

## Myxomycetes from Yunnan Province, China

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**Abstract** Eighty-one taxa of myxomycetes collected from Yunnan Province, China are reported. Among them, 4 taxa, namely, *Perichaena verrucifera*, *Physarum ovisporoides*, *Trichia crenulata* var. *latitubularis* and *Didymium melanospermum* var. *calcipes* are new to science, 23 are new records for China and 58 are new to Yunnan Province.

**Key words:** Myxomycetes, China, Yunnan, taxonomy.

Yunnan Province lies between 21°08'N and 29°15'N. It is recognized as a province possessing the most abundant biodiversity in China. However, only 52 myxomycetes have been reported from this province up to now (Teng, 1963, 1996; Li & Li, 1989; Li *et al.*, 1990; Yamamoto *et al.*, 2000). They are poor representation of members of the class Myxomycetes. Therefore, more myxomycetes are expected to be discovered from Yunnan Province.

The present paper is based on a myxomycete collection made during a botanical expedition to Yunnan Province organized by the National Science Museum, Japan, in collaboration with the Kunming Institute of Botany, Academia Sinica, China, in 2000. The collection consists of 204 specimens which are classified into 81 taxa. In the following list, these taxa are alphabetically arranged. Among them, 58 taxa are new to Yunnan, indicated by asterisks in the list and 23 taxa are new to China, indicated by double asterisks.

Specimens cited are kept in the herbaria, National Science Museum, Tokyo (TNS), Japan, and Kunming Institute of Botany, Academia Sinica, Kunming (KUN), Yunnan, China, and Kanagawa Prefectural Museum of Natural History (KPM), Odawara, Japan. Holotypes are pre-

served in TNS and isotypes in KUN.

### List of species

#### Ceratiomyxales

1.\* ***Ceratiomyxa fruticulosa*** (O.F. Muell.) T. Macbr. var. ***fruticulosa***, N. Am. Slime-Moulds, 18 (1899).

2000CU-15 & 16 (Zhongdian, Birong Valley, ca. 3000 m alt., on dead wood, 22 VIII 2000, coll. H. Hagiwara), 2000CU-28 (Zhongdian, Daxue-shan Pass, ca. 4000 m alt., on dead wood, 24 VIII 2000, coll. N. Maekawa), and 2000CU-46 (Dali, Wulian Mts., Lingbao Mt., ca. 2500 m alt., on dead wood, 5 IX 2000, coll. H. Hagiwara).

Although this variety usually forms filiform branched sporophores, 2000CU-46 has hemisphaeroid to ovoid simple sporophores like *C. fruticulosa* var. *descendens* Emoto. But its sporophores don't have the polygonal basal flat mounds which characterize the latter variety.

#### Echinosteliales

2. ***Clastoderma debaryanum*** A. Blytt var. ***debaryanum***, Bot. Zeit., 38: 343 (1880).

KPM-NC7347 (Ninglang, Lugu Lake, on dead

wood, mixed with *Licea minima*, 4 X 2000, coll. Y. Degawa).

### Liceales

3.\* ***Cribraria argillacea*** (Pers. ex J.F. Gmel.) Pers., Neues Mag. Bot., **1**: 91 (1794).

KPM-NC7386 & 7387 (Dali, Diancang Mt., Shasi Pavilion, ca. 3500 m alt., on dead wood, 11 X 2000, coll. Y. Degawa), and KPM-NC7416 (Chuxiong, Zixi Mt., on dead wood, 15 X 2000, coll. Y. Degawa).

4.\* ***Cribraria mirabilis*** (Rostaf.) Masee, Mon., **60** (1892). Fig. 1

Syn. *Dictydium mirabile* (Rostaf.) Meyl., Bull. Soc. Vaud. Sci. Nat., **57**: 305 (1931).

2000CU-30 (Zhongdian, Daxueshan Pass, ca. 4000 m alt., on dead wood, 24 VIII 2000, coll. H. Hagiwara).

This species resembles *C. cancellata* var. *anomala* in having a partial peridial net at the upper part of a sporotheca, but it is distinguished from the latter by a much fewer number of ribs in the sporotheca.

5.\* ***Cribraria* cf. *pyriformis*** Schrad. var. ***notabilis*** Rex, Nov. Gen. Pl., **4** (1797). Fig. 2

2000CU-29 (Zhongdian, Daxueshan Pass, ca. 4000 m alt., on dead wood, 24 VIII 2000, coll. H. Hagiwara).

This form is very similar to *C. pyriformis* var. *notabilis* in appearance, but its spores, measuring 8.2–9.1  $\mu\text{m}$  (mean=8.7, sd=0.30, n=20) in diam., are much larger than those of the latter which are 6–8  $\mu\text{m}$  as reported in Martin & Alexopoulos (1969) and Neubert *et al.* (1993).

6.\* ***Cribraria splendens*** (Schrad.) Pers., Syn. Fung., **191** (1801).

2000CU-17 (Zhongdian, Birong Valley, ca. 3000 m alt., on dead wood, 22 VIII 2000, coll. H. Hagiwara).

7.\* ***Cribraria violacea*** Rex, Proc. Acad. Phila., **43**: 393 (1891).

KPM-NC7340 (Ninglang, Lugu Lake, on dead wood, 4 X 2000, coll. Y. Degawa).

8.\* ***Licea denudescens*** H.W. Keller & T.E. Brooks, Mycologia, **69**: 668 (1977).

KPM-NC7385 (Dali, Chongsheng Temple, ca. 2000 m alt., on bark of a living tree, 10 X 2000,

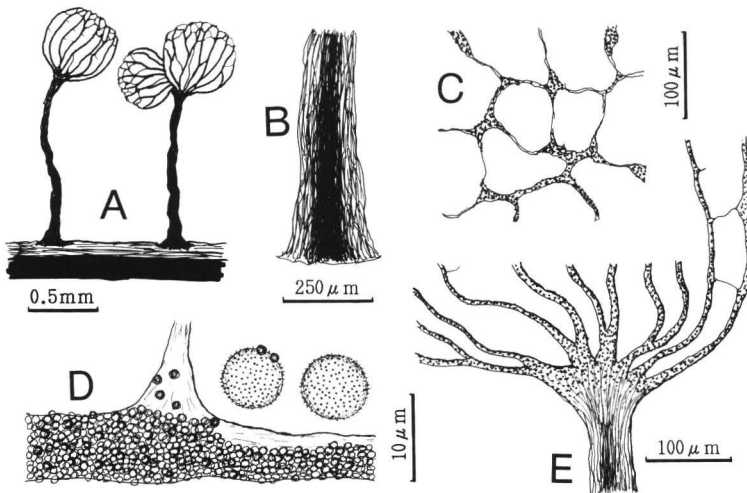


Fig. 1. *Cribraria mirabilis* (2000CU-30)

A: Three stalked sporocarps. B: Stalk. C: Peridial net. D: Rib with dictydine granules and two spores. E: Basal part of sporotheca (capitulum) and ribs.

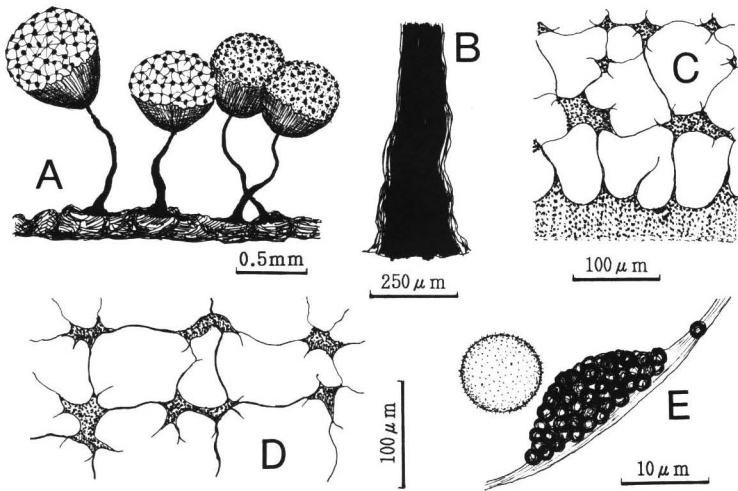


Fig. 2. *Cribraria cf. pyriformis* var. *notabilis* (2000CU-29)

A: Four stalked sporocarps. B: Stalk. C: Part of calyculus and peridial net. D: Peridial net. E: Peridial node with dictydine granules and a spore.

coll. Y. Degawa).

