difference in the hymenium color can be due to the grade of humidity. Asci and ascospores are larger in BOUDIER's description but perhaps the type material was more mature. Our observations agree well with those of SPEGAZZINI and HARIOT but note that our figures are a little larger than theirs. Consequently, we think that the synonymy established by both authors is correct. HARIOT must have known the fungus in fresh condition, since he collected the type and the neotype; perhaps he compared both in Paris and sent one collection to SPEGAZZINI.

BOUDIER (1889, op. cit.) put the species under *Niptera* with a question mark. We can add that the original syntype, if one relays to the description and the material choosen as neotype, have nothing to do with *Niptera*. The excipular structure is not "mollisoid", but hairy. These characteristics exclude it also from the Dermateaceae. The excipulum is close to that of *Stictis* and *Schizoxylon* (see figs. 1, 2) in the Ostropales.

According to SPEGAZZINI, HARIOT and our own observations no trace of lichenic structure can be detected.

2. *Phaneromyces platensis* (SPEG.) SACC. & TROTTER, Syll. Fung. 22: 737 (1913) – Figs. 2, H–N

Bas.: *Phaneromyces? platensis* SPEG., Anal. Mus. Nac. Bs. As., 19, Ser. 4a, 12: 454–455 (No. 803) (1909)

Apothecia minute (570–1300 µm diam.), erumpent from the wood, then superficial, globose-depressed, hollow with a thick, irregular margin; externally white-calcareous, fragile, sometimes vertically cracked; hymenium fleshy, orange when soaked in water. (Fig. 2, H). – Asci 8-spored, claviform, short, gradually tapering to the base, J-, bitunicate with a large endoascus terminally forming an "occulus", 82–98 × 7.8–13.6 µm (Figs. 2, J–L). – Paraphyses filiform, thin, hyaline, branched in a digitiform way at the top, with a heavy mucilage in the walls, 1–1.5 µm (Fig. 2, J). – Ascospores multiseriate, hyaline, vermiform, multicellular (phragmospores), 9–15 septate, not breaking apart at maturity, inferior end more slender, 31–55 × 3–6 µm (Fig. 2, K). – Excipulum strongly developed, forming a conspicuous, 75–130 µm thick margin, made by flexous, thin, interwoven hyphae, hyaline, embedded in a gelatinous

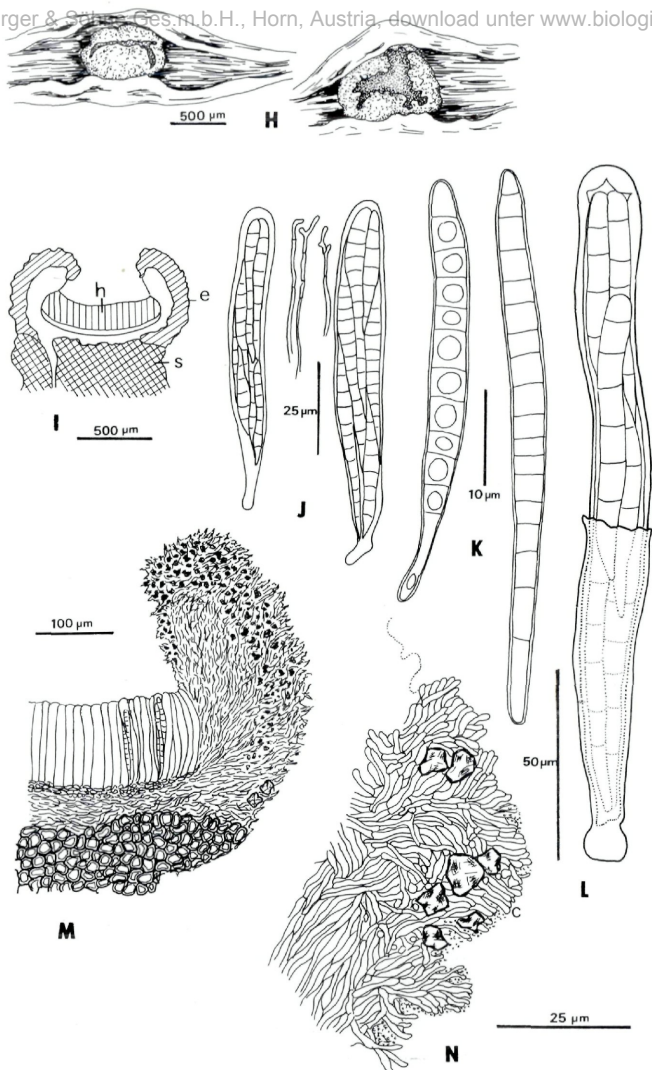


Fig. 2: *Phaneromyces platensis* (SPEG.) SACC. & TROTTER: H. Apothecia. – I. Diagrammatic section of apothecium: h, hymenium; e, excipulum; s, substrate. – J. Asci and paraphyses. – K. Ascospores. – L. Dehiscent ascus. – M. Section of apothecium. – N. Detail of the margin.

matrix and encrusted with crystalline granules. Base 50–125 μm thick, “textura intricata”, formed by hyaline hyphae, 0.5–2.1 μm diam., mostly horizontal but sometimes penetrating the wood (Figs. 2, I, M, N).

