

## More Fimicolous Myxomycetes from Taiwan

Chao-Hsuan Chung<sup>(1)</sup> and Chin-Hui Liu<sup>(1, 2)</sup>

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**ABSTRACT:** By using the moist chamber culture technique, two more fimicolous Myxomycetes, *Licea pescadorensis* sp. nov. and *Physarum compressum* were discovered in Taiwan. *Licea pescadorensis* is characterized by a fimicolous habit, densely gregarious sporangia, cartilaginous peridium, and spores (5 -) 7 - 8 (- 10)  $\mu\text{m}$  in diam.

**KEY WORDS:** Coprophilous, Fimicolous, *Licea pescadorensis* sp. nov., Penghu Islands (Pescadores), *Physarum compressum*, Taiwan.

### INTRODUCTION

Chung and Liu (1995) reported two fimicolous Myxomycetes from Taiwan. By using the moist chamber technique and re-examining myxomycete collections in the herbaria, two additional fimicolous species are described and illustrated.

### MATERIALS AND METHODS

Dung samples were collected in January 1995. The petri dishes and accessories for processing moist chamber cultures were sterilized before use. The cultures were kept under room temperature with dim light and examined at intervals of 2 - 3 times per week with the aid of a stereomicroscope. For specimen examination, the method of Chung and Liu (1995) was followed. Unless otherwise stated, voucher specimens are deposited in the Herbarium of Mycology Laboratory, Department of Botany, National Taiwan University. specimens of Myxomycetes from the National Natural Science Museum were also screened for possible unrecorded fimicolous species.

### RESULTS AND DISCUSSION

*Licea pescadorensis* C. H. Chung & C. H. Liu, sp. nov. 澎湖無絲黏菌 Pl. I, figs. 1-6

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1. Department of Botany, National Taiwan University, Taipei 106, Taiwan, Republic of China.  
2. Corresponding author.

*Sporangia* dense gregaria vel fasciculata, sessilia, 63-150  $\mu\text{m}$  longa, subglobosa, hemispherica vel depressa, rufescentes vel paene nigra. *Hypothallus* inconspicuus vel nullus. *Peridium* e stratis duobus compositum; stratum extimum gelatinosum, materiam granularem continens; stratum intimum cartilagineum, brunneolum luce transmissa. *Columella* nulla. *Capillitium* non visum. *Sporae* globosae vel ovoideae, pallide luce transmissae, paene laeves, (5-) 7-8  $\mu\text{m}$  diam. vel (7-) 8-10 x (6-) 7-8  $\mu\text{m}$ . *Plasmodium* non visum.

**Sporangia** densely gregarious or clustered, sessile, 63-150  $\mu\text{m}$  long, subglobose, hemispherical or somewhat depressed, deep reddish brown when young, darkened to almost black when mature. **Hypothallus** inconspicuous or lacking. **Peridium** composed of two closely adherent layers; the outer layer gelatinous when wet, containing abundant refuse, granular material absorbed from the substrate; the inner layer cartilaginous, brownish in transmitted light; dehiscence not observed. **Columella** none. **Capillitium** not seen. **Spores** globose to ovoid, pale in transmitted light, almost smooth with evenly thickened walls, globose ones (5-) 7-8  $\mu\text{m}$  in diam., ovoid ones (7-) 8-10 x (6-) 7-8  $\mu\text{m}$ . **Plasmodium** not seen.

**HOLOTYPE:** C. H. Chung M924 in Herbarium of Mycology Laboratory, Department of Botany, National Taiwan University. Fruiting bodies on cow dung collected in 22 I 1995, cultured in moist chamber from 17 VI 1995-8 VII 1995 (fruiting bodies appeared on 5 VII 1995).

Type locality: TAIWAN, Penghu Co., Ma-kung Town (馬公鎮), Wu-kan (烏坎) south 1km, 119° 36' E, 23° 32' N, open dry farmland.

The shiny reddish brown to black sporangia are easily distinguished from other fungi or refuse materials on dung. Most of the mature sporangia are dark but rather inconspicuous. Morphological variance among different clusters of sporangia is noticeable. Some sporangia seem to be wrinkled and become angular or with a ridged peridium; others are not wrinkled and smooth in appearance. Most sporangia are almost black when mature, but some sporangia retain their reddish brown pigmentation. Most spores have a small, globular, ca. 1-2  $\mu\text{m}$  in diam. inclusion.