9.\* *Licea minima* Fr., Syst. Myc., 3: 199 (1829).

KPM-NC7342 p.p. (Ninglang, Lugu Lake, on dead wood, mixed with *Arcyria ferruginea*, 4 X 2000, Coll. Y. Degawa), and KPM-NC7347 p.p. (Ninglang, Lugu Lake, on dead wood, mixed with *Clastoderma debaryanum*, 4 X 2000, coll. Y. Degawa).

10.\*\* *Licea variabilis* Schrad., Nov. Gen. Pl., 18 (1797).

KPM-NC7336, 7337 & 7338 (Ninglang, Lugu Lake, on dead wood, 4 X 2000, coll. Y. Degawa).

11. *Lycogala epidendrum* (L.) Fr. var. *epidendrum*, Syst. Myc., 3: 80 (1829).

KPM-NC7417 (Chuxiong, Zixi Mts., on dead wood, 15 X 2000, coll. Y. Degawa).

12.\*\* *Lycogala epidendrum* var. *terrestre* (Fr.) Y. Yamam., Myxom. Biota Jpn., 118 (1998).

2000CU-4 (Lijiang, Laojun Mt., ca. 3800 m alt., on dead wood, 14 VIII 2000, coll. H. Hagiwara), 2000CU-31 (Zhongdian, Daxueshan Pass, ca. 4000 m alt., on dead wood, 24 VIII 2000, coll. H. Hagiwara), and KPM-NC7274 & 7275 (Li-

jiang, Laojun Mt., on moss growing on dead wood, 26 IX 2000, coll. Y. Degawa).

13. *Tubifera ferruginosa* (Batsch) J.F. Gmel., Syst. Nat., 2: 1472 (1791).

2000CU-24 & 25 (Zhongdian, Daxueshan Pass, ca. 4100 m alt., on dead wood, 23 VIII 2000, coll. N. Maekawa), and KPM-NC7272 (Lijiang, Laojun Mt., on dead wood, 26 IX 2000, coll. Y. Degawa).

Trichiales

14.\* *Arcyria abietina* (Wigand) Nann.-Bremek., Proc. K. Ned. Akad. Wet. C., 88: 128 (1985).

KPM-NC7393 (Dali, Diancang Mt., Zhonghe Temple, ca. 2500 m alt., on bark of a dead tree, 12 X 2000, coll. Y. Degawa).

15. *Arcyria cinerea* (Bull.) Pers. f. *cinerea*, Syn. Fung., 184 (1801).

2000CU-18 (Zhongdian, Birong Valley, ca. 3000 m alt., on dead wood, 22 VIII 2000, coll. H. Hagiwara), 2000CU-32 (Zhongdian, Daxueshan Pass, ca. 4000 m alt., on dead wood, 24 VIII 2000, coll. H. Hagiwara), KPM-NC7287 (Zhongdian, Hutiaoxia, ca. 1900 m alt., on plant litter, 29

IX 2000, coll. Y. Degawa), and KPM-NC7343 (Ninglang, Lugu Lake, on dead wood, 4 X 2000, coll. Y. Degawa).

16.\* *Arcyria ferruginea* Saut., *Flora*, **24**: 316 (1841).

KPM-NC7341 (Ninglang, Lugu Lake, on bark of a dead tree, 4 X 2000, coll. Y. Degawa), and KPM-NC7342 (Ninglang, Lugu Lake, on dead wood, mixed with *Licea minima*, 4 X 2000, coll. Y. Degawa).

17.\* *Arcyria helvetica* (Meyl.) H. Neubert, Nowotny & K. Baumann, *Carolinea*, **47**: 43 (1989).

2000CU-33 (Zhongdian, Daxueshan Pass, ca. 4000 m alt., on dead wood, 24 VIII 2000, coll. H. Hagiwara).

18.\* *Arcyria insignis* Kalchbr. & Cooke, in Kalchbr., *Grevillea*, **10**: 143 (1882).

KPM-NC7412 (Chuxiong, Zixi Mt., on fallen twig, 14 X 2000, coll. Y. Degawa).

19.\* *Arcyria stipata* (Schwein.) Lister var. *stipata*, *Mycet.*, 189 (1894).

KPM-NC7420 (Chuxiong, Zixi Mt., on dead wood, 15 X 2000, coll. Y. Degawa).

20. *Calomyxa metallica* (Berk.) Nieuwl. var. *metallica*, *Am. Midl. Nat.*, **4**: 335 (1916).

KPM-NC7323 & 7324 (Lijiang, Yulongxueshan, Maoniuping, on bark and fallen twig, 1 X 2000, coll. Y. Degawa).

21. *Hemitrichia clavata* (Pers.) Rostaf. var. *clavata*, in *Fuckel, Jahrb. Nass. Ver. Nat.*, **27–28**: 75 (1873).

KPM-NC7256 & 7257 (Lijiang, Laojun Mt., 3350 m alt., on dead wood, 24 IX 2000, coll. Y. Degawa), KPM-NC7358 & 7361 (Binchuan, Jizu Mt., ca. 2200 m alt., on dead wood, 7 X 2000, coll. Y. Degawa), and KPM-NC7421 (Chuxiong, Zixi Mt., on dead bark and wood, 15 X 2000, coll. Y. Degawa).

22. *Hemitrichia clavata* var. *calyculata* Y. Yamam., in Nakaike & Malik (eds), *Crypt. Fl. Pakistan*, **2**: 28 (1993).

Syn. *Hemitrichia calyculata* (Speg.) M.L. Farr, *Mycologia*, **66**: 887 (1974).

KPM-NC7418 (Chuxiong, Zixi Mt., on bark of a dead tree, 15 X 2000, coll. Y. Degawa).

23. *Hemitrichia serpula* (Scop.) Rostaf., ex Lister var. *serpula*, *Mycet.*, 179 (1894).

KPM-NC7286 (Zhongdian, Hutiaoxia, ca. 1900 m alt., on plant litter, 29 IX 2000, coll. Y. Degawa), KPM-NC7302 (Lijiang, Tiejia Mt., on plant litter, 30 IX 2000, coll. Y. Degawa), KPM-NC7355 & 7356 (Binchuan, Jizu Mt., ca. 2200 m alt., on bark of a dead tree, 7 X 2000, coll. Y. Degawa), and KPM-NC7415 & 7419 (Chuxiong, Zixi Mt., on bark and wood of a dead tree, 15 X 2000, coll. Y. Degawa).

24.\* *Perichaena chrysosperma* (Curr.) Lister, *Mycet.*, 196 (1894).

KPM-NC7255 (Kunming, Heilongtan, Kunming Institute of Botany, on plant litter, 21 IX 2000, coll. Y. Degawa).

25. *Perichaena depressa* Lib., *Pl. Crypt.*, 378 (1837).

KPM-NC7304 (Lijiang, Tiejia Mt., on fallen twig, 30 IX 2000, coll. Y. Degawa).

26. *Perichaena vermicularis* (Schwein.) Rostaf., *Mon. App.*, 34 (1876).

KPM-NC7305 (Lijiang, Tiejia Mt., on fallen twig, 30 IX 2000, coll. Y. Degawa).

