

Notes on a Dictyostelid Cellular Slime Mold New to Taiwan

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ABSTRACT

During a survey of dictyostelid cellular slime molds from Taoyuan County in 2001, *Dictyostelium coeruleo-stipes* Raper et Fennell was isolated from forest soil and was reported as new to Taiwan. The specimen is examined and illustrated in this text.

Key words: *Dictyostelium coeruleo-stipes*, dictyostelid cellular slime molds, Taoyuan, Taiwan

Introduction

Dictyostelid cellular slime molds, or dictyostelids, are primarily distributed in the forest soils and humus in both temperate and tropical zones (Singh, 1947; Cavender and Raper, 1965; Cavender, 1973). As Taiwan is located in the subtropics and has abundant rainfall, plant vegetation is luxuriant. At present over half of the total surface of Taiwan is covered by forests which may provide the dictyostelids good growing habitats.

Dictyostelids were first described by Brefeld (1869). Up to the present, more than fifty species have been reported (Hagiwara, 1989). In Taiwan, fourteen species have previously been recorded (Yeh and Chien, 1983; Hagiwara *et al.*, 1992; Lin and Yeh, 1999; Hsu *et al.*, 2001). During a survey of forest soils of northern Taiwan in 2001, *Dictyostelium coeruleo-stipes*, a cellular slime mold new to Taiwan, was isolated. It is discussed and illustrated here. Pure cultures are maintained in the Mycology Laboratory, Department of Biology, National Taiwan Normal University.

Materials and Methods

Soil samples were collected from forest floor in July 2001 in Taoyuan County, northern Taiwan. Five grams of sample were suspended in 50 ml of distilled water. Small amounts of the suspension

were spread over the surface of 0.1% lactose yeast-extract agar plates and incubated at 25° C. When fruiting structures developed, spores were removed from the sorocarps by a sterile needle and transferred to a fresh agar plate with a suspension of pre-grown *Escherichia coli*. For one or two weeks, the plate was examined for the life cycle of the cellular slime molds. Pseudoplasmodia and sori were measured with a Wild dissecting microscope. Measurements of spore size, and tips and bases of sorophores, were taken using a Leica microscope with attached micrometer. The taxonomic system of Raper and Fennell (1967) was used for identification.

Description

Dictyostelium coeruleo-stipes Raper and Fennell, Amer. J. Bot. 54(5): 515-528, 1967.

淡紫柄網狀細胞黏菌 Figure 1

Sorocarps gregarious, clustered or solitary, unbranched, erect or prostrate. Sorophores pale to bluish purple, 0.75-3.0 mm in length, gradually tapering from bases to tips, bases crampon-like or digitate, 12.5-23.5 μ m in diam 100 μ m from the bottom surface; tips acuminate, simple, 3.5-8.3 μ m in diam 50 μ m from top surface. Sori white to cream colored, globose, 83-233 μ m in diam. Spores hyaline, oblong to elliptical, usually 1.8-2.8 times longer in length than broad, mostly 6.0-8.8 \times 2.5-3.8 μ m, with

