

原 著

日本新・希産の変形菌 6 種

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SIX MYXOMYCETES NEW OR RARE TO JAPAN

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ABSTRACT

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

キーワード：日本新産，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，日本新産種と，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，貴重なアミクモスホコリの標本を送って下さった福島県の張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。これらにはニセグイダミアミホコリ，シミホネホコリ（岡山県産），ニセハナホネホコリ（岡山県産），オオミススホコリ，マグラケホコリの和名を与え，記載文と図をつけた。他の1種はアミクモスホコリで，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。

1. *Diderma darjeelingense* Thind & 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. Dehiscence irregular from above. Columella calcareous, hemispheroid 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 μ m (mean=10.3, sd=0.54, n=20) in diam. or ovoid to ellipsoid, ca. 9.5 \times 11 μ 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, Misaoyama, on fallen leaves, 27 VI 1987. coll. K. Takahashi)

Distr.: Japan, Nepal, India.

本種は以前、タカハシキララホコリ (*Lepidoderma takahashii*) の未熟な型と思われた。しかし胞

子を調べても完全に成熟しているので再検討の結果、日本新産の種であることが判った。本種は子嚢壁にしみやそばかす状の点紋があり、胞子の大きさがタカハシキララホコリ (7.9-9.6 μ m) より大きい。マーチン・アレクソポウロス (1969) の記載や図は、胞子が異常なことなどから、やや未熟な標本を見ているものと思われる。

2. *Diderma subfloriforme* Condoussau & Nann.-Brem., in Crypt. Mycol. 1:201, 1980. (ut subfloriformis). ニセハナホネホコリ (新称) (Fig. 2)

Fructification sporocarpous, up to 2 mm tall. Sporocarps gregarious, stipitate. Capitulum subglobose, white or dark brown, up to 1 mm in diam. Stalk longitudinally striate, reddish-brown to dark brown, translucent by transmitted light, including dirt particles, up to two-thirds the height of sporocarp. Peridium

