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Short Communication

Stellatospora, a new genus of the Sordariaceae

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In the course of study of fungi from soil, a new genus and species, *Stellatospora terricola*, was isolated. The fungus is distinguished from other known genera in having star- or comfit-shaped ascospores with a distinct germ pore. The morphological characters of the genus are considered to resemble those of the Sordariaceae in Ascomycotina.

Key Words——soil fungus; Sordariaceae; *Stellatospora terricola*.

During a continuing study of filamentous fungi from various soils in Japan, an unknown sordariaceous ascomycete was isolated from paddy soil at Ikeda, Osaka Pref. The fungus is characterized by non-ostiolate, spherical ascomata, pyriform to ovate asci and star- or comfit-shaped, aseptate, smooth ascospores with a germ pore. The morphological characteristics of its ascomata and asci resemble those of the Sordariaceae G. Winter sensu Lundqvist (1973) and Eriksson and Hawksworth (1986), but the distinctive character of uniquely shaped ascospores with a germ pore merits classification in a separate genus (von Arx, 1975; von Arx et al., 1984; von Arx et al., 1988). We therefore propose a new genus to accommodate this fungus.

Stellatospora T. Ito et Nakagiri, gen. nov.

Ascomata solitaria, sparsa vel gregaria, non ostiolata, globosa vel subglobosa, nivea, cum tegetibus mycelii crassis albis tomentosis obtecta; peridium ex cellulis depressis angularibus compositum. Asci 3-8-spori, pyriformes vel ovati, evanescentes. Ascosporae stellatae vel irregulares, tuberculares, brunneae, leves, cum poro germinationis ad apicem protuberationis unicis praeditae.

Species typica: *Stellatospora terricola* T. Ito et Nakagiri.

Etymology: from the Latin, *stellatus*=star; *sporus*=spore, referring to star-shaped spores.

Ascomata solitary or gregarious, non-ostiolate, globose to subglobose, covered with thick, white, tomentose mycelial mats; peridium consisting of thin, depressed cells, "textura angularis", translucent. Asci 3-8-spored, pyriform to ovate, evanescent. Ascospores stellate or comfit-shaped, with some protuberances, brown, smooth, with a single germ pore.

Stellatospora terricola T. Ito et Nakagiri, sp. nov.

Figs. 1-6

Coloniae in OA velutinae vel floccosae, albae vel pallide luteolae. Hyphae vegetativae hyalinae, floccosae, 1.7-2.0 μm crassae. Ascomata solitaria, sparsa vel gregaria, non ostiolata, tarde maturescentia, globosa vel subglobosa, 100-150 μm diam, nivea, cum tegetibus mycelii crassis albis tomentosis obtecta; peridium 4-8 μm crassum, ex cellulis 3-4-stratosis depressis angularibus compositum. Asci 3-8-spori, pyriformes vel ovati, evanescentes. Ascosporae primo irregulares, stellatae ad maturitatem, cum 8-9-tuberculis, 11-13 μm diam, brunneae, leves, cum poro germinationis ad apicem protuberationis unicis praeditae. Status anamorphus non visus.

Etymology: from the Latin, *terra*=earth; *cola*=inhabit, referring to living in the earth.

Holotypus: IFO H-12166, colonia exsiccata in cultura ex solo, Ikeda, Osaka, Japonia, Maius, 1990, e cultura IFO 32597 (T. Ito H2-2-10-20).

Colonies on oatmeal agar (OA) growing moderately, attaining a diameter of 75-85 mm within 3 weeks at 24°C, yellowish white to pale gray (Rayner, 1970), velvety to floccose, partly funiculose, consisting of a basal felt, producing immature ascomata; reverse light yellow orange or pale buff. Ascomata solitary or partly gregarious, non-ostiolate, maturing after one month of incubation on OA, globose to subglobose, 100-150 μm in diam, soft, covered with thick, white, tomentose mycelial mats; peridium consisting of thin, depressed cells, "textura angularis", translucent; ascomatal initials appear as terminal or branched vegetative hyphae, consisting of short, thin, loosely coiled hyphae. Asci 3-8-spored, pyriform to ovate, with a thin, evanescent membrane. Ascospores pale greenish brown at first, later becoming brown, smooth, irregular shaped at first, stellate or comfit-shaped with up to 8-9 short protuberances after maturing, 11-13 μm in diam, with a single germ pore on one protuberance. Anamorph not observed.

At 37°C, growth in nil.

Hab.: paddy soil, Ikeda, Osaka Pref., Japan, May, 1990.