27.\*\* *Perichaena verrucifera* Y. Yamamoto & Shuanglin Chen, sp. nov. Fig. 3

Sporocarpia gregaria vel conferta, sessilia, brunneo-aurantiaca, subglobosa, piriformia vel breviter teretia, vulgo basi constricta, 0.3–0.6 mm diam, usque ad 1 mm longa. Hypothallus dilutus, membranaceus, fere hyalinus, ad coloniam communiter effusus, interdum indistinctus. Peridium simplex, membranaceum, flavidum et translucidum luce transmissa, interdum rugulosum et

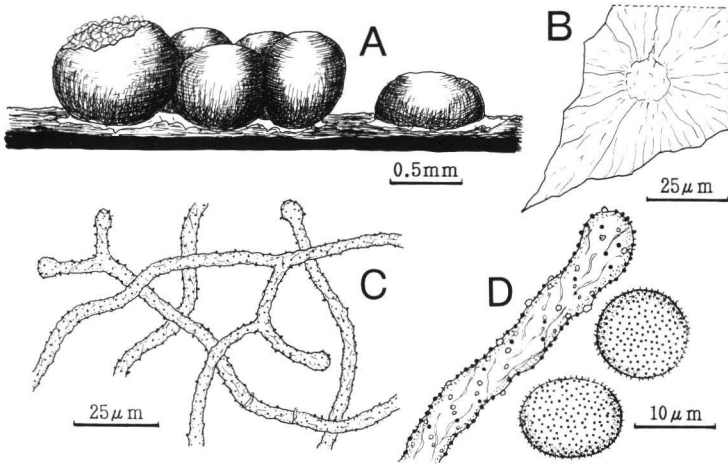


Fig. 3. *Perichaena verrucifera* (2000CU-7)

A: Six sessile sporocarps. B: Peridium. C: Capillitium. D: Tip of capillitium and two spores.

intrinsecus vesiculosum vel verrucosum, sine materia granulosa. Dehiscencia irregularis superne. Capillitium abundans, filiforme, longum, implexum, interdum ramosum et cum extremo bulboso, cum verruculis magnis, spinulis parvis, cristis flexuosis et interdum vittis transversalis, flavidum luce transmissa,  $5\text{--}7\ \mu\text{m}$  diam. Sporae globosae vel ellipsoideae, brunneo-aurantiacae luce reflexa, flavidae luce transmissa, dense spinulosae,  $10.1\text{--}12.4\ \mu\text{m}$  diam. vel ca.  $10\times 12\ \mu\text{m}$ , cum pariete partim graciliore. Plasmodium ignotum.

Fructification sporocarpous. Sporocarps gregarious to crowded in small groups, sessile, brownish-orange and sometimes slightly iridescent when mature, orange when young, subglobose, pyriform, or slightly elongated, usually with constricted base, rarely pulvinate with broad base,  $0.3\text{--}0.6\ \text{mm}$  in diam., up to  $1\ \text{mm}$  long. Hypothallus rather thin, membranous, nearly transparent, common to the colony, sometimes indistinct. Peridium single, membranous, pale yellow and translucent by transmitted light, sometimes rugulose and with large vesicles or warts on the inner surface, including almost no granular matter. Dehiscence irregular from above. Capillitium of long tangled threads, abundant, sometimes branched and with bulbous free ends, having irregular rather large wartlets, small spinules, flex-

uous ridges and sometimes transverse bands, brownish-orange in mass, pale yellow by transmitted light,  $5\text{--}7\ \mu\text{m}$  in diam. Spores globose to ellipsoid, brownish-orange in mass, pale yellow by transmitted light, densely spinulose,  $10.1\text{--}12.4\ \mu\text{m}$  (mean =  $10.9$ ,  $\text{sd} = 0.58$ ,  $n = 20$ ) in diam. when globose, ca.  $10\times 12\ \mu\text{m}$  when ellipsoid; spore wall thinner on one side. Plasmodium not observed.

2000CU-7 & 8 (Zhongdian, Tianchi, ca.  $3900\ \text{m}$  alt., on dead wood, mixed with *Paradiacheopsis rigida*, 20 VIII 2000, coll. H. Hagiwara), and 2000CU-34 & 36 p.p. (Zhongdian, Daxueshan Pass, ca.  $4000\ \text{m}$  alt., on dead wood, 24 VIII 2000, coll. H. Hagiwara. 2000CU-36 is mixed with *Trichia botrytis* var. *botrytis*).

Holotype: 2000CU-8 in TNS. Isotype: part of 2000CU-8 in KUN.

Etymology: Latin *verruca* + *fer* (from the character of capillitium threads).

This new species best fits to *P. pedata* (A. & G. Lister) G. Lister or *P. vermicularis* (Schwein.) Rostaf. in the key of Keller & Eliasson (1992), but clearly differs from the latter two in that the sporocarps of *P. pedata* are stalked and bear smaller spores measuring  $9\text{--}10\ \mu\text{m}$ , and those of *P. vermicularis* have verruculose peridia. In China, two species of *Perichaena*, not referred in the above key, were hitherto described as new to

science, namely, *P. poronema* Y. Li & H.Z. Li from Yunnan Province and *P. membranacea* Y. Li, Q. Wang & H.Z. Li from Liaoning Province (Li *et al.*, 1990). However, *P. verrucifera* is easily distinguished from *P. poronema* and *P. membranacea* because the sporocarps of *P. poronema* have double peridia, circumscissile dehiscence by lid, porous capillitium and smaller spores measuring 8–10  $\mu\text{m}$ , and those of *P. membranacea* are pseudoaethaloid with much thinner curved-spinulose capillitium threads measuring 1.1–2.0  $\mu\text{m}$  in diam.

28.\* *Trichia botrytis* (J.F. Gmel.) Pers. var. **botrytis**, Neues Mag. Bot., 1: 89 (1794).

2000CU-36 (Zhongdian, Daxueshan Pass, ca. 4000 m alt., on dead wood, mixed with *Perichyena verrucifera*, 24 VIII 2000, coll. H. Hagiwara), KPM-NC7258 (Lijiang, Laojun Mt., 3350 m alt., on dead wood, 25 IX 2000, coll. Y. Degawa), KPM-NC7276 (Lijiang, Laojun Mt., on dead wood, 26 IX 2000, coll. Y. Degawa), and KPM-NC7391 (Dali, Diancang Mt., Shasi Pavilion, ca. 3500 m alt., on fallen twig, 11 X 2000, coll. Y. Degawa).

29.\*\* *Trichia crenulata* (Meyl.) Meyl. var. **latitubularis** Y. Yamamoto & Shuanglin Chen, var. nov. Fig. 4

A typo peridio tenuiorie, elateribus latioribus 8–11  $\mu\text{m}$  cum 4–5 spiris et sporis majoribus 12.7–14.3  $\mu\text{m}$  diam. differt.

Fructification sporocarpous. Sporocarps clustered, sessile, obovoid to ellipsoid, reddish-brown to grayish-brown, iridescent with metallic tint, 0.4–0.7 mm in diam., up to 0.8 mm tall. Hypothallus membranous, brownish, common to the cluster. Peridium single, membranous, pale yellow by transmitted light, with small amount of refuse matter. Dehiscence irregular from above. Elaters usually long, sometimes short, brownish-red in mass, dirty light yellow by transmitted light, marked with closely wound 4–5 spiral bands with short spines, 8–11  $\mu\text{m}$  in diam., shortly pointed at the tips. Spores globose to ellipsoid, free or sometimes clustered, brownish-red in mass, light yellow by transmitted light, imperfectly banded-reticulate or somewhat crested, 12.7–14.3  $\mu\text{m}$  (mean=13.5, sd=0.43, n=20) in diam. when globose, proportionately longer and narrower when ellipsoid. Plasmodium not observed.

KPM-NC7392 (Dali, Diancang Mt., Shasi Pavilion, ca. 3500 m alt., on bark of a dead tree,

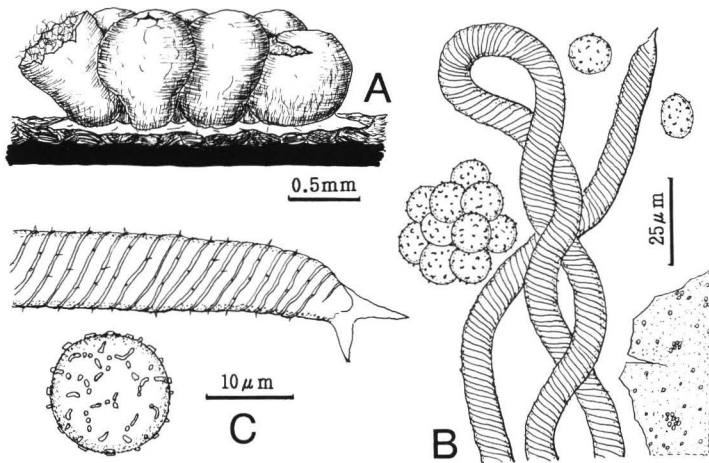


Fig. 4. *Trichia crenulata* var. *latitubularis* (KPM-NC7392)

A: Seven crowded sessile sporocarps. B: Part of peridium, elater and several spores. C: Tip of elater and a spore.

