SIX MYXOMYCETES NEW OR RARE TO JAPAN

Yukinori Yamamoto, Prefectural Kouti Kita High School
and
Kazunari Takahashi, Prefectural Okayama Asahi High School

ABSTRACT
Five species (Cribaria personii, Diderma darjeelingense, D. subfloriforme, Fuligo megaspora and Trichia sordida) are reported in Japan for the first time, and one species (Cribaria mirabilis), previously thought to be a doubtful record, is verified. All of the taxa are described and illustrated herein.

キーワード：日本新種，変形菌。

はじめに
最近の高橋と山本の採集標本の一部を調べた結果，日本新種種とする，江本（1977）の図鑑に掲載されていない種があることが判明したので報告する。本研究に当たり，貴重なアミホモホコリの標本を送って下さった福島県の米尾雅信氏に厚くお礼申し上げる。

結果と考察
日本新産は5種で，そのうち2種は岡山県岡山市操山で採集されている。これらにはニセダイダイアミホコリ，シミホネホコリ（岡山県産），ニセハナホネホコリ（岡山県産），オオミスホコリ，マダラケホコリの和名を与え，記載文と図をつけた。他1種はアミホモホコリで，日本産の記録はあったが，図説されたりもなく，はっきりしなかった種類である。

1. Diderma darjeelingense Third & Sehgal, in Mycologia 56: 562. 1964; Martin & Alexop., Myxom. 355. 1969. シミホネホコリ（新称）（Fig. 1）
Fructification sporocarpous, rarely shortly plasmodiocarpous. Sporocarps sessile, gregarious, depressed-globose to subglobose, ca. 0.6 mm in diam., orange gray to brownish-gray, mottled with many brownish spots. Hypothallus membranous, nearly transparent or obscure. Peridium of two layers, closely appressed and so appearing one layer. Outer layer calcareous, crustose. Inner layer membranous, bluish to whitish, transparent by transmitted light. Dehisence irregular from above. Columella calcareous, hemispheric to subglobose, orange gray to nearly white. Capillitium of slender pale threads, abundant, pale brown by transmitted light, pale at the tip, sometimes with dark swellings and
expansions at the angles. Spores dark brown in mass, grayish-brown by transmitted light, verruculose, with a few clusters of darker, larger wartlets, globose, 9.6-11.5\(\mu\)m (mean = 10.3, sd = 0.54, n = 20) in diam. or ovoid to ellipsoid, ca. 9.5 \(\times\) 11\(\mu\)m.

Martin & Alexopoulos (1969) writes as "peridium single, and remote from the spore mass". This is not the case in our specimen. Judging from their illustration and description, their specimen seems somewhat immature.

Specimen examined: Y.Y.-14652 (Okayama Pref. Okayama-shi, Misauyama, on fallen leaves, 27 VI 1987, coll. K. Takahashi)
Distr.: Japan, Nepal, India.

Fig. 1. Diderma darjeelingense (Y.Y.-14652). A: Two sporocarps. B: Capillitium thread and two spores. C: Part of capillitium thread further enlarged and two spores. D: Part of peridium viewed from inside.
double, outer layer calcareous, white or darkbrown, inner layer membranous, reddishbrown to dark brown in reflected light. Dehiscence by a petaloid fashion. Columella large, clavate, calcareous, reddish-brown to dark brown, up to two-thirds the capitulum. Capillitium of flexuose threads, branched dichotomously, sometimes fused, often with dark swellings, brownish, paler and attenuated toward the tip. Spores dark brown in mass, light brown by transmitted light, paler on one side, verruculose, 10.7–12.3 μm (mean = 11.5, sd = 0.49, n = 20) in diam.

This species is very like D. floriforme and therefore, Japanese specimens referred to as this may be confused with D. subfloriforme. Reexamination is needed. We think this species differs only in its spore character from D. floriforme, and so it may be given a varietal position of D. floriforme.

Specimens examined: Y.Y.-14658 (Okayama Pref. Okayama-shi, Misahiyama, on deadwood. 2 II 1989. coll. K. Takahashi)

Distr.: Japan, Europe.

