

担子菌類クビレタンシキン目の一種 *Dicellomyces gloeosporus* (ササノヒメサラタケ-新称)について

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著者	長沢, 栄史
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***Dicellomyces gloeosporus* (Basidiomycotina :
Brachybasidiales) from Japan***

Eiji NAGASAWA

Abstract

A basidiomycetous fungus *Dicellomyces gloeosporus* is recorded for the first time in Japan and described with illustrations including cultural characteristics. *Pleioblastus chino* var. *viridis* of the Bambusaceae is the new host. Taxonomic position of this genus is discussed.

Key Words: *Dicellomyces*; Basidiomycotina; plant parasite; bamboos.

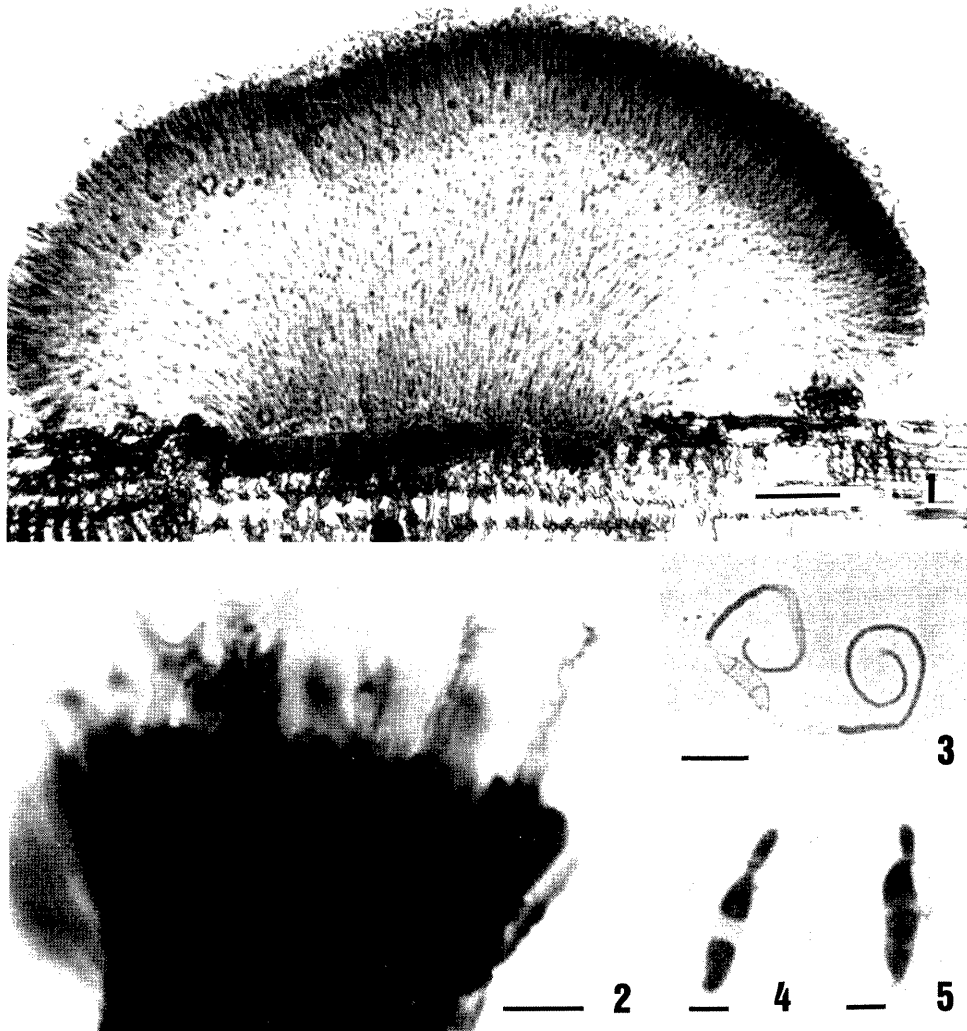
Dicellomyces gloeosporus Olive is the type species of the genus *Dicellomyces* Olive originally assigned to Dacrymycetaceae (Olive, 1945) and has so far been known only from southeastern U.S.A. as a leaf parasite of *Arundinaria tecta* (Walt.) Muhl. This fungus is found in Tottori, Japan on *Pleioblastus chino* (Franchet et Savatier) Makino var. *viridis* (Makino) S. Suzuki (*Nezasa*). This is the first report of this fungus from the outside of U.S.A. and the new host plant. Based on the observations of the Japanese material the taxonomic position of the genus *Dicellomyces* is discussed, because there are different opinions on its disposition among mycologists.