11 X 2000, coll. Y. Degawa).

Holotype: KPM-NC7392 in TNS. Isotype: part of KPM-NC7392 in KUN.

Etymology: Latin *latus*+*tubularis* (from the wide capillitium thread).

This new variety is different from the type variety in characteristics of peridium, capillitium threads and spores; var. *crenulata* has thicker peridium with abundant refuse matter, narrower capillitium threads (3.5–4.5  $\mu\text{m}$  in diam.) with 2–3 spiral bands and slightly smaller spores (11–13  $\mu\text{m}$  in diam.).

30. ***Trichia decipiens*** (Pers.) T. Macbr. var. ***decipiens***, N. Am. Slime-Moulds, 218 (1899).

KPM-NC7279, 7280, 7281, 7282, 7283 & 7284 (Lijiang, Laojun Mt., on dead wood, 27 IX 2000, coll. Y. Degawa), and KPM-NC7312, 7313, 7314, 7315, 7316, 7317, 7318, 7319 & 7320 (Lijiang, Yulongxueshan, Maoniuping, on dead wood, 1 X 2000, coll. Y. Degawa).

31.\*\* ***Trichia decipiens*** (Pers.) T. Macbr. var. ***decipiens*** f. ***olivacea*** (Meyl.) Y. Yamam., Myxom. Biota Jpn., 237 (1998).

2000CU-5 (Lijiang, Laojun Mt., ca. 3300 m alt., on dead wood, 16 VIII, coll. H. Hagiwara), 2000CU-9 (Zhongdian, Tianchi, ca. 3900 m alt., on moss and bark of a dead tree, 20 VIII 2000, coll. H. Hagiwara), 2000CU-35 (Zhongdian, Daxueshan Pass, ca. 3800 m alt., on moss and dead wood, 24 VIII 2000, coll. H. Hagiwara), and KPM-NC7344 (Ninglang, Lugu Lake, on dead wood, 4 X 2000, coll. Y. Degawa).

32. ***Trichia favoginea*** (Batsch) Pers. var. ***persimilis*** (P. Karst.) Y. Yamam., Myxom. Biota Jpn., 240 (1998).

Syn. *Trichia persimilis* P. Karst., Not. Saellsk. Faun. Fl. Fenn., 9: 353 (1868).

KPM-NC7303 (Lijiang, Tiejia Mt., on plant litter, 30 IX 2000, coll. Y. Degawa).

33. ***Trichia scabra*** Rostaf., Mon., 258 (1875).

KPM-NC7357 (Binchuan, Jizu Mt., ca. 2200 m alt., on dead wood, 7 X 2000, coll. Y. Degawa).

34.\* ***Trichia varia*** (Pers. ex J.F. Gmel.) Pers., Neues Mag. Bot., 1: 90 (1794).

KPM-NC7360 (Binchuan, Jizu Mt., ca. 2200 m alt., on moss, 7 X 2000, coll. Y. Degawa).

#### Physarales

35.\*\* ***Badhamia gracilis*** (T. Macbr.) T. Macbr. var. ***melanospora*** (Speg.) J. Castillo, G. Moreno & Illana, in Castillo, Illana & Moreno, Mycotaxon, 57: 169 (1996).

KPM-NC7409, 7410 & 7411 (Chuxiong, Zixi Mt., on bark of a dead tree, 14 X 2000, coll. Y. Degawa).

36.\*\* ***Craterium leucocephalum*** (Pers.) Ditmar var. ***scyphoides*** (Cooke & Balf. ex Masseur) G. Lister, in Lister, Mycet. ed. 2., 97 (1911).

KPM-NC7307, 7308, 7311 (Lijiang, Tiejia Mt., on plant litter, 30 IX 2000, coll. Y. Degawa), and KPM-NC7369 (Binchuan, Jizu Mt., Jinding Temple, ca. 3200 m alt., on fallen leaves, 8 X 2000, coll. Y. Degawa).

37.\* ***Craterium minutum*** (Leers) Fr., Syst. Myc., 3: 151 (1829).

2000CU-50 (Dali, Diancang Mt., Gantong Temple, ca. 2400 m alt., on living plant, 9 IX 2000, coll. H. Hagiwara), KPM-NC7293, 7294, 7295, 7296, 7297, 7298, 7299, 7300 & 7301 (Lijiang, Tiejia Mt., on plant litter, 30 IX 2000, coll. Y. Degawa), and KPM-NC7379 & 7380 (Binchuan, Jizu Mt., ca. 2250 m alt., on plant litter, 9 X 2000, coll. Y. Degawa).

38. ***Diderma deplanatum*** Fr., Syst. Myc., 3: 110 (1829).

KPM-NC7364 (Binchuan, Jizu Mt., Jinding Temple, ca. 3200 m alt., on plant litter, 8 X 2000, coll. Y. Degawa), and KPM-NC7414 (Chuxiong, Zixi Mt., on fallen leaves, 15 X 2000, coll. Y. Degawa).

39.\* ***Diderma effusum*** (Schwein.) Morgan, var. ***effusum***, J. Cinc. Soc. Nat. Hist., 16: 155 (1894).

KPM-NC7306 (Lijiang, Tiejia Mt., on fallen

leaves, 30 IX 2000, coll. Y. Degawa).

40.\*\* *Diderma floriforme* (Bull.) Pers. var. **subfloriforme** (Cand. & Nann.-Bremek.) Y. Yamam., *Myxom. Biota Jpn.*, 294 (1998).

Syn. *Diderma subfloriforme* Cand. & Nann.-Bremek., *Crypt. Mycol.*, 1: 201 (1980).

KPM-NC7321 (Lijiang, Yulongxueshan, Maoniuping, on dead wood, 1 X 2000, coll. Y. Degawa).

41.\* *Diderma globosum* Pers. var. **globosum**, *Neues Mag. Bot.*, 1: 89 (1794).

KPM-NC7394 (Dali, Diancang Mt., Zhonghe Temple, ca. 2500 m alt., on plant litter, mixed with *Didymium difforme*, 12 X 2000, coll. Y. Degawa).

42.\* *Diderma hemisphaericum* (Bull.) Hornem. var. **hemisphaericum**, *Fl. Dan.*, 1 (1829).

2000CU-19 (Zhongdian, Birong Valley, ca. 3000 m alt., on plant litter, 22 VIII 2000, coll. H. Hagiwara).

43.\*\* *Diderma* cf. **simplex** (J. Schroet.) G. Lister, in Lister, *Mycet. ed. 2.*, 107 (1911). Fig. 5

KPM-NC7368 (Binchuan, Jizu Mt., Jinding Temple, ca. 3200 m alt., on fallen leaves, 8 X 2000, coll. Y. Degawa).

This form is very similar to *D. simplex*, but different in color and shape of sporocarps. These characters are somewhat similar to those of *D. rufostriatum* Nann.-Bremek. & Lado. However, it clearly differs in its simple peridium from the latter species with a three-layered peridium. Its systematic position couldn't be decided because of a scarcity of fully matured sporocarps. Therefore, a brief description is given as follows.

Fructification sporocarpous. Sporocarps closely gregarious to crowded, sessile, usually globose with constricted base, orange-red when mature, dark brown when immature, ca. 0.5 mm in diam. Hypothallus membranous, brownish, common to the colony. Peridium appearing single, having orange-red lime globules, with many clusters of dense lime granules on the inside. Dehiscence irregular from above. Columella subglobose to hemispheroid, nearly black, occupying 1/3–1/2 the diameter of sporocarp. Capillitium radiating from the columella, nearly straight or flexuous, white in reflected light, nearly transparent by transmitted light, branched dichotomously, sometimes with connecting bars and dark and/or pale accretions. Spores globose, dark brown in mass, brownish-gray by transmitted light, rather irregularly verruculose, 10.7–12.1  $\mu\text{m}$  (mean=11.4, sd=0.43, n=20) in diam. Plasmodium not observed.

