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A new species of *Mycoleptodiscus* from Australia

KATSUHIKO ANDO

Tokyo Research Laboratories, Kyowa Hakko Kogyo Co. Ltd.,
3-6-6 Asahi-machi, Machida-shi, Tokyo 194, Japan

Ando K. (1996): A new species of *Mycoleptodiscus* from Australia. – *Czech Mycol.* 49: 1–5

Mycoleptodiscus stellatosporus sp. nov. is described, illustrated and compared with the established species. The new fungus is characteristic in its conidia with the triangular to pentagonal shape and two to four appendages.

Key words: Taxonomy, Hyphomycetes, *Mycoleptodiscus stellatosporus* sp. nov.

Ando K. (1996): Nový druh rodu *Mycoleptodiscus* z Austrálie. – *Czech Mycol.* 49: 1–5

Je popsán *Mycoleptodiscus stellatosporus* jako nový druh. Je připojeno vyobrazení a porovnání s druhy podobnými. Tato nová houba je charakteristická v obrysu trojúhelníkovitými až pětiúhelníkovitými konidii, které mají dva až čtyři přívěsky.

In 1953, Gerdemann established a new genus *Leptodiscus* based on *L. terrestris* Gerdemann from diseased root specimens of red clover (*Trifolium pratense* L.) collected in Illinois. However, the generic name *Leptodiscus* is not valid under the provisions of Article 64 of the International Code of Botanical Nomenclature because it had previously been used for an algal flagellate (Hertwig 1877). Then, Ostazeski (1968) proposed the new generic name *Mycoleptodiscus* to replace *Leptodiscus* Gerdemann with *M. terrestris* (Gerd.) Ostazeski as the type species and an additional species *M. sphaericus* Ostazeski from *Lotus corniculatus*. Later two new combinations, *M. indicus* (Sahni) Sutton (on *Amerodiscosiella indica* Sahni) and *M. minimus* (Berk. et Curt.) Vaney (on *Discosia minima* Berk. et Curt.) were reported by Sutton (1973) and Vaney (1983), respectively. Six new species, *M. brasiliensis* Sutton et Hodges (Sutton and Hodges 1976), *M. lunatus* Sutton et Alcorn (Sutton and Alcorn 1985), *M. taiwanensis* Matsushima (Matsushima 1987), *M. lateralis* Alcorn et Sutton (Sutton and Alcorn 1990), *M. unilateralis* Sutton et Alcorn (Sutton and Alcorn 1990) and *M. disciformis* Matsushima

(Matsushima 1993), have been published since nineteen-seventies. Therefore, ten species are currently accepted in the genus. The conidium characteristics of each are summarized in Table 1.

Table I. Conidium characteristics of 11 species of *Mycoleptodiscus*.

Species	Conidium		Appendage		Reference
	Cell Number	Size (μm)	Number	Length(μm)	
<i>M. taiwanensis</i>	1-celled	12-21 \times 5.5-7	2*	1-3	Matsushima (1987)
<i>M. indicus</i>	1-celled	11-18.5 \times 4.5-7.5	2	1-10	Sutton and Hodges (1976)
<i>M. minimus</i>	1-celled	20-25(-29) \times 3.5-4	2	-8	Vanev (1983)
<i>M. unilateralis</i>	1-celled	15-20 \times 6-8	2-3	5-12.5	Sutton and Alcorn (1990)
<i>M. lateralis</i>	1-celled	15-18 \times 6-8	3	5-26	Sutton and Alcorn (1990)
<i>M. stellatosporus</i>	1-celled	4.5-7.5 \times 4-5.5	(2-)3-4	-11	this study
<i>M. lunatus</i>	2-celled	24.5-32 \times 3.5-4.5	0		Sutton and Alcorn (1985)
<i>M. brasiliensis</i>	2-celled	17-19 \times 4-4.5	1	19-27	Sutton and Hodges (1976)
<i>M. sphaericus</i>	2(-3)-celled	28.8-43.2 \times 5.0-9.0	1*	0-14.0	Ostazeski (1968)
<i>M. disciformis</i>	2-celled	17.5-25.0 \times 4.0-5.0	2*	5-8	Matsushima (1993)
<i>M. terrestris</i>	2-celled	20-34.8 \times 4.4-7	2*	8.7-18	Gerdemann (1953)

* The authors show the appendages as setae or apical prolongation.

In 1990, Sutton and Alcorn emended the description of the genus *Mycoleptodiscus*. The genus *Mycoleptodiscus* united by the common characteristics of superficial sporodochial conidiomata of one cell thick, constitute mostly of thick-walled, dark brown conidiogenous cells with a prominent circular aperture in the upper wall, and hyaline, cylindrical to fusiform, 0-2 septate, conidia bearing an apical and sometimes a basal cellular unbranched filiform appendage, or sometimes lacking appendages.