***Dicellomyces gloeosporus* Olive, Mycologia 37: 544, 1945. Figs. 1-13**

Basidiocarps hypophyllous, 0.3-1 mm in diam and up to 0.5 mm high, pustulate to pulvinate, pale grayish buff to pale orange, firmly gelatinous. The upper surface of basidiocarps covered by a hymenium (Fig. 1); the context well-developed, composed of densely arranged gelatinous hyphae (Fig. 11), 2.5-7.5 μm broad, without clamps. Probasidia (Figs. 2, 6) persistent, 32.5-50 \times 4-6.5 μm , narrowly clavate with a slender flexuous base; the walls mostly up to 0.5 μm thick. Metabasidia (Figs. 2, 6) arising apically from probasidia, thin-walled and easily collapsed after releasing basidiospores, (5-) 6.5-14 \times 2.5-4 μm , cylindrical, terminally divaricating and forming two short, stout sterigmata tapering apically, 3-5 \times 5-2 μm at the base, rarely septate at the base of one sterigma. Basidiospores (Figs. 3-5, 7, 8) (8-) 13-19.5 \times 3.5-4.5 μm , often adhering in pairs, curved-subfusiform, forming 1-3 tranverse septa during germination, hyaline, thin-walled, germinating on the hymenium by the production of 1-2 germ tubes (Fig. 7, 8) or blastoconidia (Figs. 9, 10). Blastoconidia 3-7 \times 1-1.5 μm , allantoid, hyaline, unicellular.

Colonies (from single conidia) (Fig. 12) on 2% malt extract agar, subgelatinous, light

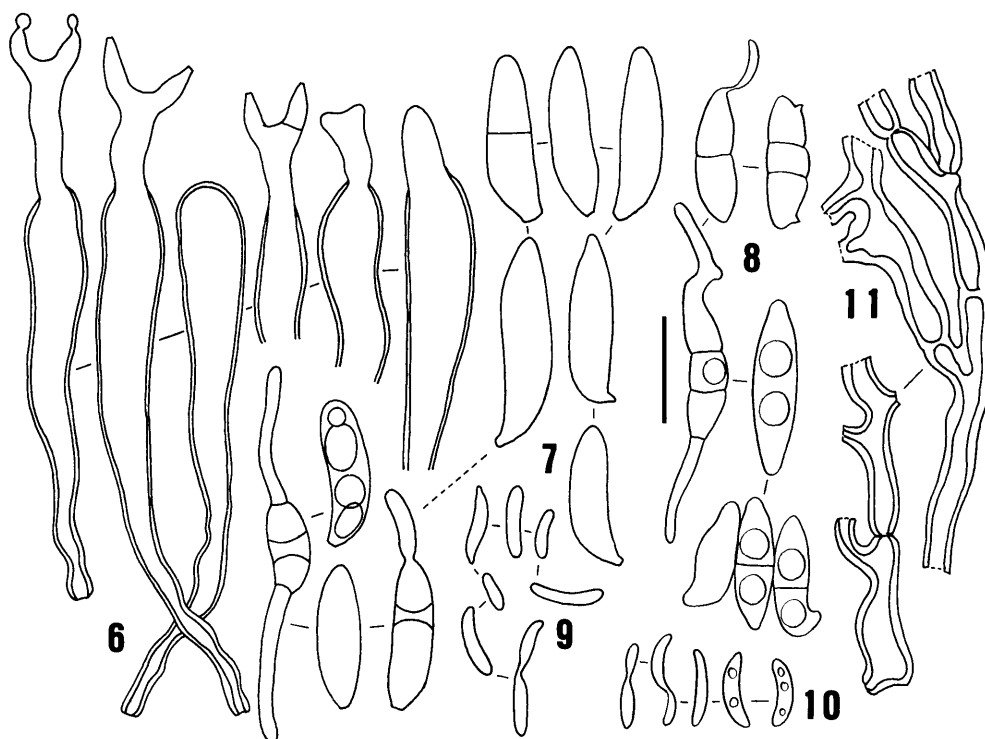
* Contribution No. 217 from the Tottori Mycological Institute, Kokoge 211, Tottori, 689-11 Japan.