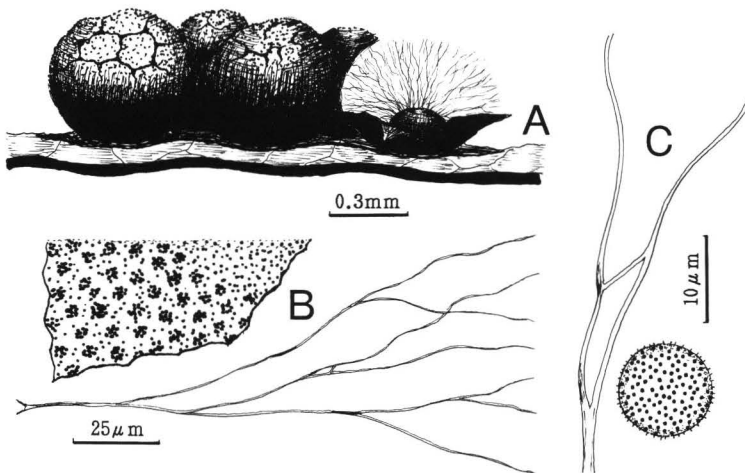


Fig. 5. *Diderma* cf. *simplex* (KPM-NC7368)

A: Five sporocarps. B: Peridium and capillitium. C: Middle part of capillitium and a spore.



44.\* **Diderma spumarioides** (Fr.) Fr., Syst. Myc., 3: 104 (1829).

KPM-NC7359 (Binchuan, Jizu Mt., ca. 2200 m alt., on moss growing on fallen twig, 7 X 2000, coll. Y. Degawa).

45.\*\* **Diderma trevelyani** (Grev.) Fr., Syst. Myc., 3: 105 (1829).

2000CU-38 (Zhongdian, Daxueshan Pass, ca. 4000 m alt., on dead wood, 24 VIII 2000, coll. H. Hagiwara).

46.\*\* **Diderma umbilicatum** Pers. var. **umbilicatum**, Syn. Fung., 165 (1801).

KPM-NC7289 (Zhongdian, Hutiaoxia, ca. 1900 m alt., on plant litter, 29 IX 2000, coll. Y. Degawa), and KPM-NC7396, 7397, 7398 & 7399 (Dali, Diancang Mt., Zhonghe Temple, ca. 2500 m alt., on moss growing on soil, 12 X 2000, coll. Y. Degawa).

47.\*\* **Diderma umbilicatum** var. **macrosporum** Meyl., Bull. Soc. Vaud. Sci. Nat., 56: 68 (1925).

KPM-NC7381 (Binchuan, Jizu Mt., ca. 2250 m alt., on fallen leaves, 9 X 2000, coll. Y. Degawa).

48.\* **Didymium difforme** (Pers.) Gray, Nat. Arr. Br. Pl., 1: 571 (1821).

2000CU-37 (Zhongdian, Daxueshan Pass, ca. 4000 m alt., on plant litter, 24 VIII 2000, coll. H. Hagiwara), and KPM-NC7394 p.p. (Dali, Diancang Mt., Zhonghe Temple, ca. 2500 m alt., on plant litter, mixed with *Diderma globosum* var. *globosum*, 12 X 2000, coll. Y. Degawa).

49.\* **Didymium dubium** Rostaf., Mon., 152 (1874).

KPM-NC7401 (Dali, Diancang Mt., Gantong Temple, ca. 2650 m alt., on stem of *Cirsium*, 13 X 2000, coll. Y. Degawa).

50.\*\* **Didymium melanospermum** (Pers.) T. Macbr. var. **calcipes** Y. Yamamoto & Shuanglin Chen, var. nov. Fig. 6

A typo stipite albo et calcareo differt.

Fructification sporocarpous. Sporocarps gregarious, sometimes forming digitate ones, nearly erect, up to 1.3 mm tall. The sporothecae white, calcareous from powdery lime, depressed-globose, slightly umbilicate at the bottom, 0.5–0.7 mm in diam. Stalk robust, erect, faintly striate, usually tapering upwards or rarely downwards, calcareous throughout, including rounded or angular large lime crystals (up to 30  $\mu\text{m}$ ) within, up to 1/2 the height of sporocarp or slightly longer.

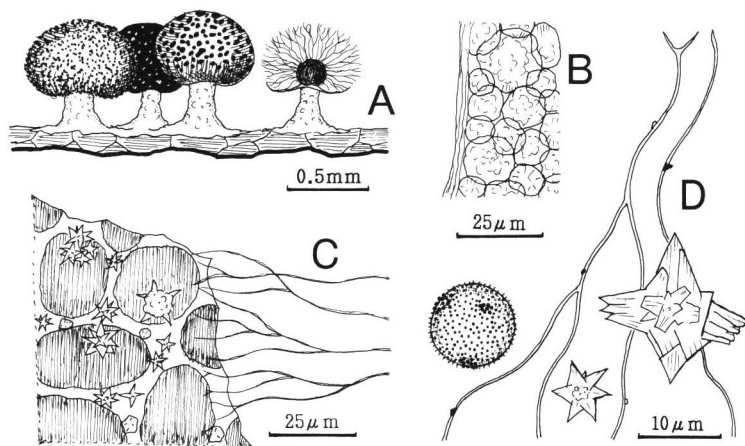


Fig. 6. *Didymium melanospermum* var. *calcipes* (2000CU-22)

A: Four stalked sporocarps. B: Lime crystals in stalk. C: Peridium, stellate lime crystals and capillitium. D: Capillitium, stellate lime crystals and a spore.

Hypothallus membranous and transparent, frequently sprinkled with white lime crystals, discoid, sometimes vein-like to netted. Peridium single, membranous, rather thick, usually with dark patches and mottled, covered with stellate and/or polygonal lime crystals, translucent at the dark, somewhat thickened areolae; lime crystals variable, up to 20  $\mu\text{m}$  in diam. Dehiscence irregular from above, leaving a shallow cup at the bottom of sporotheca. Columella distinct, rough, dark brown to brown, subglobose to hemisphaeroid, calcareous within. Capillitium profuse, arising radially from the columella, white in reflected light, colorless and transparent by transmitted light, divided dichotomously, with few anastomoses, sometimes with lime granules and/or dark accretions. Spores nearly globose, nearly black in mass, violet-gray by transmitted light, densely verruculose with some groups of darker and larger wartlets, 9.5–11.0  $\mu\text{m}$  (mean=10.1, sd=0.46, n=20) in diam. Plasmodium not observed.

2000CU-20, 21 & 22 (Zhongdian, Birong Valley, ca. 3000 m alt., on plant litter and living plant, 22 VIII 2000, coll. H. Hagiwara), and 2000CU-45 (Deqin, Meilixueshan, ca. 4200 m alt., on bark of a dead tree, 29 VIII 2000, coll. N. Maekawa).

Holotype: 2000CU-22 in TNS. Isotype: part of 2000CU-22 in KUN.

Etymology: Latin *calx+pes* (from the character of stalk).

This new variety is easily distinguished from the type variety of *D. melanospermum* by its white calcareous stalk. In appearance the new variety is similar to *D. squamulosum* (Alb. & Schwein.) Fr. in that it has white calcareous sporocarps, but its mottled peridium and dark columella are characteristic of *D. melanospermum*.

51. ***Didymium nigripes*** (Link) Fr., Syst. Myc., 3: 119 (1829).

KPM-NC7354 (Ninglang, Lugu Lake, on moss growing on soil, 5 X 2000, coll. Y. Degawa), and KPM-NC7372 (Binchuan, Jizu Mt., Jinding Temple, ca. 3200 m alt., on plant litter, 8

X 2000, coll. Y. Degawa).

52.\*\* ***Didymium obducens*** P. Karst., Not. Saellsk. Fauna Flora Fen. Foerh., 9: 356 (1868).

2000CU-26 (Zhongdian, Daxueshan Pass, ca. 4100 m alt., on living plant, 23 VIII 2000, coll. H. Hagiwara).

