



The Merosporangiferous Fungi from Taiwan (VIII): Two New Records of *Coemansia* (Kickxellales, Kickxellomycotina)

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(Manuscript received 10 June 2011; accepted 28 July 2011)

ABSTRACT: During an investigation of Taiwan Zygomycetes, *Coemansia asiatica* and *C. pectinata* (Kickxellaceae, Kickxellales, Kickxellomycotina) were isolated respectively from dung and soil sources and are reported as new records from Taiwan. Identification was based on morphological characters and ribosomal DNA sequence data. In this paper these two species are described, illustrated and compared with their related species.

KEY WORDS: *Coemansia*, Kickxellales, Kickxellomycotina, ribosomal DNA, Taiwan, Zygomycetes.

INTRODUCTION

The genus *Coemansia* Van Tighem & Le Monnier is the largest group in Kickxellales R. K. Benj. (Kickxellomycotina) and is known to consist of 20 species (Hibbett et al., 2007; Kirk et al., 2008). Members of this genus are small saprobes, which can be isolated from forest soil, pastureland, plant root, leaf litter and faeces of animals, such as mouse, pig, duck and frog (Linder, 1943; Chien, 1971; Kwaśna et al., 1999; Benny et al., 2001; Kurihara et al., 2000, 2008; Ho and Hsu, 2005). Some species were isolated from specific sources such as carcass of horses and died coleopterous larvae (Linder, 1943; Kwaśna et al., 1999). They are rarely encountered from the nature, and many species have never been rediscovered or cultured successfully since their original descriptions. That might be attributed to their different nutritional preferences and optimal temperature conditions (Kwaśna et al., 1999; Kurihara et al., 2008).

The typical characters of *Coemansia* spp. are yellowish colony color, septa of vegetative hyphae and sporangiophores possessing central pore with median biconvex plug. The sporangiophores are erect, simple or branched. The upper portion of sporangiophore is the fertile region bearing a number of sporocladia. The fertile regions are straight or spirally twisted. The septate, boat shaped sporocladia arising from a stalk bear plural subspherical pseudophialides excluding the sterile terminal cell on the tip. The pseudophialides are sporogenous cells and produce arogenously unispored sporangiola. The sporangiospores are closely approximal to the wall of sporangiola and are fusiform or elliptical with taper apex and truncate base. The zygospores are nearly globose and the sexual hyphae

are similar to the vegetative hyphae (Benjamin, 1979). Up to date, three species of *Coemansia*, *C. aciculifera* Linder, *C. furcata* Kurihara et al. and *C. interrupta* Linder have been reported in Taiwan (Ho and Hsu, 2005; Kurihara et al., 2000). In this study, we add two more new records, *C. asiatica* Kurihara & Sukarno and *C. pectinata* Bainier isolated from herbivore excrement and soil respectively.

MATERIALS AND METHODS

Sample collection and observation

Sample collection, isolation and purification followed Chuang and Ho (2009), except Peptone-Yeast Extract-Dextrose agar (PYED: 1g peptone, DIFCO; 1 g of yeast extract, BD; 0.5 g of dextrose, SIGMA; 15 g of agar, BIONOVAS; 1L of distilled water; adjust pH to 6.5) were also used for purification. Characteristic observation and photographing were made under light and scanning electron microscopy as described previously (Hsu and Ho, 2010). Identification was mainly based on keys of Linder (1943) and Benny (2005, unpublished).

DNA extraction and analysis

The harvested mycelium of *Coemansia* strains were prepared by culturing in 1/4 Malt Extract- Yeast Extract (ME-YE: 3 g of malt extract, DIFCO; 3 g of yeast extraction, BD; 5 g of peptone, DIFCO; 10 g of dextrose, SIGMA; 1L of distilled water) liquid medium for 2 weeks. DNA extraction were performed with CTAB-mini DNA extraction method (Graham et al. 1994).

The sequences of LSU, SSU and ITS rRNA genes were amplified with primer pairs, NL1 + NL4, PNS1