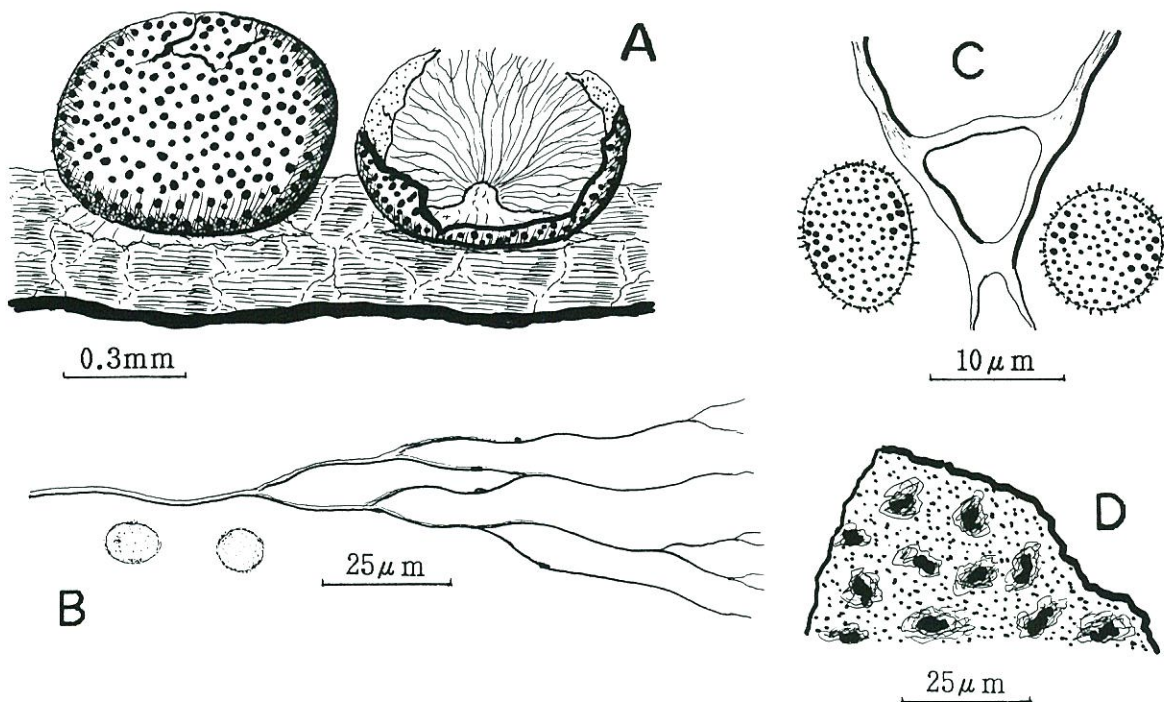


Fig. 1. *Diderma darjeelingense* (Y.Y.-14652). A: Two sporocarps. B: Capillitium thread and two spores. C: Part of capillitium thread further enlarged and two spores. D: Part of peridium viewed from inside.

double, outer layer calcareous, white or dark brown, inner layer membranous, reddish-brown 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, $10.7\text{--}12.3\mu\text{m}$ (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, Misaoyama, on dead wood. 2 II 1989. coll. K. Takahashi)

Distr. : Japan, Europe.

本種の外見はハナホネホコリ (*D. floriforme*) によく似ている。しかし、ハナホネホコリの胞子は非常に散在するいぼ型であるのに対し、本種の胞子はより密ないぼ型である。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きた標本は、再検討する必要があると思う。

3. *Trichia sordida* Johannesen, in Mycotaxon 20: 81. 1984; Illana, Moreno & Castillo, in Crypt. Mycol. 14: 246. 1993. マダラケホコリ (新称) (Figs. 3, 8)

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

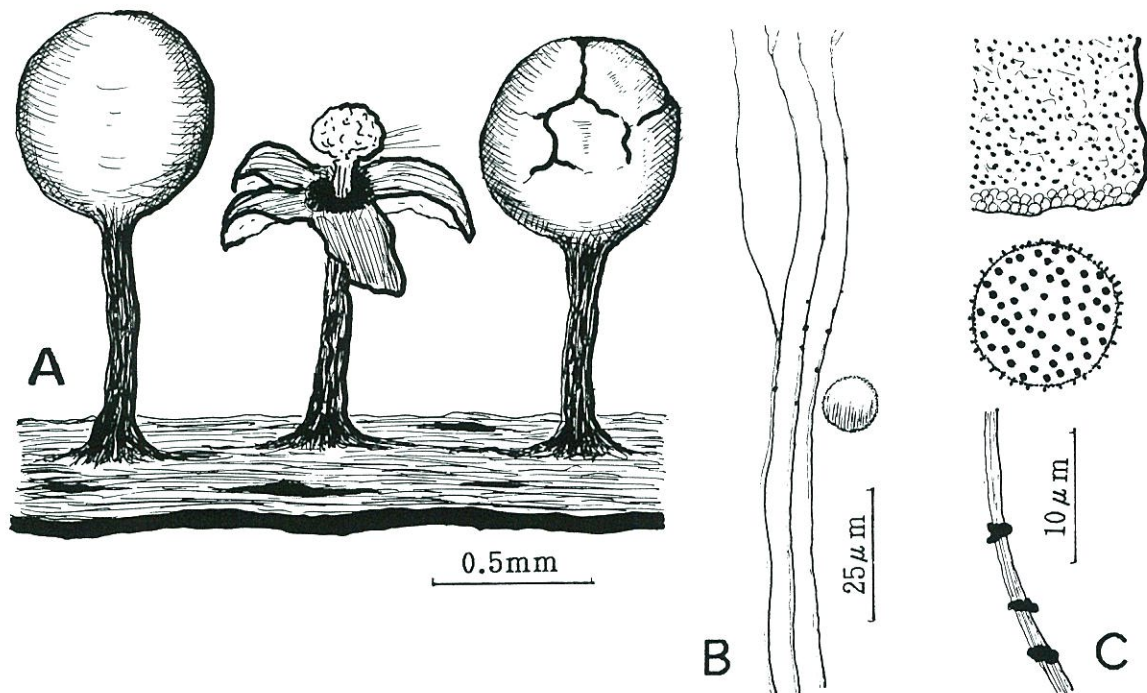


Fig. 2. *Diderma subfloriforme* (Y.Y.-14658). A : Three sporocarps. B : Capillitium threads and a spore. C : Part of peridium, a spore and part of capillitium thread.

gadinensis Meylan, in Bull. Soc. Vaud. Sci. Nat. **53** : 460. 1921; Neubert et al., Myxom. Deutschl. **1** : 95. 1993; *T. bicolor* Stephenson & Farr, in Mycologia **82** : 513. 1990.

