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Dictyostelids from Jilin Province, China. I

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Abstract

Six species of dictyostelid cellular slime molds (dictyostelids) in two genera were isolated from soil samples collected from Jilin Province in China. Two of these species (*Dictyostelium multistipes* and *D. gracile*) are new to China, and *D. clavatum* is recorded for the first time in the northern part of the country, being known previously only from Taiwan. Descriptions and illustrations are provided for these species based on our collections.

Key words: cellular slime molds, *Dictyostelium*, *Polysphondylium*, taxonomy

Introduction

Dictyostelid cellular slime molds (dictyostelids) are primarily inhabitants of the soil and leaf litter layer of fields and forests along with animal dung, where they feed mostly on bacteria (Singh 1947, Cavender & Raper 1965a, b). The unique life cycle stages and the presence of only two types of cells in completed sorocarps have resulted in dictyostelids often being used as experimental tools for genetics, cytology, and developmental biology (Raper 1984, Hagiwara 1989). Studies of dictyostelids in China are few. Records have been reported from only seven provinces (Bai 1983, Yeh & Chien 1983, Hagiwara *et al*. 1985, Hagiwara *et al.* 1992, Lin & Yeh 1999, Fan & Yeh 2001, Fan & Yeh 2002, Hsu *et al*. 2001, Yeh 2003, He & Li 2008a, He & Li 2008b, He & Li 2010, Liu & Li 2012a, Liu & Li 2012b, Ren *et al*. 2014). Bai (1983) first reported a species from Jilin Province. Since then, records of only nine species have been added to Jilin Province prior to this study (Table 1). Among these was *D. culliculosum* Yu Li & X.L. He reported as new to science (He & Li 2008b).

Jilin Province is situated in the middle of Northeast China, located between 122º–131º E and 41º–46º N, and characterized by a monsoon climate of medium latitudes. In the present study, six species of dictyostelids in the gnera *Dictyostelium* and *Polysphondylium* are reported, including two new records for China. One species is recorded for the first time in northern part of the country, being previously known only from Taiwan. Thus far, a total of 12 species of dictyostelids are now known from Jilin Province, China.

TABLE 1. Species of dictyostelids reported from Jilin Province, China.

Species' name	Habitats	References
Dictyostelium mucoroides Bref.	broad leaved forest soil	Bai (1983)
D. minutum Raper	fallen leaved forest soil	Bai (1983)
D. discoideum Raper	coniferous forest soil	Bai (1983)
D. culliculosum Yu Li & X.L. He	broad leaved forest soil	He & Li (2008b)
D. robustum H. Hagiw.	forest soil	Ren *et al.* (2014)
Polysphondylium violaceum Bref.	broad leaved forest soil	Bai (1983)
P. tikalense Vadell & Cavender	forest soil	He & Li (2008a)
P. candidum H. Hagiw.	broad leaved forest soil	He & Li (2008a)
P. pseudo-candidum H. Hagiw.	forest soil	Ren *et al.* (2014)

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Dictyostelium mucoroides Bref., Abh. Senckenbery Naturforsch. Ges. 7: 85–107 (1869).

Cultures examined. HMJAU MR061. Strain 0453 isolated from coniferous forest soil collected in Jingyue, Changchun City, Jilin Province, China.

Known distribution. U.S.A., Canada, Costa Rica, Denmark, England, France, Germany, Netherlands, Switzerland, Uganda, India, Nepal, China, New Zealand, and Oman.

Polysphondylium violaceum Bref., Unters. Gesammtgeb. Mykol., 6: 1–34 (1884).

Cultures examined. HMJAU MR067. Strain 0320 and Strain 0337 isolated from theropencedrymion soil collected in Changbai Mountain Nature Reserve, Jilin Province, China. Strain 0459, Strain 0452, and Strain 0442 isolated from coniferous forest soil collected in Jingyue, Changchun City, Jilin Province, China.

Known distribution. U.S.A., Canada, Costa Rica, Mexico, Germany, .Netherlands, Italy, Spain, Switzerland, Yugoslavia, Kenya, Tanzania, Uganda, India, Indonesia, China, Japan, Korea, Malaysia, Nepal, Philippines, Singapore, and Thailand.

Discussion

Research on dictyostelids in China is limited, with records of the group having been reported from only seven provinces prior to the present study. Before this study, only nine species have been isolated from samples collected in Jilin Province, China. In this study, 12 isolates representing six species were obtained and identified from cultures prepared with soil samples collected from Jilin Province, China.

One Southern Hemisphere species (*D. multistipes*) also was isolated, although Jilin Province is in the Northern Hemisphere. The habitats from which this species is known are moist places, and it is possible that *D. multistipes* is a cosmopolitan species.

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