

Short Communication

***Dactylella chichisimensis*, sp. nov. in the Bonin (Ogasawara) Islands, Japan**Tsuneo Watanabe¹⁾, Yoshio Watanabe²⁾ and Takema Fukatsu³⁾¹⁾ Bioconsortia Program Laboratory, National Institute of Advanced Industrial Science and Technology, 1–1, Higashi, Tsukuba, Ibaraki 305–8566, Japan²⁾ Bioresource Laboratories, Mercian Corporation, 9–1, Johnan 4 Chome, Fujisawa, Kanagawa 251–0057, Japan³⁾ National Institute of Advanced Industrial Science and Technology, 1–1, Higashi, Tsukuba, Ibaraki 305–8566, Japan

Received 4 June 2001

Accepted for publication 10 October 2001

A *Dactylella* isolate obtained from soil in the Bonin (Ogasawara) Islands, Japan is described and illustrated as a new species, *D. chichisimensis*. The fungus is characterized by single terminal multiseptate clavate or ellipsoidal conidia at the apex of simple conidiophores and mycelium that forms chlamydospores and sclerotia. A key is provided for six *Dactylella* species that produce primary clavate or ellipsoidal conidia at the apex of simple conidiophores.

Key Words—bait method; *Dactylella chichisimensis*; toothpick.

Among a total of 370 fungus isolates obtained from the Bonin Islands soils, several species appear to be new to science (Watanabe et al., unpub. data), including a *Dactylella* species (TW 00–315). The genus *Dactylella* is characterized by formation of hyaline, multiseptate macroconidia (aleurioconidia) borne singly at the apex of simple conidiophores (Cooke and Dickinson, 1965; Dowsett et al., 1984; Duddington, 1951; Subramanian, 1963). The morphological characteristics differentiate the *Dactylella* isolate from all previously described species in the genus. Thus, it is described as new in this study.

This fungus was isolated from forest soil in Chichijima in the Bonin Islands by the bait method with toothpicks (Watanabe et al., 2001). Living culture was deposited at Bioconsortia Program Laboratory, National Institute of Advanced Industrial Science and Technology (AIST), and the Gene Bank, Ministry of Agriculture, Forestry and Fisheries (MAFF), National Institute of Agrobiological Sciences in Tsukuba, Japan.

Dactylella chichisimensis Ts. Watanabe, sp. nov.

Figs. 1–5

Coloniae in agar decocto tuberosum albae vel pallide luteo-brunneae primurae, deinde persicinae, leniter pulvereae, centro zonatae, mycelio aereo nullo. Conidiophora erecta, simplicia, hyalina, septata, 24–86 μm longa, e 2.4–3 μm ad 1.2–2 μm sursum attenuata. Conidia aleuriosporous, hyalina, clavata, cylindrica vel ellipsoidea, basi truncata, 3–9-septata, 20–78 \times 5–8 μm . Microsclerotia immersa, sphaeroidea, luteola, 125–200 μm diam. Chlamydosporae catenatae, granulosae, luteo-

lae, 9–11 μm diam.