Fructification sporocarpous. Sporocarps crowded, sessile, globose to subglobose, up to 1.2mm 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 μ m in diam. Spores globose to elliptical, yellow in mass, pale yellow by transmitted light, densely verruculose, 13.8-15.6 μ m (mean=14.4, sd=0.43, n=20) in diam. when globose, ca. 13.8 \times 15.9 μ m 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.

本種は子嚢壁に黒っぽい紋があり、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。しかし子嚢の色がより明るく、鈍い黄色からおうど色で、胞子はケホコリ (9-11 μ m) 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50cmくらい離れた場所の、イネ科植物の茎に付着していた。亜高山性高茎草原の生育種の一つと言えるかもしれない。本種に似て、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。

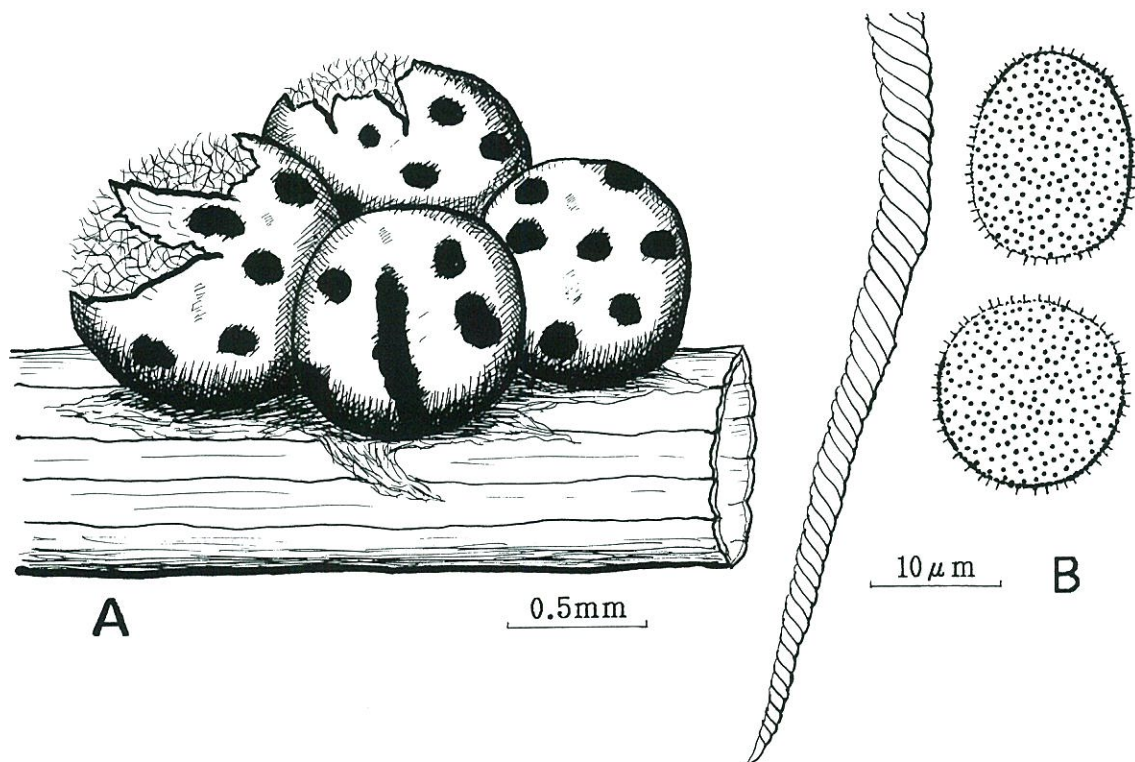


Fig. 3. *Trichia sordida* (Y.Y.-14221). A : Four sporocarps. B : Part of capillitium thread and two spores.