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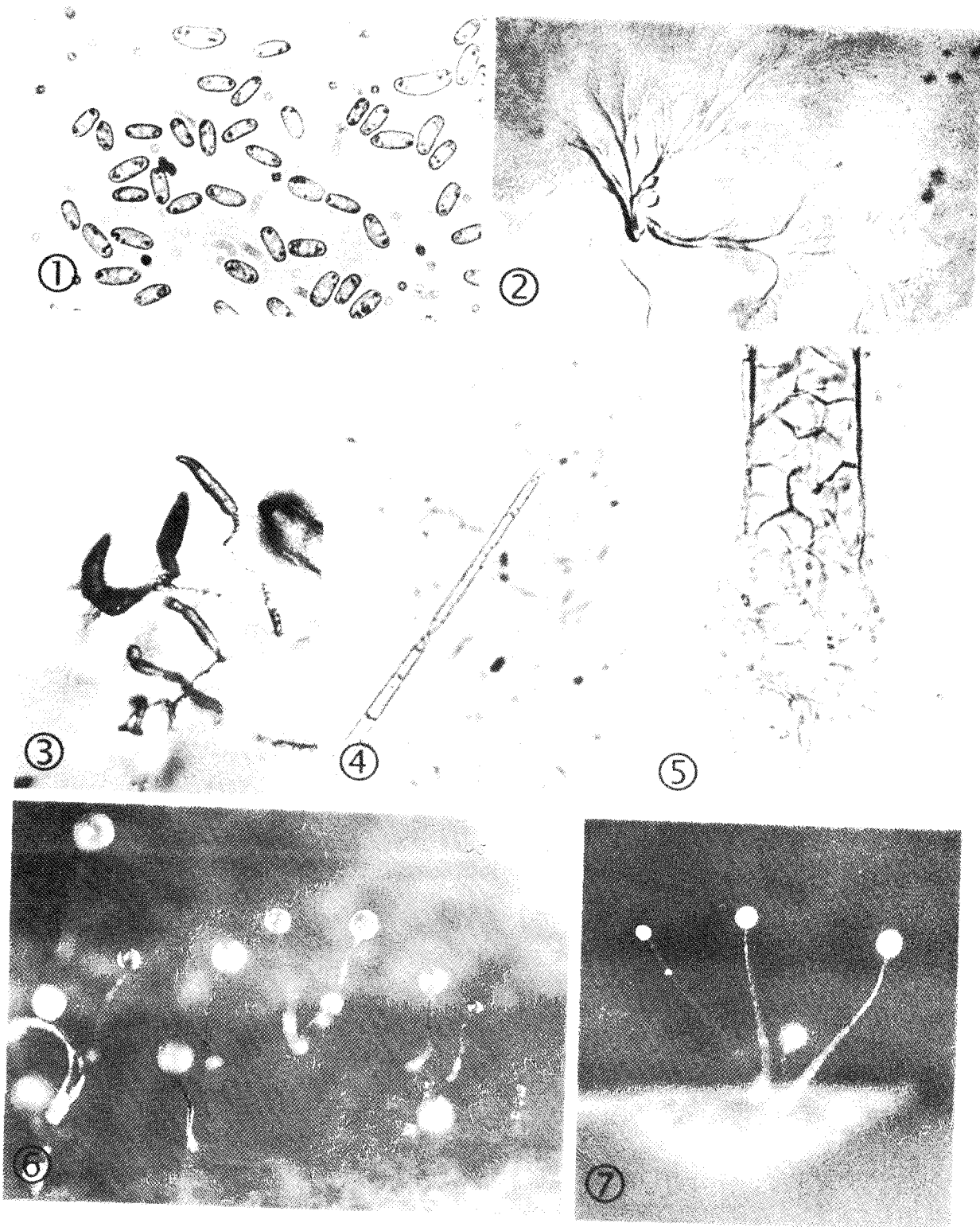


Figure 1. *Dictyostelium coeruleo-stipes* Raper et Fennell. ① Spores. $\times 1060$ ② Aggregation. $\times 13$ ③ Pseudoplasmodia. $\times 40$
④ Tip of sorophore. $\times 850$ ⑤ Crampon-like base of sorophore. $\times 820$ ⑥ Mature sorocarps. $\times 22$ ⑦ Clustered sorocarps. $\times 26$

unconsolidated polar granules. Pseudo- plasmodia radial, 2-5 mm in diam, centralized, migrating with sorophore formation.

Habitat: Forest soils of Taoyuan County.

Specimen examined: Tai 2001-5

World distribution: U.S.A., Mexico, and Taiwan.

Note: The spore size of the species isolated from Taiwan is larger than that of the type specimen (Raper and Fennell, 1967), but the white to cream sori, the strongly tapered pale to bluish purple sorophores, and the crampon-like bases are characteristic of *Dictyostelium coeruleo-stipes*.

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記台灣網柱細胞黏菌一新紀錄種

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摘 要

本文報導從桃園地區森林土壤表層，分離的網柱細胞黏菌屬一台灣新紀錄種，淡紫柄網柱細胞黏菌 (*Dictyostelium coeruleo-stipes* Raper et Fennell)。文中記述本種形態特徵之檢視，並有附圖說明。

關鍵詞：淡紫柄網柱細胞黏菌，網柱細胞黏菌，桃園，台灣