本種の外見はハナホネホコリ (D. floriforme)よく似ている。しかし、ハナホネホコリの胞子は非常に散在するいわは型であるのに対し、本種の胞子はより密なは型である。両種の違いはわずかなので、本種をハナホネホコリの変種とするのが適当かもしれない。日本産のハナホネホコリとされている標本は、再検討する必要があると思う。


Syn.: T. contorta (Ditmar) Rost. var. en-

Fig. 2. Diderma subfloriforme (Y.Y.-14658). A: Three sporocarps. B: Capillitium threads and a spore. C: Part of peridium, a spore and part of capillitium thread.

Fructification sporocarpous. Sporocarps crowded, sessile, globose to subglobose, up to 1.2 mm in diam. Hypothallus dark brown, continuous. Peridium of one layer, membranous, dull ochraceous to dull yellow, with dark patches. Dehiscence irregular from above. Capillitium of free threads (elaters), yellow, profuse, with long and tapering tips, ornamented by 4-5 spirals, ca. 4 µm in diam. Spores globose to elliptical, yellow in mass, pale yellow by transmitted light, densely verruculose, 13.8-15.6 µm (mean = 14.4, sd = 0.43, n = 20) in diam. when globose, ca. 13.8 x 15.9 µm when elliptical.

Specimen examined: Y.Y.-14221 (Toyama Pref., Tateyama-cho, Tsurugisawa, on stem of an unidentified species of Gramineae near melting snow. 5 VIII 1994. coll. K. Takahashi)

Distr.: Japan, Europe, North America.

本種は子囊壁に黒い帯があり、弾糸の先端がやや長く伸びるので、ケホコリの柄のない型に似る。しかし子囊の色がより明るく、鈍い黄色からおうど色で、胞子はケホコリ (9-11 µm) より大きい。生態的にも異なっていて、好雪性である。

引用した標本は、残雪線より 50 cm くらい離れた場所の、イネ科植物の茎に付着していた。亜高山性高寒帯原の生育種の一つと言えるかもしれない。

同種に似て、細毛体が長くて分岐し、ヌカホコリ型になる型も報告されていて、var. sordidoides Illana & Moreno と呼ばれる。この型は日本では未だ見いだされていない。

Fig. 3. Trichia sordida (Y.Y.-14221). A: Four sporocarps. B: Part of capillitium thread and two spores.

The specimens have very shattered aethal-ia, therefore, cannot be described fully. However, and the spores are characteristic. Aethalium white, up to 5 cm. Spores nearly black in mass, dark brown by transmitted light, globose, roughly tuberculate, tubercles arranged in a subreticulate pattern, 18.7-22. 2μm (mean=19.9, sd=0.81, n=20) in diam. including ornamentation.

Specimens examined: Y.Y. 14300, 14301, (Gifu Pref., Takane-mura, Mt. Ontake, on dead wood. 9 X 1994. coll. Y. Yamamoto)

Distr.: Japan, West Pakistan, Congo, North America, Middle America, Europe.

本種の標本は採集した時に既に壊れていて、古いものなので、充分な記載はできない。しかし胞子は非常に大きく、胞養があり、胞養は変態目状に配列するので、*Fuligo megaspora*と考えて間違いない。本種は砂漠の落葉や、高山の腐木上で散発的に採集されていて、生態的にどう考えたらよいのか不明である。日本では、普通種のシロスホコリ（*F. candida*）と外見がよく似ているので、見誤られている可能性もある。


Fructification sporocarpous. Sporocarps stipitate, gregarious, up to 1.5mm tall, erect or

![Fig. 4. Fuligo megaspora (Y.Y.-14300). A: An aethalium. B: A spore and part of cortex.](image-url)
slightly inclined. Capitulum subglobose, ochraceous-brown, up to 0.7mm in diam.
Hypothallus discoid, membranous, reddish-brown. Stalk longitudinally furrowed, dark
brown to black, slightly tapering upwards, up to twice the diameter of capitulum. Peridium
persistent as calyculus at the lower part of the capitulum and as a net at the rest.
Calyculus ca. 1/3 of the capitulum, with radial plicae and concentric fine wrinkles, with dark
dictyidine granules measuring ca. 1μm in diam. Peridial net arising from a rather
regular margin of the calyculus, the nodes thickened, small, rounded to elongated, with
a few free ends of connecting threads. Spores globose, ochraceous-brown in mass, nearly
colorless by transmitted light, verruculose, sometimes with larger warts, 5.6-6.5μm
(mean=6.1, sd=0.26, n=20) in diam., irregular in shape when dry (in Eukitt solution).
Specimens examined: Y.Y.-14085, 14086, 14087 (Gifu Pref. Osaka-cho, Nigorigo-onsen,
ca. 1850 m alt., on dead wood. 9 VII 1994, coll. K. Takahashi)
Distr.: Japan, Europe
The specimens have somewhat smaller spores than European ones (with spores
measuring 6.5-7.5μm in diam.) and with a few free-ending connecting threads in the
peridial net.