Mycoleptodiscus species were observed on plant roots of diseased red clover and birdsfoot trefoil, fruits of *Passiflora edulis*, culms of *Cynodon dactylon* and leaves of many plants (*Ixora parviflora*, *Cocos yatay*, *Chlorophytum comosum*, *Hymenocallis arenicola*, *Zamia fisheri*, *Z. integrifolia*, *Cordyline* sp., *Roupellia grata*, *Hippeastrum* sp., *Grewia asiatica*, *Eucalyptus citriodora*, *Eucalyptus* sp., *Piper nigrum*, *Ilex opaca*, *Carpobrotus glaucescens*, *Alloteropsis semialata*, *Areca catechu* and *Chlorophytum capense*). They were reported from U.S.A., Brazil, Cuba, Venezuela, Brunei, Nigeria, Australia, Fiji, New Zealand, India, Cambodia, Taiwan and Peru.

During the investigation of micro-fungi from soil samples, a new hyphomycete was found in cultures isolated from a soil collected in Australia. The fungus shows agreement with the characters of the genus *Mycoleptodiscus*, but it differs

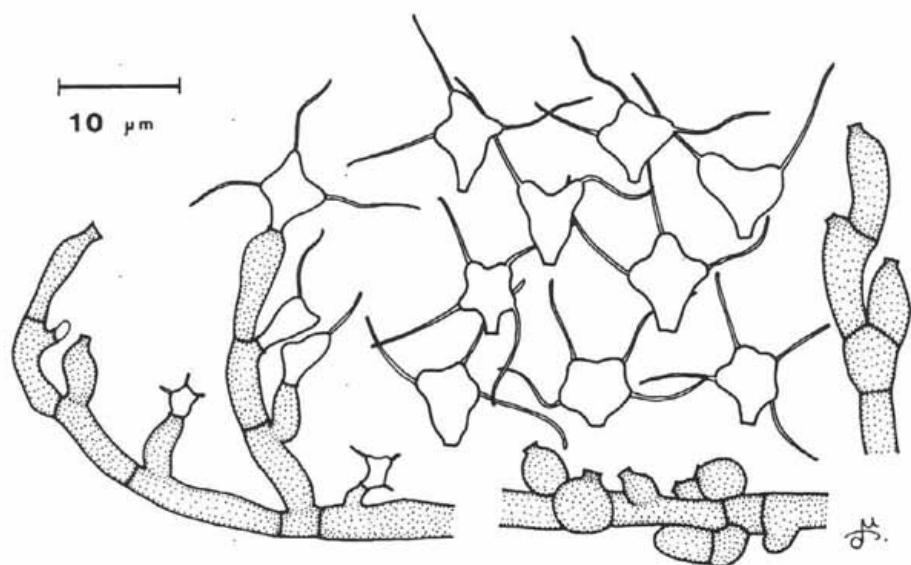


Fig. 1. *Mycoleptodiscus stellatosporus* KY-15338 in pure culture.

from the previously known species mainly in conidial morphology. The purpose of this communication is to describe and illustrate the new species. The culture of the species was preserved in Tokyo Research Laboratories, Kyowa Hakko Kogyo, Tokyo, Japan, as KY-15338.

Mycoleptodiscus stellatosporus Ando sp. nov.

figs. 1-7

Etym.: L, *stellatus* (star shaped) and L, *sporus* (spored)

Hyphae septatae, hyalinae vel pallide brunneae, prope conidiomata atro-brunneae, 1.5-4.5 μm diam. Conidiomata medio- vel atro-brunnea, sporodochialia, circularia vel irregularia, e cellulis conidiogenis aggregatis composita. Cellulae conidiogenae enteroblasticae, phialidicae, determinatae, in sporodochiis incorporatae, atro-brunneae, ampulliformes, doliiformes, cylindricae vel deltoideae, laeves, 4-9.5 μm longae, 2.5-5.5 μm latae, collo distincto et cum apertura 0.5-1.5 (-2.5) μm diam. Conidia hyalina, aseptata, pentagona, longe isoscelatim triangulara, rhomboidea vel inaequalis formae, apice rotundata, inter apices parum concava, 4.5-7.5 μm longa, 4-5.5 μm lata, basi truncata et ca. 1 μm lata, cum appendicibus in quoque apice extra basin praedita. Appendices simplices, filiformes, ad 11 μm longae, ca. 0.5 μm latae.

Holotypus: TNS-F-180375, colonia exsiccata in cultura ex solo, Kuaranda, Queensland, Australia, 21. X. 1989, a K. Ando isolata.

Hyphae septate, dark brown near the conidiomata, pale brown to hyaline when distant, 1.5–4.5 μm diam. Conidiomata mid to dark brown, varying from a few united conidiogenous cells to large aggregations, sometimes rounded in outline but usually variable in shape and size due to confluence. Conidiogenous cells enteroblastic, phialidic, determinate, ampulliform to doliiform, cylindrical or triangular, aggregated into sporodochial conidiomata, dark brown, smooth, 4–9.5 μm long, 2.5–5.5 μm wide, each with a single distinct circular aperture in the upper wall and a flared collarete 0.5–1.5 (–2.5) μm diam. Conidia hyaline, aseptate, pentagonal, long isosceles triangular, rhomboid or of irregular shape, with rounded apices whose sides are slightly curved inside, 4.5–7.5 μm long, 4–5.5 μm wide, with a truncate base (ca. 1 μm wide), with single appendages at each distal apex of polygonal conidia. Appendages up to 11 μm long, ca. 0.5 μm wide.