Figs. 1-5. *Dicellomyces gloeosporus*. Fig. 1. Section of a basidiocarp, TMI-7282. Bar=50 μ m. Fig. 2. Part of a hymenium showing probasidia and metabasidia (stained in lactofuchsin), TMI-7284. Bar=10 μ m. Fig. 3. Basidiospore germinating by germ tubes (stained in lactofuchsin), TMI-7284. Bar=10 μ m. Figs. 4 and 5. Basidiospores germinating by conidia formation (stained in lactofuchsin), TMI-7284. Bar=5 μ m.

orangish yellow, growing very slowly, about 1 mm diam in 30 days at 23°C ; hyphae 1-2 μ m broad, frequently branched, thin-walled, without clamps at the septa ; blastoconidia (Fig. 13) abundant, similar to those from the germinating basidiospores in size and form, produced on fine outgrowths of the hyphae singly or in succession side by side, often in groups of 2-3 conidia, germinating by the production of blastoconidia or germ tubes on 2% malt extract agar at 23°C within 24 h.

Collections examined : On leaves of *Pleioblastus chino* (Franchet et Savatier) Makino

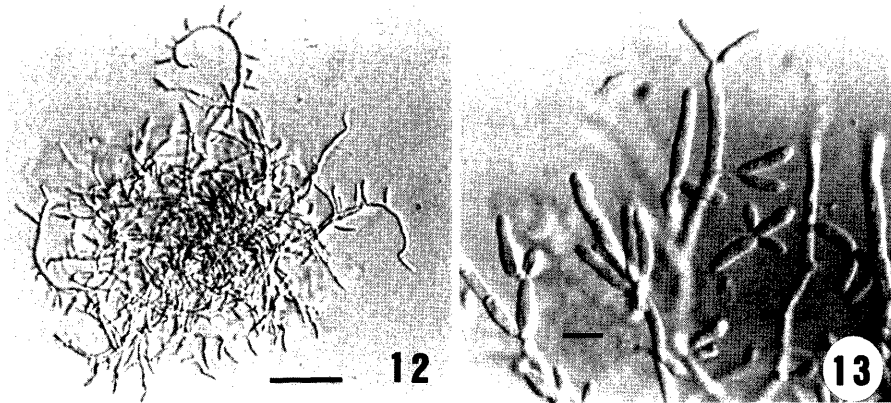


Figs. 6-11. *Dicellomyces gloeosporus*. Fig. 6. Probasidia and metabasidia. Figs. 7 and 8. Basidiospores. Figs. 9 and 10. Conidia. Fig. 11. Hyphae from the context of a basidiocarp. All based on TMI-7285 except for Figs. 8 and 10 (TMI-7282). Bar = 5 μ m.

var. *viridis* (Makino) S. Suzuki (Japanese name : *Nezasa*), near the Institute at Kokoge, Tottori-shi, Coll. by E. Nagasawa : Sept. 9, 1978 (TMI-7282) ; Nov. 30, 1978 (TMI-7283) ; May 4, 1979 (TMI-7284) ; May 10, 1979 (TMI-7285). The collections cited are kept in the Herbarium of the Institute (TMI).

Isolate studied : TMI-50099 of polybasidiosporous origin.