Material examined: ARGENTINA: Buenos Aires, La Plata, Los Hornos, leg. MARELLI, 25-VI-1906, on wood of *Prosopis algarrobilla*, LPS 28223, HOLOTYPE.

Discussion

One of the tasks to be undertaken now is to determine if *Ph. macrosporus* and *Ph. platensis* are congeneric. We believe they are because:

1. Both have similar excipular structure. This character is emphasized in the taxonomy of Discomycetes at generic level. This feature, as we already stated, is in some ways the same as in *Schizoxylon* (without periphysoids).

2. Asci are similar in their shape, wall structure and apical structure (cp. figs. 1 and 2)

3. Same habit of apothecia, with crystalline excipulum.

4. Similar substrate.

Nevertheless, both differ:

1. In *Ph. platensis* the vermiform spores have more than 9 septa, with thin walls.

2. In *Ph. macrosporus* the fusoid spores are 4–5-septate, with thicker walls.

According to SHERWOOD (1977: 210–213) *Stictis* contains rather heterogenous species such as *S. minor* with 3-septate, claviform ascospores and *S. mollis* with filiform, multiseptate ascospores. The same occurs with *Schizoxylon crassisporem* (op. cit, p. 123) with few-septate ascospores and *Schizoxylon bellum* (p. 114) with filiform phragmospores. The number of septa has no significance to include species in the same genus, although it is important for the delimitation of species.

We think that this criterium, applied to genera close to *Phaneromyces* can be used also in this genus. As a consequence, we are enlarging the concept and the description of *Phaneromyces*:

Phaneromyces SPEG. & HARIOT emend. GAMUNDI & SPINEDI

Ascomata marginata, subcutellata, erumpenti-superficialia, hymenium ceraceum-subcorneum; margine hyphoso, cristallino; asci bitunicati, iodo non coerulescentes; paraphyses filiformes; ascosporae phragmosporae, hyalinae, fusoidae vel aciculariae. Xylophila. Genus singulare, habitu *Stictis* et *Schizoxylonis* quamquam asci bitunicati.

Typus: *Phaneromyces macrosporus* (BOUD.) SPEG. & HARIOT

We believe that *Phaneromyces* is a good genus related to *Schizoxylon* but differs in the features aforementioned. However, it is obvious that its taxonomic position is unsettled. SHERWOOD (1977: 72) stated that "is improbable that it belongs to the Ostropales and could be a member of the Patellariaceae". We suggest that it can not be in the Patellariaceae because members of this family have blackish, carbonaceous apothecia with a black epithecium and dark excipulum of "textura angularis" or "textura globulosa". However, it can not fit into the Ostropales due to its bitunicate asci.

On the original envelope SPEGAZZINI wrote: "*Ph. macrosporus* is intermediate between *Lecanidion* (= *Patellaria*)-Patellariaceae- and *Eupropolis* - Phacidiales". We do not see a relationship with the first genus due to the reasons given above. *Eupropolis* de Not. (Stictidiaceae) has 3-septate, brown ascospores and apothecia entirely submerged in the substrate which is not the case in *Phaneromyces*.

Odontotrema NYL. apud SHERWOOD (1977)-Ostropales-shows transversely septate, hyaline ascospores, but the excipulum is formed by brown non crystalliferous hyphae and paraphyses embedded in an J⁺ gel. It is not so in *Phaneromyces*. *Nanostictis* CHRISTIANSEN (1954) - Ostropales - differs from *Phaneromyces* by its non-crystalliferous excipulum and immersed apothecia. Finally *Karstenia* FR. in KARST. (1885) apud SHERWOOD (1977) is different from *Phaneromyces* in its non crystalliferous excipulum and the uniformly thin walls of the asci.

The fact that the genus *Phaneromyces* fits neither into the Stictidiaceae nor in the Patellariaceae leads to the conclusion that it has to be included in the new family Phaneromycetaceae which can be placed in the bitunicate Discomycetes (near the Patellariaceae) but it is distinct from the latter by the lack of hymenial J⁺ gel. We resisted to include *Phaneromyces* in the Loculoascomycetes since we do not see a stroma or dark spores. We agree in this matter with SHERWOOD (1977: 11) who stated: "The use of ascospores characters to delimit taxa above the rank of the genus has fallen in disrepute in recent years. Nonetheless one can not help but be impressed by the near constant association between certain ascospores characteristics and such unquestioned criteria as ascus dehiscence and fruitbody morphology".

On these criteria we propose the new family:

Phaneromycetaceae GAMUNDÍ & SPINEDI, fam. nov.

Ascomata erumpentia deinde superficialia. Excipulum crystallinum. Asci bitunicati iodo non coerulescentes. Ascosporae hyalinae, phragmosporae.

Typus familiae: *Phaneromyces* SPEG. & HARIOT emend. GAMUNDÍ & SPINEDI (l. c.)

Acknowledgements

We wish to thank Dr. R. P. KORF for his valuable suggestion regarding nomenclatural matters.

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Autor(en)/Author(s): Gamundi Irma J., Spinedi H. A.

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