This species is somewhat similar to a sessile form of *D. leoninum* Berk. & Broome in shape and color of the sporocarps. Also it resembles the latter species in episporic markings, but its spores are much larger, darker, and paler on one side.

2000CU-26 has slightly immature sporocarps with spores measuring 12.0–14.4  $\mu\text{m}$  (mean=13.2, sd=0.66, n=20) in diam. Its sporothecae were orange in young stage.

53. ***Didymium squamulosum*** (Alb. & Schwein.) Fr., Symb. Gast., 19 (1818).

KPM-NC7290 (Zhongdian, Hutiaoxia, ca. 1900 m alt., on plant litter, 29 IX 2000, coll. Y. Degawa).

54. ***Leocarpus fragilis*** (Dicks.) Rostaf., Mon., 132 (1874).

2000CU-6 (Lijiang, Laojun Mt., ca. 3300 m alt., on fallen leaves, 16 VIII 2000, coll. H. Hagiwara), 2000CU-10 & 11 (Zhongdian, Tianchi, ca. 3900 m alt., on bark and wood of a dead tree, 20 VIII 2000, coll. H. Hagiwara), 2000CU-39 (Zhongdian, Daxueshan Pass, ca. 3800 m alt., on dead wood, 24 VIII 2000, coll. N. Maekawa), and 2000CU-40 (Zhongdian, Daxueshan Pass, ca. 3800 m alt., on moss growing on dead wood, 24 VIII 2000, coll. Z.-l. Yang).

55.\*\* ***Lepidoderma tigrinum*** (Schrad.) Rostaf., in Fuckel, Jahrb. Nass. Ver. Nat., 27–28: 73 (1983).

2000CU-12 (Zhongdian, Tianchi, ca. 3900 m alt., on moss and dead wood, 20 VIII 2000, coll. H. Hagiwara).

56. ***Physarum cinereum*** (Batsch) Pers. var. ***cinereum***, Neues Mag. Bot., 1: 89 (1794).

KPM-NC7291 (Zhongdian, Hutiaoxia, ca. 1900 m alt., on moss growing on soil, 29 IX 2000, coll. Y. Degawa), and KPM-NC7400 (Dali, Diancang Mt., Gantong Temple, ca. 2650 m alt., on stem of *Cirsium*, 13 X 2000, coll. Y. Degawa).

57. **Physarum conglomeratum** (Fr.) Rostaf., Mon., 108 (1874).

2000CU-48 (Dali, Diancang Mt., Zhonghe Temple, ca. 2500 m alt., on fallen leaves, 9 IX 2000, coll. H. Hagiwara).

58.\* **Physarum contextum** (Pers.) Pers., Syn. Fung., 168 (1801).

2000CU-27 (Zhongdian, Daxueshan Pass, ca. 4100 m alt., on moss growing on rock, 23 VIII 2000, coll. M. Higuchi), and KPM-NC7270 & 7271 (Lijiang, Laojun Mt., on moss, 26 IX 2000, coll. Y. Degawa).

This species is closely related to *P. conglomeratum*, from which it is distinguished by the slightly larger and more strongly marked spores.

59.\* **Physarum flavicomum** Berk., Lond. J. Bot., 4: 66 (1845).

2000CU-1 (Lijiang, Laojun Mt., ca. 3800 m alt., on bark of a dead tree, 13 VIII 2000, coll. N. Maekawa), 2000CU-2 & 3 (Lijiang, Laojun Mt., ca. 3800 m alt., on bark and wood of a dead tree, 13 VIII 2000, coll. H. Hagiwara), 2000CU-41 (Zhongdian, Daxueshan Pass, ca. 4000 m alt., on moss growing on dead wood, 24 VIII 2000, coll. M. Higuchi), 2000CU-47 (Dali, Diancang Mt., ca. 3500 m alt., on moss on a buried tree, 7 IX 2000, coll. H. Hagiwara), and KPM-NC7365, 7366 & 7378 (Binchuan, Jizu Mt., Jinding Temple, ca. 3200 m alt., on fallen leaves, 8 X 2000, coll. Y. Degawa).

This species resembles a long-stalked form of *P. viride* (Bull.) Pers., but differs from the latter in characteristics of the stalks and capillitium. In *P. flavicomum*, stalks are longer, nearly no refuse matter within, the capillitium tends to be more netted, and the yellow lime nodes are not fusiform.

60.\*\* **Physarum flavidum** (Peck) Peck, Ann. Rep. N. Y. State Mus., 31: 55 (1879).

2000CU-53 (Dali, Diancang Mt., Gantong Temple, ca. 2400 m alt., on moss growing on cliff, 9 IX 2000, coll. M. Higuchi), KPM-NC7362 & 7363 (Binchuan, Jizu Mt., ca. 2200 m alt., on moss growing on soil, 8 X 2000, coll. Y. Degawa), and KPM-NC7373, 7374 & 7375 (Binchuan, Jizu Mt., Jinding Temple, ca. 3200 m alt., on moss growing on soil, 8 X 2000, coll. Y. Degawa).

61.\* **Physarum leucopus** Link, Ges. Nat. Freunde Berlin Mag., 3: 27 (1809).

KPM-NC7310 (Lijiang, Tiejia Mt., on fallen leaves, mixed with *P. nutans*, 30 IX 2000, coll. Y. Degawa), KPM-NC7352 & 7353 (Ninglang, Lugu Lake, on moss growing on soil, 5 X 2000, coll. Y. Degawa), and KPM-NC7367 (Binchuan, Jizu Mt., Jinding Temple, ca. 3200 m alt., on fallen leaves, 8 X 2000, coll. Y. Degawa).

This species somewhat resembles a faded and pale form of *P. melleum* (Berk. & Broome) Masee, but differs from the latter in having smaller lime nodes and no columellae.

62. **Physarum melleum** (Berk. & Broome) Masee f. **melleum**, Mon., 278 (1892).

2000CU-51 & 52 (Dali, Diancang Mt., Gantong Temple, ca. 2400 m alt., on bark of a living tree, 9 IX 2000, coll. H. Hagiwara).

63.\* **Physarum nutans** Pers., Ann. Bot. Usteri, 15: 6 (1795).

KPM-NC7309 & 7310 p.p. (Lijiang, Tiejia Mt., on fallen leaves, 30 IX 2000, coll. Y. Degawa). KPM-NC7310 is mixed with *P. leucopus*, and KPM-NC7390 (Dali, Diancang Mt., Shasi Pavilion, ca. 3500 m alt., on bark of a dead tree, 11 X 2000, coll. Y. Degawa).

64.\*\* **Physarum ovisporoides** Y. Yamamoto & Shuanglin Chen, sp. nov. Fig. 7

Sporocarpia vel plsmodiocarpia gregaria, sessilia, globosa vel curvatim teretia, alba, flavo-alba vel dilute brunneo-alba, saepe cum basi

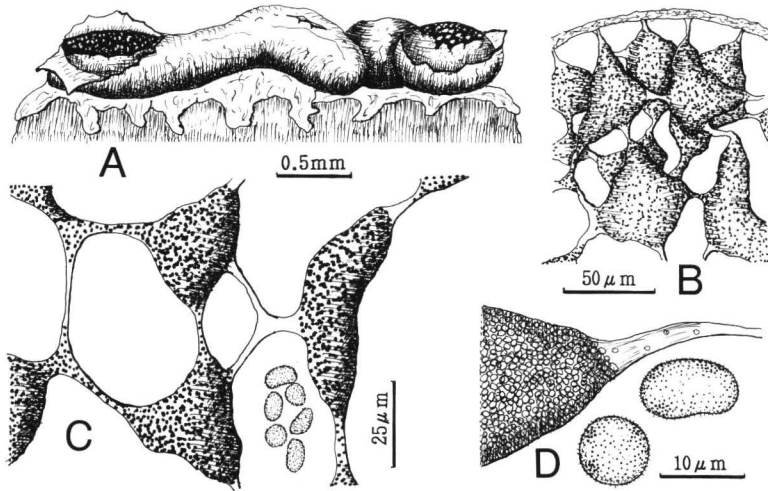


Fig. 7. *Physarum ovisporoides* (KPM-NC7350)

A: A plasmodiocarp and two sporocarps. B: Part of peridium and capillitium. C: Part of capillitium and six spores. D: Part of capillitium and two spores.

brunnea, ca. 0.5 mm diam., usque ad 2 mm longa. Hypothallus indistinctus. Peridium duplex. Exoperidium crustaceum, potius laeve, interdum rugulosum, plerumque cum granulis calcareis albis tectum. Endoperidium tenue, membranaceum, cinerascens luce reflexa, hyalinum luce transmissa, leviter calcareum. Dehiscencia irregularis superne. Columella nulla. Capillitium reticulatum, abundans; nodi calcarei albi, angulares, a filis hyalinis gracilibus vel latis connexi. Sporae ellipsoideae, ovoideae vel raro globosae, atro-brunneae luce reflexa, brunneo-cinereae luce transmissa, irregulariter maxime minuteque verruculosae, ca.  $9.5\text{--}12.5 \times 7.0\text{--}10.5 \mu\text{m}$ . Plasmodium ignotum.