4. *Fuligo megaspora* Sturgis, in Colo. Coll. Publ. Sci. 12 : 443. 1913 ; Lister, A. & G., Mon. Mycet. ed. 3. 70. 1925 ; Martin & Alexop., Myxom. 265, 1969 ; Keller & Schoknecht, in Mycologia 81 ; 454. 1989. オオミススホコリ (新称) (Fig. 4)

The specimens have very shattered aethalia, 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, 18.7-22.2 μm (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、十分な記載はできない。しかし胞子は非常に大きく、胞囊があり、胞囊は亜網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。

5. *Cribraria personii* Nann.-Brem., in Proc. Kon. Ned. Akad. Wet. C. 74 : 353. 1971 ; Guide Temp. Myxom. 81. 1991; Neubert et al., Myxom. Deutschl. 1 : 95, 1993. ニセダイダイアミホコリ (新称) (Fig. 5)

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

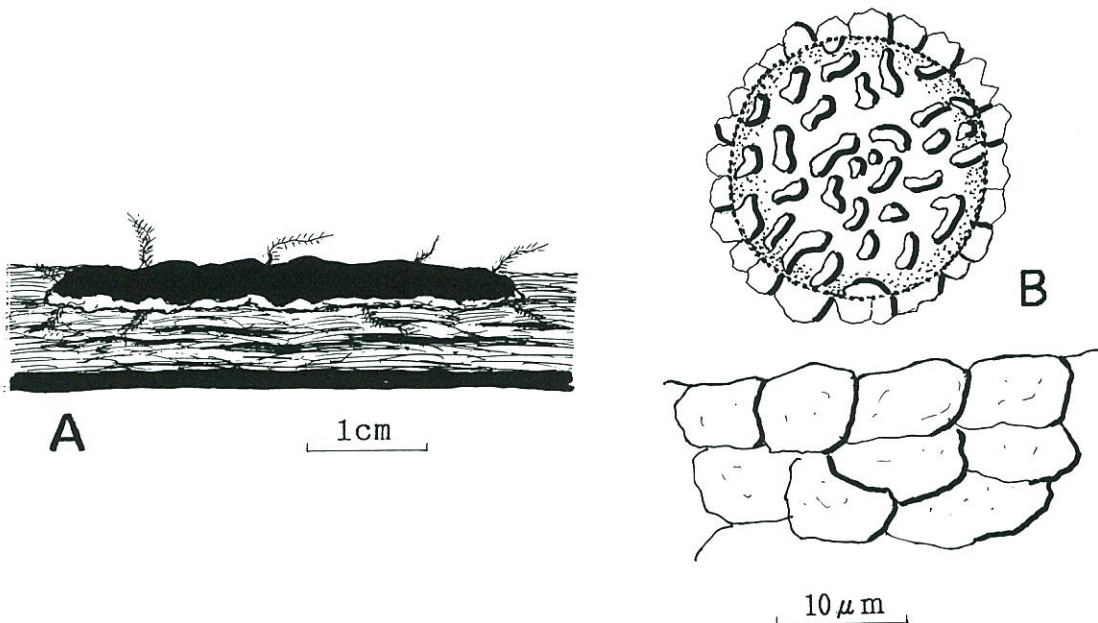


Fig. 4. *Fuligo megaspora* (Y.Y.-14300). A : An aethalium. B : A spore and part of cortex.

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 dictydine granules measuring ca. $1\mu\text{m}$ 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, $5.6\text{--}6.5\mu\text{m}$ (mean = 6.1, sd = 0.26, n = 20) in diam., irregu-

lar 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 $6.5\text{--}7.5\mu\text{m}$ in diam.) and with a few free-ending connecting threads in the peridial net.

本種はダイダイアミホコリ (*C. aurantiaca*) によく似ているが、胞子は平滑ではなく、乾燥状態ではじん臓型ではない。また杯状体に強い肋状の線と同心円状の横のしわがある。ワラベアミホコリ (*C. vulgaris*) とは、壁網の節が広がらず、胞子が多角形ではないことなどで区別できる。くわしく調べれば日本での分布はもっと広がるであらう