Specimen examined: a dried culture isolated from a soil collected at Kuranda, Queensland, Australia, 21 October 1989.

M. stellatosporus can be distinguished from *M. lunatus*, *M. brasiliensis*, *M. sphaericus*, *M. terrestris* and *M. disciformis* by the cell number of conidia. The former has one-celled conidia and the latter have septate, 2- to 3-celled conidia. Among six species of *Mycoleptodiscus* which produce one-celled conidia, *M. stellatosporus* is unique in having four appendages on its conidia. The conidial shape of *M. stellatosporus*, triangular to pentagonal, has also not been observed in any established species of *Mycoleptodiscus*.

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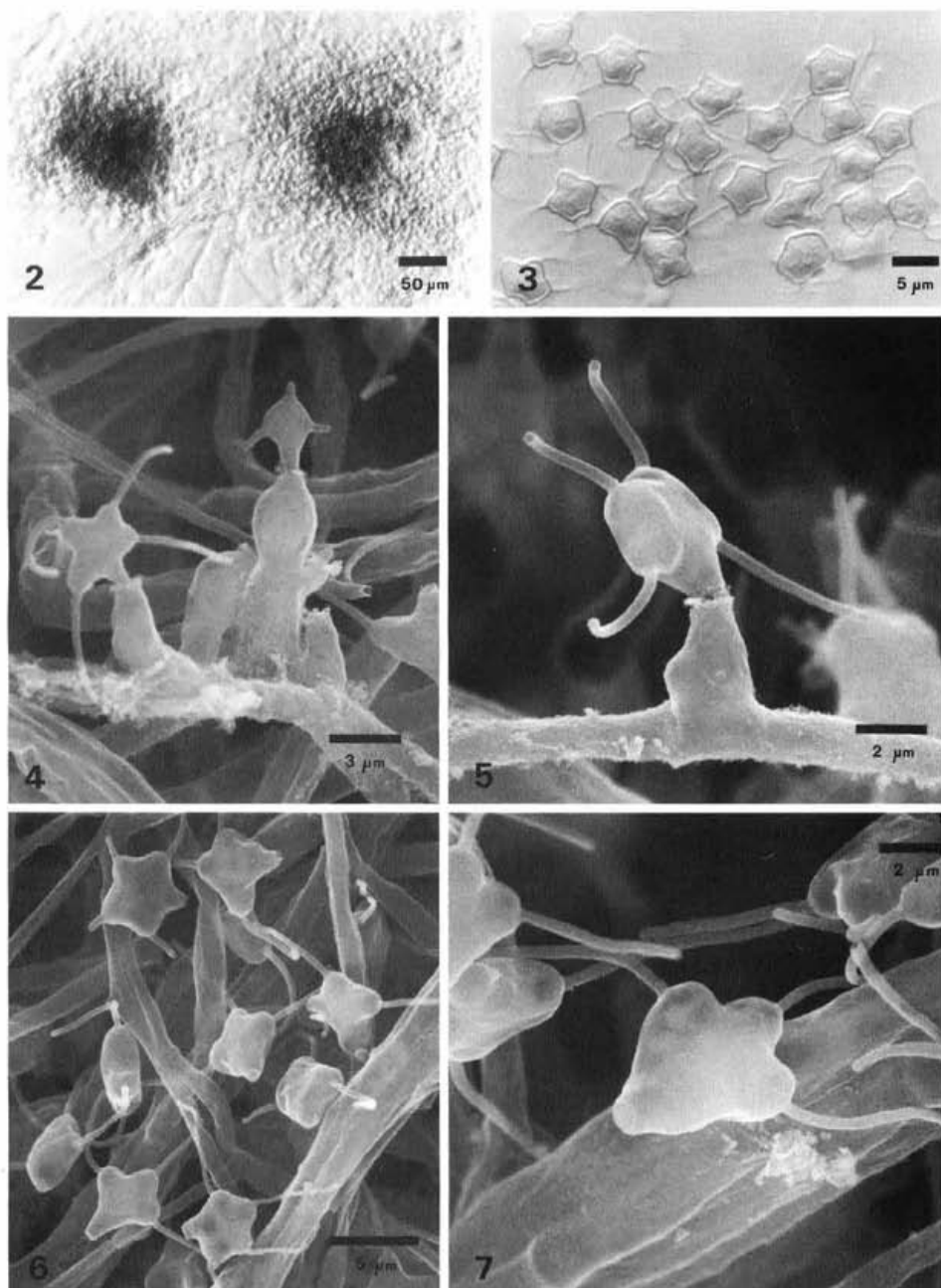
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Figs. 2-7. *Mycoleptodiscus stellatosporus* KY-15338 in pure culture. 2. Two sporodochia, 3. Conidia under light microscope, 4, 5. Conidial development from conidiogenous cells under SEM. 6, 7. Conidia under SEM.