Colonies on each medium show the following growth

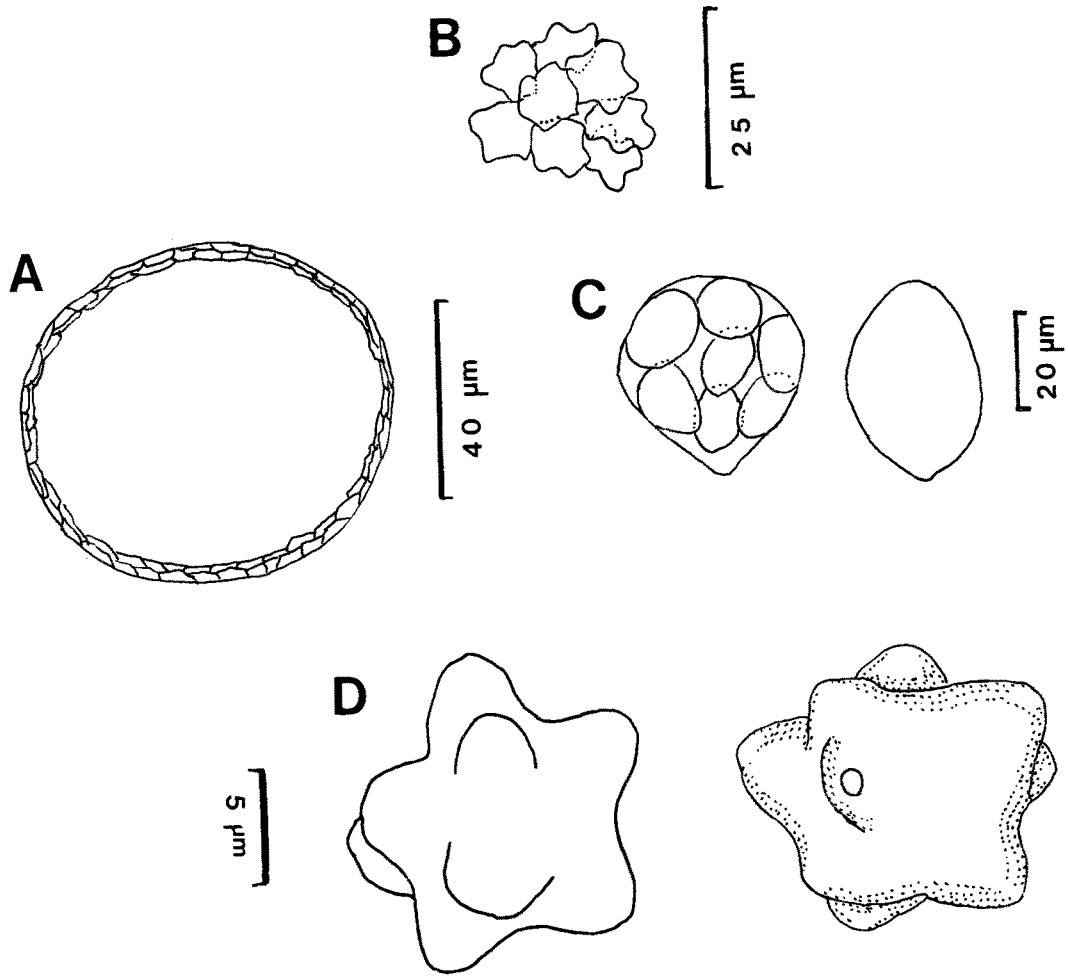

Fig. 1. *Stellatospora terricola* (IFO 32597). A. Ascoma. B. Evanescent ascus and ascospores. C. Immature asci. D. Ascospores.

after 3 weeks' incubation at 24°C. On potato sucrose agar (PSA): growing moderately, attaining a diameter of 53–57 mm, white, floccose, radiate; reverse hyaline to pale olive-buff. On potato carrot agar (PCA): growing moderately, attaining a diameter of 68–70 mm, white, floccose at the center and velvety at the margin; reverse hyaline to pale olive-buff. On malt extract agar (MA): growing moderately, attaining a diameter of 53–57 mm, white, floccose to partly funiculose; reverse hyaline to pale olive-buff. Ascomata are only produced on OA medium. Cultures on all media give forth a strong decaying mushroom-like odor.

To classify the Ascomycotina, the shape, ornamentation, pigmentation of ascospores and the number of germ pores have been used as taxonomic criteria. The shape of ascospores and the existence of germ pores are particularly emphasized by von Arx et al. (1988) in the taxonomy of sordariaceous ascomycetes at the generic level. General characteristics of the genus *Stellatospora*, which are non-ostiolate, spherical ascomata and dark ascospores with a germ pore, suggest its close relationship to the genera *Thielavia* Zopf, *Chaetomidium* (Zopf) Sacc., *Boothiella* Lodhi & Mirza and *Melanocarpus* v. Arx. The genus *Stellatospora*, however, differs from *Thielavia* in having "textura angularis" ascomatal wall and star- or comfit-shaped ascospores. *Chaetomidium* is distinguished from the new genus by ascomata covered with long, hyphal appendages or setae. Furthermore, *Boothiella* and *Melanocarpus* differ from *Stellatospora* in the shape of asci and ascospores, though they also have non-ostiolate, spherical ascomata. The former genus is characterized by cylindrical, 4-spored asci and the latter is distinguished from *Stellatospora* by its thicker, dark ascomatal wall and oblate or ovate ascospores.