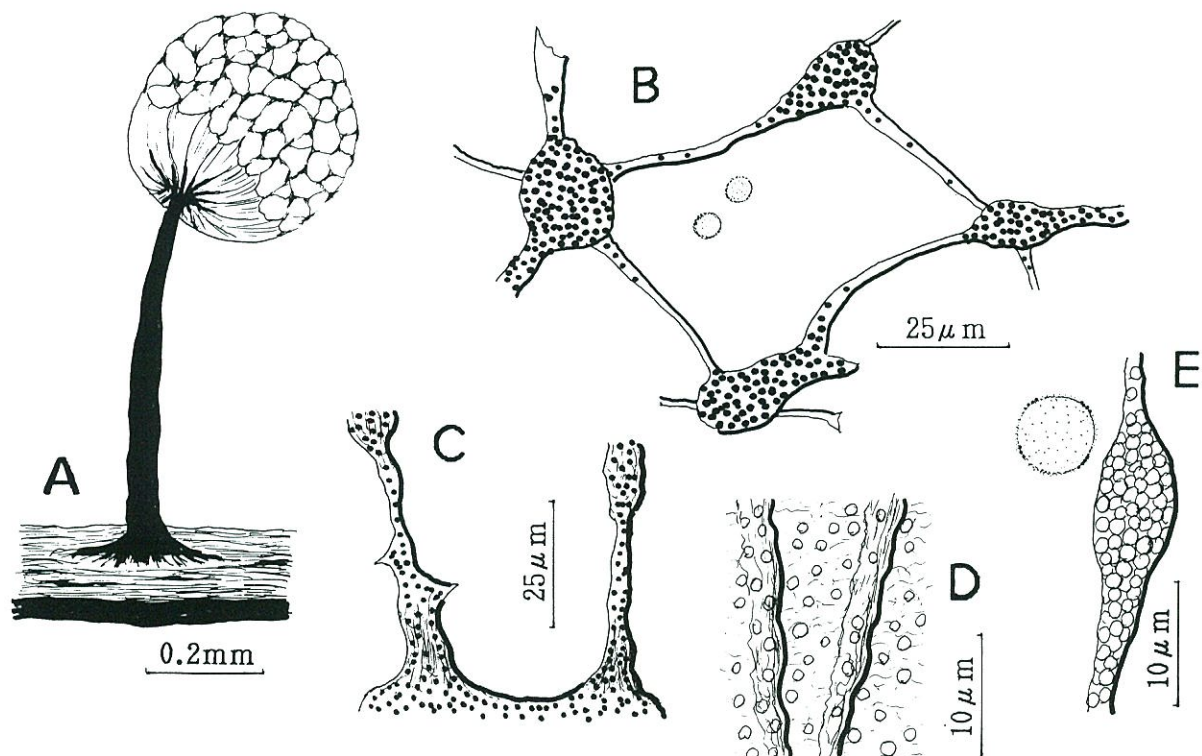


Fig. 5. *Cribraria personii* (Y.Y.-14087). A: A sporocarp, B: Part of peridial net with nodes, C: Margin of calyculus, D: Part of calyculus, E: A node and a spore.

う。採集地や記載などから判断すると、本種は温帯種の一つと思われる。

6. *Cribraria mirabilis* (Rost.) Masee, 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)

Syn.: *Heterodictyon mirabile* Rost., Mon., 231. 1875; *Dictydium umbilicatum* subsp. *anomalum* var. *cribrarioides* Meylan, in Bull. Soc. Bot. Geneve 2: 265. 1910; *Dictydium umbilicatum* subsp. *anomalum* var. *heterodictyon* (Rost.) Meylan, in Bull. Soc. Bot. Geneve 2: 265. 1910; *Dictydium cancellatum* var. *alpinum* G. Lister, Mycet. ed. 2. 185. 1911. p.p.: *Dictydium mirabile* (Rost.) Meylan, in Bull. Soc. Vaud. Sci. Nat. 57: 305. 1931; Martin & Alexop., Myxom. 95. 1969; *Cribraria enodis* Zhou & Li, in Acta Myc. Sin. 2: 38. 1983.

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 longitudinally 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 dictydine granules measuring ca. $1\mu\text{m}$ in diam. Spores reddish-brown in mass, pale brown by transmitted light, globose, sometimes somewhat angular, verruculose, usually with some dictydine granules on the wall, $6.5\text{-}7.5\mu\text{m}$ (mean = 7.0, $\text{sd} = 0.25$, $n = 20$) in diam.