The present fungus, having characters described above, would be safely identified as *D. gloeosporus* Olive, although Olive (1945, 1951) did not describe the cultural characteristics. Similar allantoid blastoconidia have been observed by Reid (1976) and Ingold (1985) on germinating basidiospores and hyphae of *D. scirpi* Raitviir in Parmasto (1968), the only other known species in this genus. According to Ingold (1985), however, the conidia of *D. scirpi* are formed in basipetal succession, thus differing from those of *D. gloeosporus* in this study. It seems to be noteworthy that both in U.S.A. and Japan this species has been found on the Bambusaceae as a leaf parasite, suggesting its preference to the plant group as the host. In addition to the parasitic habit *D. gloeosporus* is characterized by (1) small, pustulate, firmly gelatinous basidiocarps, (2) persistent probasidia that bear non-septate bisterigmate metabasidia apically, (3) curved-subfusiform basidiospores becoming 1-3-septate transversely and often adhering in pairs, and (4) allantoid blastoconidia formed by



Figs. 12-13. *Dicellomyces gloeosporus* in culture. Fig. 12. Colony (derived from a single conidium) after 2 weeks. Bar=25 μ m. Fig. 13. Conidia on hyphae. Bar=5 μ m.

the germinating basidiospores and hyphae in culture. Recently, Nakai (1986) reported that the hyphae constituting the basidiocarp of *D. gloeosporus* (TMI-7284) possessed septa of the simple type.

Olive (1945) considered the genus *Dicellomyces* to be included in Dacrymycetaceae because of the basidiocarp morphology, the bisterigmate nature of the basidia and the mode of basidiospore germination. Although this treatment is still followed by some authors, for example, by Hawksworth et al. (1983) in the "Ainsworth & Bisby's Dictionary of the Fungi" (7th ed.), there are several different opinions regarding the suprageneric taxonomy of the genus: i.e. Dicellomycetaceae of Aphyllophorales (Exobasidiineae) (Parmasto, 1968), Brachybasidiaceae of Brachybasidiales (McNabb, 1973; Cunningham et al., 1976), Dicellomycetaceae of Brachybasidiales (Jülich, 1981), and Exobasidiales (Oberwinkler, 1982). Among these, I agree with the treatments of McNabb (1973) and Cunningham et al. (1976), because the *Dicellomyces* is closer to *Brachybasidium* than *Exobasidium* in the morphology of the basidia and basidiocarps. However, as already stated by McNabb (1973), this disposition of the genus in Brachybasidiales seems to be tentative, because we still lack critical data on the septum ultrastructure, the mode of basidiospore germination, and the cultural characteristics of *Brachybasidium pinangae* (Rac.) Gäumann, the only species of the genus.

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摘 要

担子菌類クビレタンシキン目の一種 *Dicellomyces gloeosporus*
(ササノヒメサラタケ—新称) について

長 沢 栄 史

担子菌類の一種 *Dicellomyces gloeosporus* を、日本産—新知見種として報告し、日本産標本の特徴を記述および図示した。本菌は従来、アメリカ合衆国南東部に分布し、タケ科植物の一種 *Arundinaria tecta* の葉に寄生することが知られていたものである。日本では、鳥取市において、ネザサ *Pleioblastus chino* var. *viridis* (新寄主) の生葉上で、5, 9, 11 月に採集されている。本菌の主要な特徴は、(1) 葉裏面に、径 0.3-1 mm、淡灰黄~淡橙色、円盤状の多少軟骨質な子実体を生じること、(2) 担子器が狭棍棒形の、やや厚膜な前担子器と、それに頂生する無隔壁な後担子器からなり、後担子器は頂部に 2 本の太短い小柄をもつこと、(3) 担子胞子 (大きさ 13-19.5×3.5-4.5 μm) が、はじめ単細胞であるが、のち 1-3 個の横隔壁を生じ、発芽管または芽出胞子を形成して発芽すること、(4) 芽出胞子が腸詰形、単細胞で、培養菌糸体上にも形成されることなどである。本菌に基づいて創設されている *Dicellomyces* 属の所属については、アカキクラゲ目、クビレタンシキン目、あるいはモチビョウシキン目に置くなどの考え方があがるが、担子器および子実体の特徴からみて、クビレタンシキン目 (クビレタンシキン科) に置くのが最も妥当であると思われる。