Fig. 5. Cribra called pergionii (Y.Y.-14087). A: A sporocarp, B: Part of peridial net with nodes.
C: Margin of calyculus, D: Part of calyculus, E: A node and a spore.
6. *Cribraria mirabilis* (Rost.) Massee, Mon. 60. 1892; Nann.-Brem., Guide Temp. Myxom. 74. 1991; Neubert et al., Myxom. Deutschl. 1: 92. 1993. アミクモノスホコリ (Fig. 6)


Fructification sporocarpous. Sporocarps stipitate, gregarious, erect or inclined, up to 2 mm tall. *Capitulum globose* to prolate, reddish-brown, up to 1 mm long. Hypothallus discoid, membranous, reddish-brown. Stalk long itudinally furrowed, reddish-brown or nearly black, slightly attenuated to the apex. Peridium persistent as 20-30 strong ribs. Ribs connected are nearly parallel, thin and pale threads, forming an irregular net at the upper part of the capitulum, with dictyidine granules measuring ca. 1 μm in diam. Spores reddish-brown in mass, pale brown by transmitted light, globose, sometimes somewhat angular, verruculose, usually with some dictyidine granules on the wall, 6.5-7.5 μm (mean=7.0, sd=0.25, n=20) in diam.

Specimen examined: Y.Y.-13526 (Gifu Pref., Osaka-cho, Mt. Ontake, Nigorigo-onsen, on

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Fig. 6. *Cribraria mirabilis* (Y.Y.-13526). A: A sporocarp. B: Part of peridial net. C: Part of peridial net further enlarged and a spore with two dictyidine granules.
dead wood, ca. 1850 m alt. 10 X 1993, coll. K. Takahashi)

Other specimens: Y.Y.-14285 (Ibidem, 8 X 1994, coll. K. Takahashi); Y.Y.-14295 (Gifu Pref., Takane-mura, Mt. Ontake, on dead wood. 9 X 1994, coll. Y. Yamamoto); Y.Y.-14357 (Fukushima Pref., Fukushima-shi, Takayama, on dead wood, 1800 m alt. 15 X 1994, coll. M. Hario).

Distr.: Japan, China, Europe, North America.

This species may have been formerly reported in Japan as Dictydium cancellatum var. alpinum, but this name is now considered as nomen confusum, and so the records known up to this time are doubtful. An illustration of Japanese species is given below for the first time.

本種は子囊の上部に網目をつくるクモノスホコリ（Cribaria cancellata）の形やミデクモノスホコリ（C. cancellata form. anomala）に似ているが、肋の数が少なく、胞子にはふつう壁小粒（ジクチシン粒）が付着することに特徴がある。本種のアミクモノスホコリは、ミデクモノスホコリと混同されてきたので、日本での産地は上記の他にははっきりしない。本種は高山や寒い地方に多く、温帯種の一つと言える。

要約

1. 日本新添は5種で、そのうち2種は岡山市操山で採集されている。
2. 岡山県産は、シホネホコリ（Diderma darjeelingense Thind & Sehgal）とニセハナホネホコリ（Diderma subflorforme Conoussas & Nann.-Brem.）である。
3. 他の日本新添は、マダラケホコリ（Trichia sordida Johannesen）、オオミスホコリ（Fuligo megaspora Sturgis）、ニセダイダイアミホコリ（Cribaria turneri Nann.-Brem.）である。
4. 他の1種はアミクモノスホコリ（Cribaria mirabilis (Rost.) Massee）で、日本産の記録はあったが、図説されたこともなく、はっきりしなかった種類である。

参考文献