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

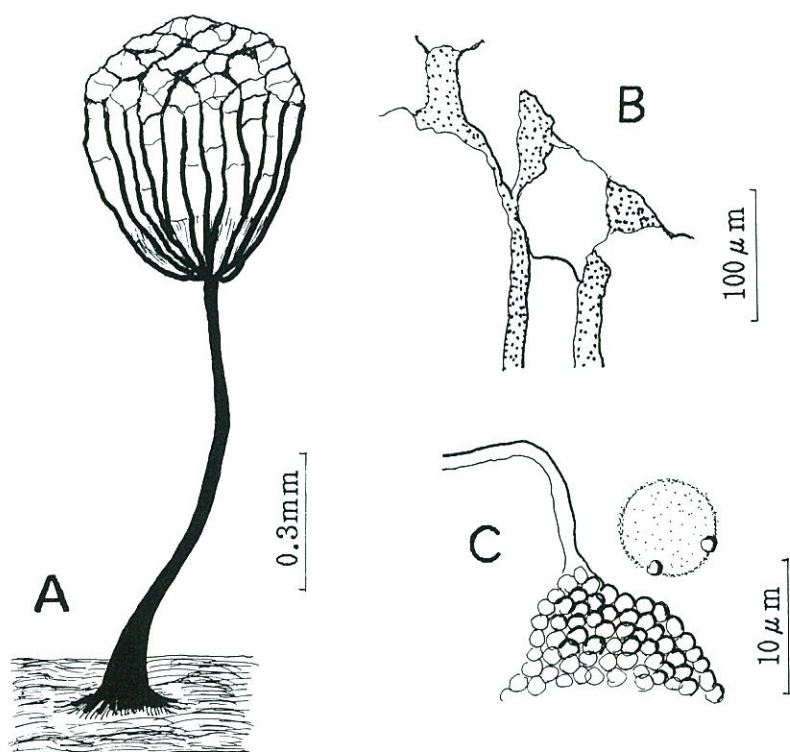


Fig. 6. *Cribraria mirabilis* (Y.Y.-13526). A: A sporocarp. B: Part of peridial net. C: Part of peridial net further enlarged and a spore with two dictydine granules.

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 (*Cribraria cancellata*) の奇形やミダレクモノスホコリ (*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 (ジクチジン粒) 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、ミダレ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。

摘要

1. 日本新産は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、シミホネホコリ (*Diderma darjeelingense* Thind & Sehgal) とニセハナホネホコリ (*Diderma subfloriforme* Condoussau & Nann.-Brem) である。
3. 他の日本新産は、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 (*Cribraria persoonii* Nann.-Brem.) である。
4. 他の1種はアミクモノスホコリ (*Cribraria*

mirabilis (Rost.) Masee) 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。

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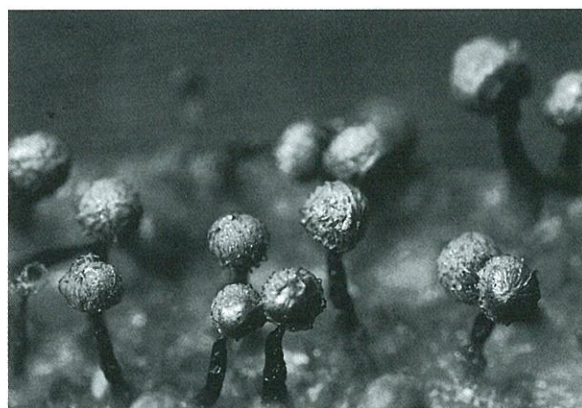


Fig. 7. *Cribraria mirabilis* (Rost.) Masee.

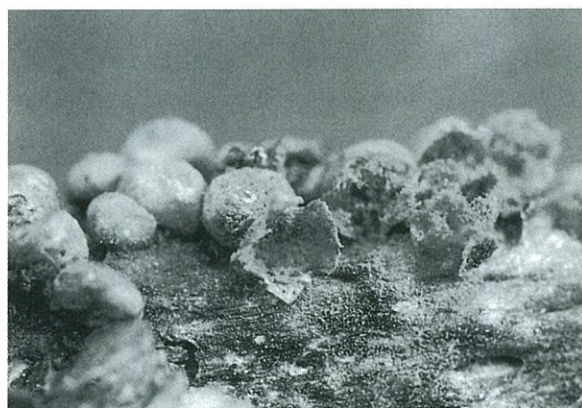


Fig. 8. *Trichia sordida* Johannesen.