Most new species of *Licea* were found on bark of living or dead trees, less commonly on dead wood, hepatics, bryophytes, etc. Only seven members of this genus have been reported from a fimicolous habitat (Table 1). *Licea tenera*, originally described as corticolous on *Acer* ("In Glasschalen auf der Rinde von *Acer pseudoplatanus*, ...."; Jahn, 1919), was emended by Martin and Alexopoulos (1969) to include coprophilous population. Angel and Wicklow (1975) reported *L. fimicola* and *L. tenera* from rabbit, pronghorn and cow dung. Garcia-Zorrón (1977) followed Martin & Alexopoulos' species concept (1969) and reported *L. punctiformis* (originally described as corticolous) and *L. tenera* from cow and horse dung. Eliasson and Lundqvist (1979) reported *L. alexopouli*, *L. cf. belmontiana*, *L. fimicola*, and *L. pusilla* from various kinds of animal excrements;

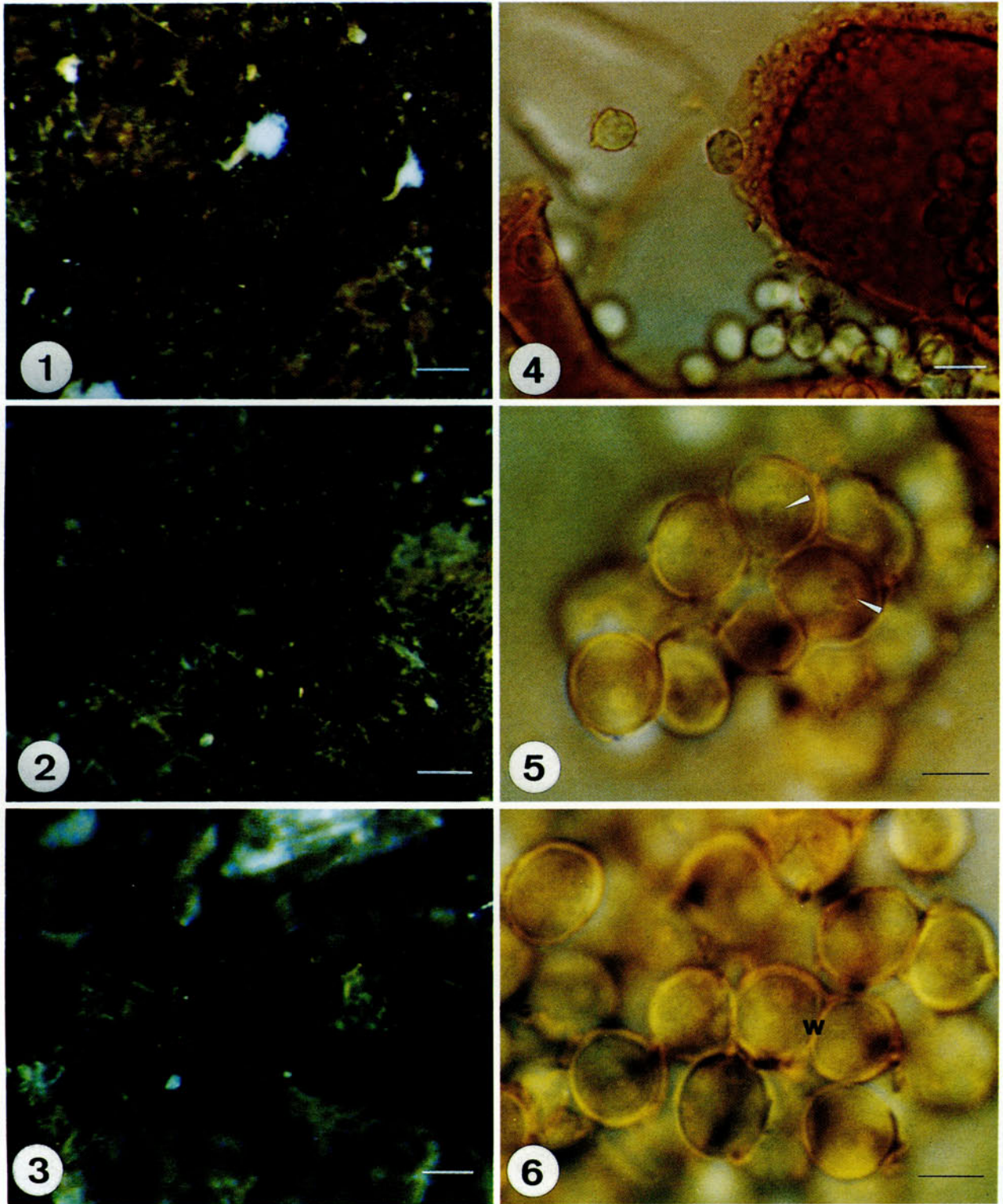


Plate I. *Licea pescadorensis* C. H. Chung & C. H. Liu, *sp. nov.*, light micrographs.