Fructification sporocarpous to plasmodiocarpous, gregarious, sessile, globose to curved-terete, white, yellowish-white or palely brownish-white, often brownish near the base, dark brown at the base, ca. 0.5 mm diam., up to 2 mm long. Hypothallus indistinct. Peridium not remote but clearly two-layered. The outer layer crustaceous, rather smooth, sometimes rugulose, usually covered by white lime granules. The inner layer thin, membranous, grayish in reflected light, transparent by transmitted light, slightly calcareous. Dehiscence irregular from above. Columella none.

Capillitium netted, abundant; lime nodes white, angular, connected by limeless slender or rather wide transparent tubules. Spores ellipsoid, ovoid, or rarely gobose, dark brown in reflected light, brownish-gray by transmitted light, irregularly and very minutely verruculose, ca.  $9.5\text{--}12.5 \times 7.0\text{--}10.5 \mu\text{m}$ . Plasmodium not observed.

KPM-NC7329, 7330, 7331, 7332 & 7333 (Lijiang, Yulongxueshan, Yufeng Temple, on moss and bark, 2 X 2000, coll. Y. Degawa), and KPM-NC7348, 7349, 7350 & 7351 (Ninglang, Lugu Lake, on moss and lichen growing on soil, 5 X 2000, coll. Y. Degawa).

Holotype: KPM-NC7350 in TNS. Isotype: part of KPM-NC7350 in KUN.

Etymology: *Physarum ovisporum*+*oides* (from the character like *P. ovisporum*).

This new species is characterized by white to yellowish or brownish fructifications with two-layered peridia, netted capillitia with white lime nodes, and minutely verruculose spores which are usually ellipsoid or ovoid in shape. In the Physaraceae, the ovoid spores characteristic of this species have been found in only two species, *Badhamia ovispora* Racib. and *P. ovisporum* G. Lister. However, other spore features of *P. ovisporoides* are different from those of *B. ovispora*

and *P. ovisporum*. Namely, spores of *B. ovispora* are indistinctly verruculose and larger, measuring (14–) 16–18 (–21) × (5.5–) 6–7 (–8)  $\mu\text{m}$  (Keller *et al.*, 1975), and spores of *P. ovisporum* are verruculose or spinulose, often marked with pale lines on the epispore and measuring 9–11  $\mu\text{m}$  or 12–13 × 10–12  $\mu\text{m}$  (Martin & Alexopoulos, 1969).

65.\* ***Physarum ovisporum*** G. Lister, J. Bot., **59**: 90 (1921).

KPM-NC7292 (Zhongdian, Hutiaoxia, ca. 1900 m alt., on moss growing on soil, 29 IX 2000, coll. Y. Degawa).

66.\*\* ***Physarum* cf. *rubiginosum*** Fr., Symb. Gast., 21 (1817). Fig. 8

KPM-NC7278 (Jianchuan, Laojun Mt., Shibao Temple, on dead wood, 27 IX 2000, coll. Y. Degawa).

This form is very similar to *P. rubiginosum* in appearance, but its spores are much larger than those of the latter species which are 9–12  $\mu\text{m}$  in Martin & Alexopoulos (1969) and 8–11  $\mu\text{m}$  in Neubert *et al.* (1995). Therefore, this form needs further study. Its brief description is given as follows.

Fructification sporocarpous. Sporocarps gregarious to clustered, sessile to very short-stalked.

Sporothecae grayish-orange, yellowish-white or black when lime is scanty, ellipsoid, obovoid, subglobose or irregular, 0.4–0.7 mm in diam., up to 0.8 mm tall. Stalk weak, a continuation of hypothallus, usually expanding upwards. Hypothallus membranous, silvery or dark, usually common to the cluster. Peridium appearing one layer, rough, orange to brownish-yellow by transmitted light, covered by dense lime granules. Dehiscence irregular from above. Columella none. Capillitium netted, somewhat persistent, sometimes limeless; lime nodes angular, orange to pale yellow in reflected light, pale orange to pale yellow by transmitted light; connecting threads slender, nearly transparent, usually expanded at the junctions. Spores globose or rarely ellipsoid, dark brown in mass, grayish-brown by transmitted light, irregularly verruculose or spinulose, 11.6–13.0  $\mu\text{m}$  (mean=12.4, sd=0.41, n=20) in diam. Plasmodium not observed.

67. ***Physarum viride*** (Bull.) Pers. f. *viride*, Ann. Bot. Usteri, **15**: 6 (1795).

KPM-NC7260 (Lijiang, Laojun Mt., on dead wood, 26 IX 2000, coll. Y. Degawa), KPM-NC7277 (Lijiang, Laojun Mt., on moss growing on dead wood, 27 IX 2000, coll. Y. Degawa), and KPM-NC7326 (Lijiang, Yulongxueshan, Maoni-uping, on dead wood, 1 X 2000, coll. Y. De-

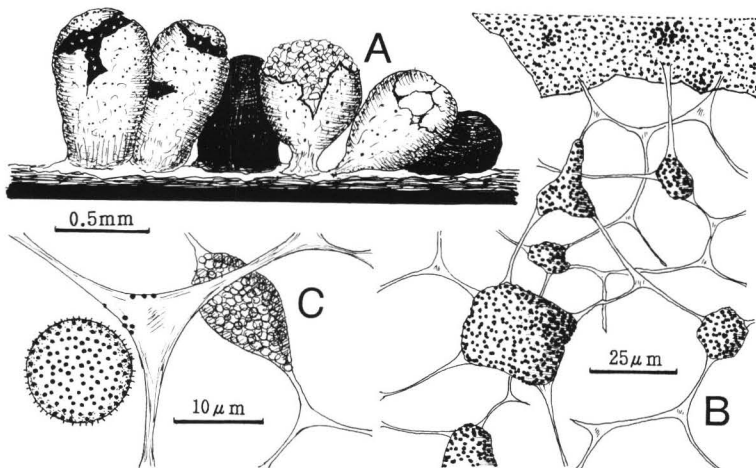


Fig. 8. *Physarum* cf. *rubiginosum* (KPM-NC7278)

A: Six sporocarps. B: Part of peridium and capillitium. C: Part of capillitium and a spore.

gawa).

68.\* **Physarum viride** f. **aurantium** (Bull.) Y. Yamam., *Myxom. Biota Jpn.*, 495 (1998).

2000CU-42 (Zhongdian, Daxueshan Pass, ca. 3800 m alt., on bark of a dead tree, 24 VIII 2000, coll. N. Maekawa), and KPM-NC7327 (Lijiang, Yulongxueshan, Maoniuping, on dead wood, 1 X 2000, coll. Y. Degawa).

69.\*\* **Physarum viride** f. **incanum** (Lister) Y. Yamam., *Myxom. Biota Jpn.*, 496 (1998).

2000CU-13 (Zhongdian, Tianchi, ca. 3900 m alt., on dead wood, 20 VIII 2000, coll. H. Hagiwara), and 2000CU-43 (Zhongdian, Daxueshan Pass, ca. 4000 m alt., on dead wood, 24 VIII 2000, coll. H. Hagiwara).

#### Stemonitales

70.\* **Comatricha laxa** Rostaf., *Mon.*, 201 (1874).