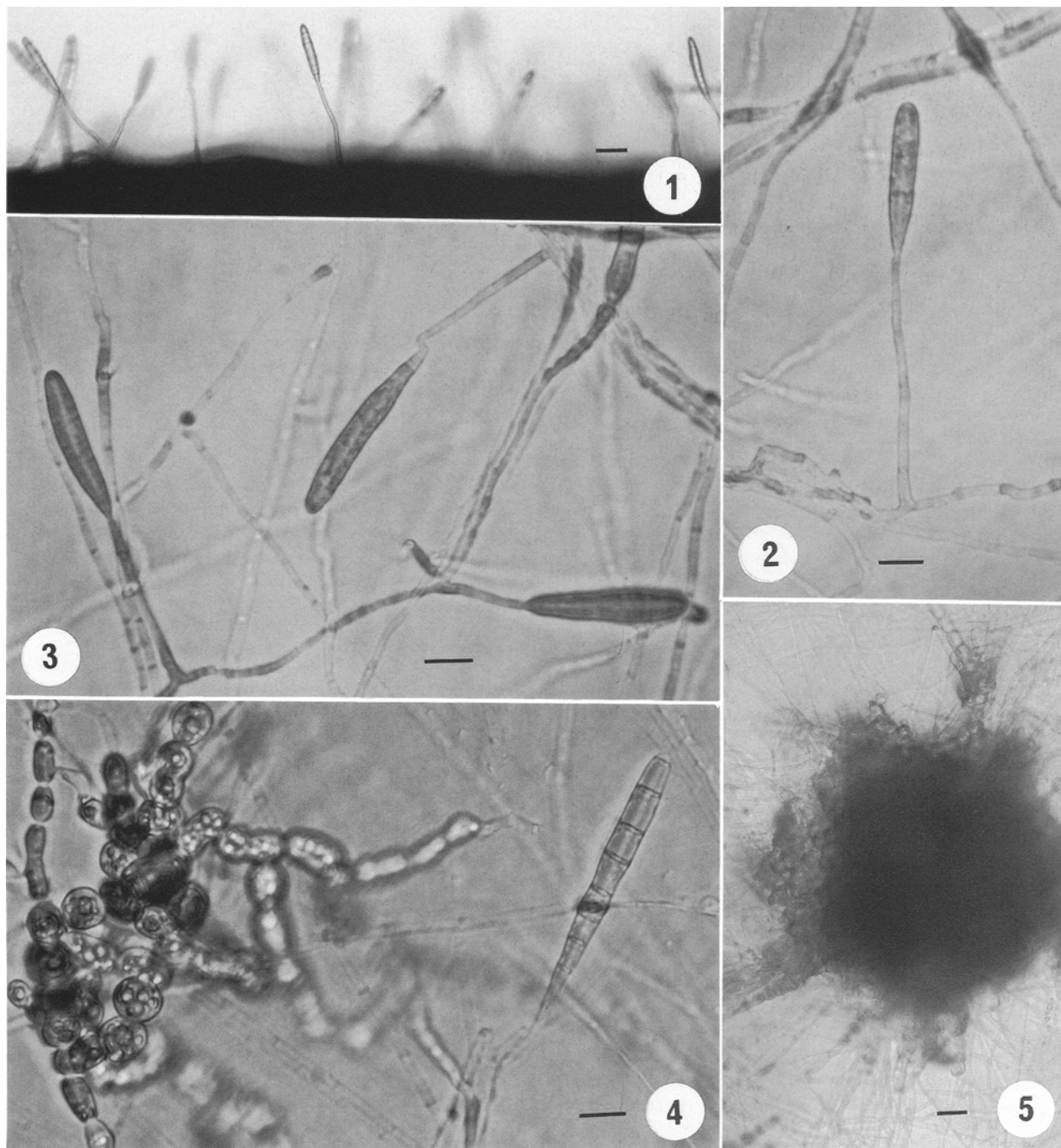
Holotypus: Colonia exsiccata in cultura ex solo, Mikazukiyama, Chichijima, Bonin Insula, Tokyo, Japonia, 15 Jan. 2000, T. Watanabe AIST 00315. Cultura viva: MAFF 238165 (=TW 00–315).

Etymology: From the name of Chichijima, The Bonin Islands, referring to the type locality.

Colonies on PDA non-aerial, resupinate, white, pale yellow to yellowish tan or grayish brown, zonate centrally, pinkish-tinted, powdery with age, reverse white. Conidiophores simple, hyaline, erect, usually 3-septate, 24–86 μm long, 2.4–3 μm wide at base, 1.2–2 μm wide at apex, bearing a single apical conidium. Conidia aleuriosporous, hyaline, clavate, thin-walled, cylindrical or ellipsoidal, straight or rarely curved, truncate at one end, 3–9-septate, readily detached, 20–78 \times 5–8 μm . Microsclerotia embedded, pale yellow, nearly spherical, mostly 125–200 μm in diam. Chlamydospores in chains, granulate, pale yellow, each cell 9–11 μm in diam. Hyphae 2.4–3.2 μm .

Holotype: From forest soil, AIST 00315, JAPAN, Tokyo, The Bonin Islands, Chichijima, Mikazukiyama, 15 Jan., 2000, T. Watanabe. Living culture: MAFF 238165 (=TW 00–315).