Fig. 1. Clustered fructification with smooth peridium; Fig. 2. Clustered fructification with several sporangia showing reddish brown pigmentation; Fig. 3. Sporangia wrinkled and becoming angular or with a ridged peridium; Fig. 4. Peridium and spores; Figs. 5, 6. Spores; note the small, globular inclusion *ca.* 1-2  $\mu\text{m}$  in diam. (arrows) and evenly thickened spore wall (w). Figs. 1-3. bar = 0.1 mm, Fig. 4. bar = 10  $\mu\text{m}$ , Figs. 5, 6. bar = 5  $\mu\text{m}$ .



Lakhanpal and Mukerji (1981) recorded three fimicolous *Licea*, *L. punctiformis*, *L. tenera*, and *L. variabilis* from India (all on horse dung). *Licea punctiformis sensu* Lakhanpal and Mukerji (1981) need further critical examination because this taxon is not included in the key of genus *Licea* (pp. 55 - 57) nor in the index (pp. 353 - 441) of the monograph, furthermore the spore size (12.5 - 15  $\mu\text{m}$ ) is larger than in the original description (8 - 10  $\mu\text{m}$ ). Recently Eliasson *et al.* (1991) established a new genus *Kelleromyxa* to accommodate *Licea fimicola* based on its phaneroplasmodium and existence of capillitium. They also mentioned some possible morphological adaptation for Myxomycetes survival in fimicolous habitat, such as evenly thickened spore walls. Mitchell and Nannenga-Bremekamp (1976) also proposed that *L. tenera sensu* Jahn (corticolous) is not the same as *L. tenera sensu* Martin and Alexopoulos ( " especially dung of herbivorous animals " ; Martin and Alexopoulos, 1969; Farr, 1976). *Licea pescadorensis* is distinguishable from other fimicolous *Licea* spp. by a densely gregarious habit and by smaller sized spores, mostly 7 - 8  $\mu\text{m}$  diam. with evenly thickened walls.

Table 1. Fimicolous *Licea* spp. reported by various authors.

	<i>Kelleromyxa fimicola</i> *	<i>Licea alexopouli</i>	<i>Licea cf. belmontiana</i>	<i>Licea pusilla</i>	<i>Licea tenera</i> **	<i>Licea punctiformis</i>	<i>Licea variabilis</i>
Martin and Alexopoulos (1969)	⊙				⊙		
Angel and Wicklów (1975)	⊙				⊙		
Garcia-Zorrón (1977)					⊙	⊙	
Eliasson and Lundqvist (1979)	⊙	⊙	⊙	⊙			
Lakhanpal and Mukerji (1981)					⊙	⊙***	⊙

\*Reported under the name *Licea fimicola*.

\*\**Licea tenera sensu* Martin and Alexopoulos (1969); Nannenga-Bremekamp does not agree with this emendation, see Mitchell and Nannenga-Bremekamp (1976).

\*\*\**Licea punctiformis sensu* Lakhanpal and Mukerji (1981) differs from the original description; see text.

**Physarum compressum** Albertini & Schweinitz, Consp. Fung.: 97. 1805. Nakazawa, Trans. Nat. Hist. Soc. Formosa **19**: 20. 1929; Sawada, List of Fungi Found in Formosa: 30. 1931; Hattori, Myxomycetes of Nasu District: 206. 1935; Hattori, *Myxomycetes* of Nasu District (rev. ed.): 176. 1964; Wang, Wang and Huang, Biol. Bull. National Taiwan Normal Univ. **16**: 6. 1981; Liu, *Taiwania* **27**: 78. 1982. 扁絨泡黏菌

Specimens examined: TAIWAN, Yunlin Co., Taihsi (臺西) 23° 41' N, 120° 10' E, alt. 10m, F2934 (=Y. Z. Wang (王也珍) 95006), 23 I 1995, on sheep dung [voucher specimen in National Natural Science Museum, Taichung].

This species is cosmopolitan in distribution (Martin and Alexopoulos, 1969). It has been reported on dung from Algeria, Mauritania, Chad, Congo, and Gabon by Faurel and his colleagues (Eliasson and Lundqvist, 1979).

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## 臺灣糞生黏菌補遺

鍾兆玄<sup>(1)</sup>、劉錦惠<sup>(1,2)</sup>

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### 摘 要

藉由濕室培養法的運用，我們發現了更多的糞生黏菌。本文報導臺灣糞生黏菌相的新種與新記錄：澎湖無絲黏菌(新種)和扁絨泡黏菌。澎湖無絲黏菌的特徵為群生於糞上，革質之週皮，以及具直徑(5 -) 7 - 8 (- 10)  $\mu\text{m}$ 之孢子。

關鍵詞：糞生、黏菌、澎湖無絲黏菌、澎湖群島、扁絨泡黏菌、臺灣。

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1. 國立臺灣大學植物學系，臺北市106，臺灣，中華民國。  
2. 通訊聯絡員。