KPM-NC7328 (Lijiang, Yulongxueshan, Heibaishui, on bark of a dead tree still standing, 1 X 2000, coll. Y. Degawa).

71.\* **Comatricha pulchella** (C. Bab.) Rostaf. var. **pulchella**, *Mon. App.*, 27 (1876).

KPM-NC7370 (Binchuan, Jizu Mt., Jinding Temple, ca. 3200 m alt., on fallen leaves, 8 X 2000, coll. Y. Degawa).

72.\* **Comatricha tenerrima** (M.A. Curtis) G. Lister var. **tenerrima**, *Guide Br. Mycet. ed. 4.*, 39 (1919).

2000CU-23 (Zhongdian, Birong Valley, ca. 3000 m alt., on dead wood, 22 VIII 2000, coll. H. Hagiwara).

73.\*\* **Diacheopsis mitchellii** Nann.-Bremek. & Y. Yamam., *Proc. K. Ned. Akad. Wet. C.*, **86**: 224 (1983).

KPM-NC7265, 7267 & 7268 (Lijiang, Laojun Mt., on moss growing on dead wood, 26 IX 2000, coll. Y. Degawa).

74.\* **Lamproderma columbinum** (Pers.) Rostaf. var. **columbinum**, in *Fuckel, Jahrb. Nass. Ver. Naturk.*, **27–28**: 89 (1873).

KPM-NC7263 & 7264 (Lijiang, Laojun Mt., on moss, 26 IX 2000, coll. Y. Degawa), KPM-NC7376 & 7377 (Binchuan, Jizu Mt., Jinding Temple, ca. 3200 m alt., on moss growing on

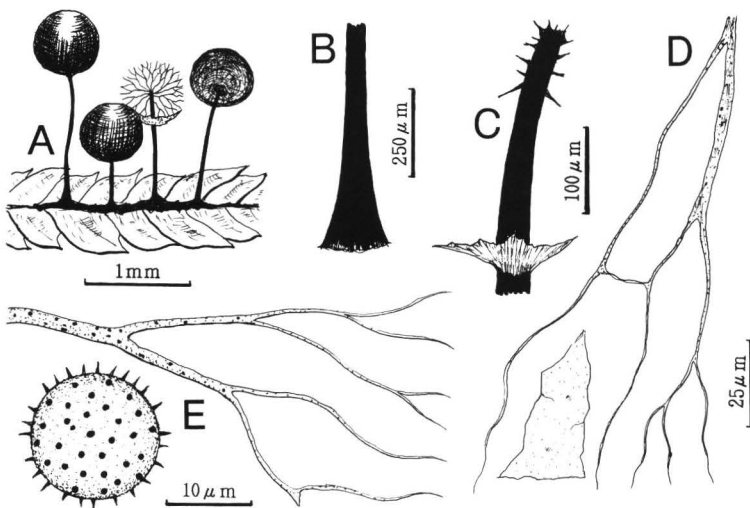


Fig. 9. *Lamproderma echinulatum* (2000CU-49)

A: Four stalked sporocarps. B: Stalk. C: Columella and collar. D: Capillitium and peridium. E: Tip of capillitium and a spore.

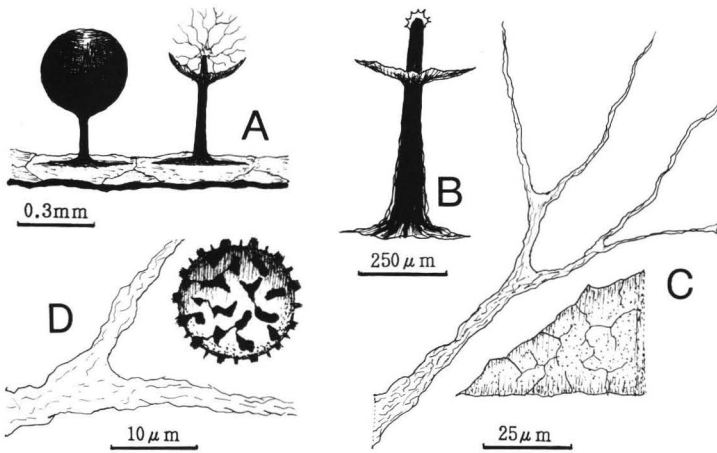


Fig. 10. *Lamproderma tuberculosporum* (KPM-NC7353)

A: Two stalked sporocarps. B: Columella, collar and stalk. C: Part of peridium and tip of capillitium. D: Part of capillitium and a spore.

soil, 8 X 2000, coll. Y. Degawa), and KPM-NC7388 & 7389 (Dali, Diancang Mt., Shasi Pavilion, ca. 3500 m alt., on moss, 11 X 2000, coll. Y. Degawa).

75.\*\* ***Lamproderma echinulatum*** (Berk.) Rostaf., Mon. App., 25 (1876). Fig. 9

2000CU-49 (Dali, Diancang Mt., Zhonghe Temple, ca. 2500 m alt., on moss growing on dead wood, 9 IX, coll. M. Higuchi), and KPM-NC7402, 7403, 7404, 7405, 7406, 7407 & 7408 (Dali, Diancang Mt., Gantong Temple, ca. 2650 m alt., on moss growing on cliff, 13 X 2000, coll. Y. Degawa).

This rare species is somewhat similar to *L. columbinum* (Pers.) Rostaf. and *L. mucronatum* H. Neubert, Nowotny & K. Baumann in macroscopical appearance, but it is distinguished from the latter two species by spore size and episporic markings.

76.\*\* ***Lamproderma tuberculosporum*** M.L. Farr, Mycopath. Myc. Appl., 31: 311 (1967).

Fig. 10

KPM-NC7383 (Binchuan, Jizu Mt., ca. 2250 m alt., on fallen leaves, 9 X 2000, coll. Y. Degawa).

This is the second report of *L. tuberculosporum* in the world, which was originally described

on the basis of a specimen from Colombia (Farr, 1967). This very rare species is somewhat similar to *L. atrosporum* Meyl. and *L. cristatum* Meyl., but it completely differs from the latter two in its episporic markings.

77.\*\* ***Paradiacheopsis rigida*** (Brandza) Nann.-Bremek., in G.W. Martin & Alexop., Myxom., 231 (1969).

Syn. *Comatricha laxa* var. *rigida* Brandza, Ann. Sci. Univ. Jassy, 11: 126 (1921).

2000CU-7 p.p. & 8 p.p. (Zhongdian, Tianchi, ca. 3900 m alt., on dead wood, mixed with *Perichaena verrucifera*, 20 VIII 2000, coll. H. Hagiwara).

This species is similar to *Comatricha ellae* Haerk. in macroscopical appearance, but it is clearly distinguished from the latter by its surface net, spore size, and episporic markings.

78. ***Stemonitis axifera*** (Bull.) T. Macbr. var. ***axifera***, N. Am. Slime-Moulds, 120 (1899).

2000CU-44 (Zhongdian, Daxueshan Pass, ca. 4000 m alt., on dead wood, 24 VIII 2000, coll. H. Hagiwara).

79.\* ***Stemonitis axifera*** var. ***smithii*** (T. Macbr.) Hagelst., Mycet. N. Am., 154 (1944).

2000CU-14 (Zhongdian, Tianchi, ca. 3900 m alt., on dead wood, 20 VIII 2000, coll. H. Hagiwara).

80. *Stemonitis fusca* Roth var. *fusca*, Mag. Bot. Roemer & Usteri, **1** (2): 26 (1787).

KPM-NC7259 (Lijiang, Laojun Mt., 3350 m alt., on bark of a dead tree, 25 IX 2000, coll. Y. Degawa), KPM-NC7346 (Ninglang, Lugu Lake, on dead wood, 4 X 2000, coll. Y. Degawa), and KPM-NC7413 (Chuxiong, Zixi Mt., on dead wood, 14 X 2000, coll. Y. Degawa).

81.\* *Stemonitis fusca* var. *rufescens* Lister, Mycet., 110 (1894).

KPM-NC7285 (Zhongdian, Hutiaoxia, ca. 1900 m alt., on moss growing on soil, 29 IX 2000, coll. Y. Degawa).

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