To confirm the taxonomical position of the genus, the ubiquinone system was investigated. The major ubiquinone was determined as Q-10(H_2). The result supports a taxonomical position in the Sordariaceae, as shown by Kuraishi et al. (1985).

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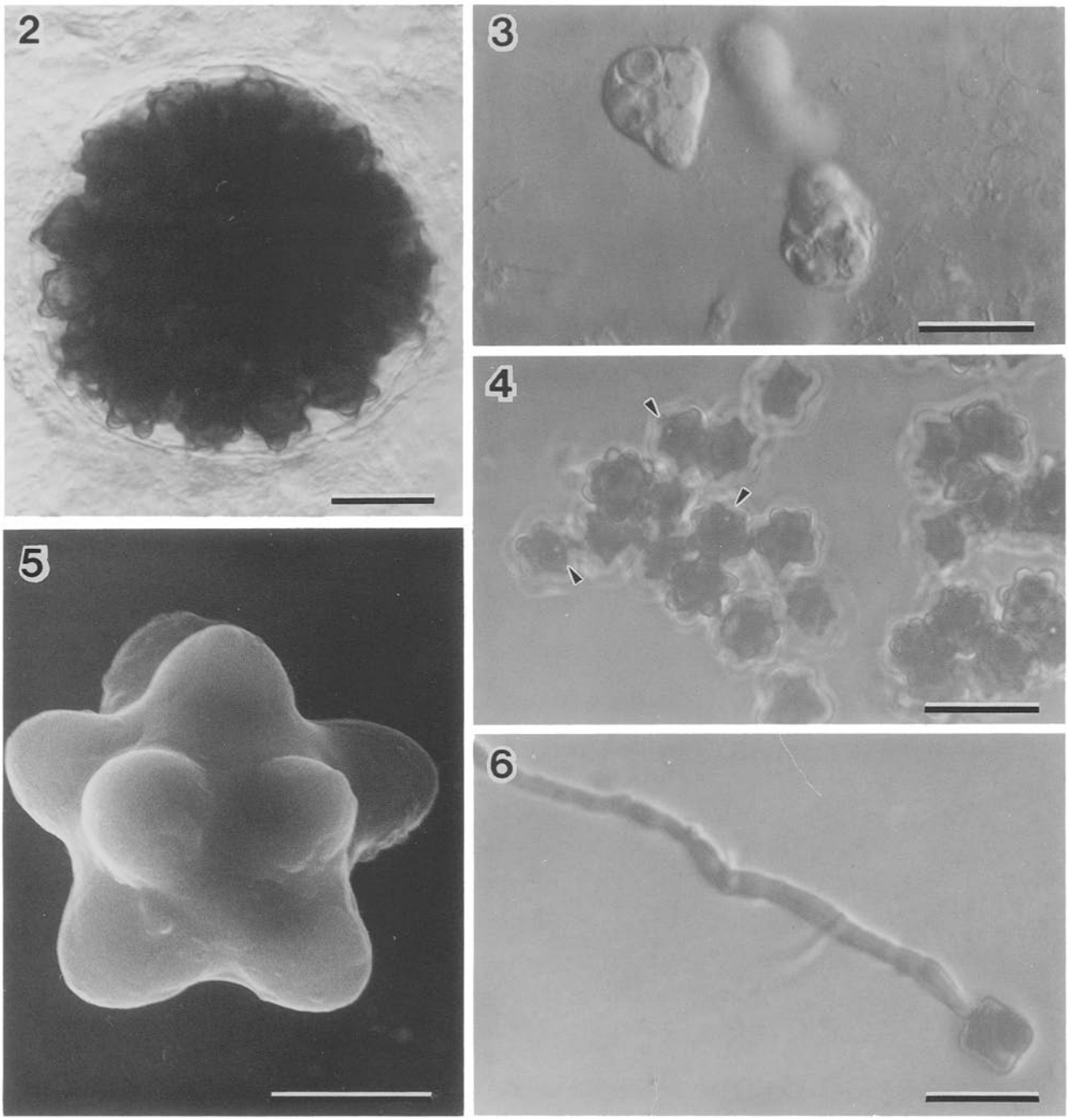

Figs. 2–6. Light and scanning micrographs of *Stellatospora terricola* (IFO 32597). 2. Ascoma. 3. Immature asci. 4. Ascospores with a germ pore (arrows). 5. Ascospore. 6. Germinated ascospore. Bars: 2, 3, 4, 6 = 20 μm; 5 = 5 μm.

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