This fungus grew well and readily sporulated on the conventional agar media tested including both homemade PDA and commercial PDA “Nissui” (Nissui Pharmaceutical Co., Ltd, Tokyo, Japan), Difco corn meal agar (CMA), Difco malt agar (MA) and Difco YM agar (YM). Colonies on CMA are nonaerial, semi-transparent, and homogeneous, colonies on MA are nonaerial, pale yellowish and slightly zonate, and colonies on YM are nonaerial,



Figs. 1–5. *Dactylella chichisimensis*. 1. Habit showing sporulation. 2, 3. Conidiophores and conidia. 4. Conidium and chlamydospores in chains. 5. Sclerotium. Scale bars: 1, 5 = 20 μm ; 2–4 = 10 μm .

pale brownish yellow and slightly radiate. Colony diameters on these media are 24–29 mm after incubation for 6 d at 25°C. Conidiophores are always simple, never branched, and secondary conidia have not been observed on any of the conventional agar media tested. This fungus and the following five *Dactylella* species form primary clavate, fusoid, ellipsoidal or cylindrical multiseptate conidia at the apex of simple conidiophores

(Cooke and Dickinson, 1965; Dowsett et al., 1984; Subramanian, 1963). They are *D. lobata* Dudd. (1951) (syn. *Monacrosporium lobatum* (Dudd.) Rubner (Rubner, 1996)), *D. minuta* Grove (Cooke and Dickinson, 1965; Subramanian, 1963), *D. oviparasitica* Stirling & Mankau (Stirling and Mankau, 1978), *D. rhombospora* Grove (Drechsler, 1937), and *D. tenuis* Drechsler (Drechsler, 1937). This fungus is differentiated in not forming the

small conidia (up to 50 μm) of *D. tenuis*, the thick-walled conidia of *D. lobata*, the sessile conidiophores of *D. oviparasitica*, or the tall conidiophores (over 100 μm) of both *D. rhombospora* and *D. minuta*. These fungi are differentiated from each other in the following key. In

addition, most species are known to be pathogenic to nematodes (Cooke and Dickinson, 1965), and the pathogenicity of the new species may be noteworthy in the future work.

Key to *Dactylella* species with primary clavate, fusiform, ellipsoidal or cylindrical conidia at the apex of simple conidiophores.

- | | |
|---|--------------------------|
| 1. Conidia up to 50 μm long | <i>D. tenuis</i> |
| 1. Conidia usually over 50 μm long | 2 |
| 2. Conidia thick-walled | <i>D. lobata</i> |
| 2. Conidia thin-walled | 3 |
| 3. Conidiophores up to 90 μm long | 4 |
| 3. Conidiophores over 100 μm long | 5 |
| 4. Conidiophores sessile, up to 2 μm long | <i>D. oviparasitica</i> |
| 4. Conidiophores up to 90 μm long, conidia clavate | <i>D. chichisimensis</i> |
| 5. Conidia spindle-shaped with symmetrical rhomboid profile | <i>D. rhombospora</i> |
| 5. Conidia not so, often clavate | <i>D. minuta</i> |

We gratefully acknowledge the financial support for this study provided by the Bioconsortia Program, New Energy and Industrial Technology Development Organization (NEDO) as a part of the project: "Development of technology of Bioconsortia and utilization of biological resources" of the National Institute of Advanced Industrial Science and Technology, Ministry of Economy, Trade and Industry of Japan.

Literature cited

- Cooke, R. C. and Dickinson, C. H. 1965. Nematode-trapping species of *Dactylella* and *Monacrosporium*. *Trans. Br. Mycol. Soc.* **48**: 621–629.
- Dowsett, J. A., Reid, J. and Kalkat, R. S. 1984. A new species of *Dactylella*. *Mycologia* **76**: 563–566.
- Drechsler, C. 1937. Some hyphomycetes that prey on free-living terricolous nematodes. *Mycologia* **29**: 491–552.
- Duddington, C. L. 1951. *Dactylella lobata*, predacious on nematodes. *Trans. Br. Mycol. Soc.* **34**: 489–491.
- Rubner, A. 1996. Revision of predacious hyphomycetes in the *Dactylella-Monacrosporium* complex. *Stud. Mycol.* **39**: 1–134.
- Stirling, G. R. and Mankau, R. 1978. *Dactylella oviparasitica*, a new fungal parasite of *Meloidogyne* eggs. *Mycologia* **70**: 774–783.
- Subramanian, C. V. 1963. *Dactylella*, *Monacrosporium* and *Dactylina*. *J. Indian Bot. Soc.* **42**: 291–300.
- Watanabe, T., Watanabe, Y., Fukatsu, T. and Kurane, R. 2001. *Mortierella tsukubaensis* sp. nov. from Japan, with a key to the homothallic species. *Mycol. Res.* **105**: 506–509.