

Type Collection of Myxomycetes in the National Science Museum, Tokyo (TNS)

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Abstract There are 272 type specimens of Myxomycetes in the herbarium of the National Science Museum, Tokyo (TNS). Among them, 71 type specimens, including 49 holotypes, 1 lectotype and 21 isotypes, were enumerated.

Keywords: Myxomycetes, TNS, type specimens

The collection of Myxomycetes kept in the herbarium of the National Science Museum, Tokyo (TNS), consists of about 45,000 specimens. Most of these specimens have been preserved in private herbaria of Japanese mycologists, Kumagusu Minakata (1867–1941), Shunsuke Kusano (1874–1962), Shiro Koaze (1875–1951), Yoshikadzu Emoto (1892–1979), the Emperor Showa (1901–1989) and Yukinori Yamamoto (1947–).

In the collection of Myxomycetes, there are 272 type specimens. Among them, 129 specimens have been designated as holotype, isotype and lectotype, and the other 143 specimens are proved to be type (holotype, isotype, syntype, and paratype) according to the literature. However, it is not known if they are preserved in TNS, except for 57 specimens designated as type in Keller *et al.* (1986), Matsumoto & Deguchi (1999), Nannenga-Bremekamp & Yamamoto (1988a, 1988b, 1990a, 1990b), Yamamoto (1987, 1990, 1991, 1992, 1994, 1998, 2000a, 2000b, 2000c, 2000d), and Yamamoto *et al.* (1995). Therefore, the type collection of Myxomycetes in TNS, including typification, will be published in a series of two or three papers.

In the present paper, 71 type specimens, including 49 holotypes, 1 lectotype and 21 isotypes, are enumerated in alphabetical order.

Abbreviations:

“CHSC” is a herbarium index, indicating the herbarium of California State University, Chico, USA.

“cult.” indicates that the specimen was obtained from a moist chamber; followed by the term of cultivation or date of isolation.

“YY” stands for Yukinori Yamamoto; followed by his collection number.

Arcyria brunnea Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 89: 219, 1986.

Japan, Kochi Pref., Aki-shi, Ioki, 15 June 1982, leg. Y. Yamamoto (YY-1472=holotype).

Note. Yamamoto (1998, 1999) treated this taxon as a forma of *Arcyria incarnata* (Pers.) Pers.

Calonema luteolum Kowalski

Madrono, 20: 229, 1969.

USA, California, Butte Co., 22 April 1967, leg. D. T. Kowalski (CHSC #49598) (YY-9184= isotype).

Craterium aureonucleatum Nann.-Bremek.

Acta Bot. Neerl., 10: 62, 1961.

Netherlands, Wolfheze, 8 Sept. 1960, leg. N. E. Nannenga-Bremekamp (YY-1345= isotype).

Craterium reticulatum Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 90: 314, 1987.

Japan, Kochi Pref., Monobe-mura, Kuwanokawa, 27 July 1986, leg. Y. Yamamoto (YY-4389=holotype).

Cribraria confusa Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 86: 212, 1983.

Japan, Kochi Pref., Kochi-shi, Sanbashi-2-chome, cult. 8–30 June 1981, leg. Y. Yamamoto (YY-1010=holotype).

Cribraria montana Nann.-Bremek.

Proc. K. Ned. Akad. Wet. C, 76: 476, 1973.

France, Jura, Col de Cuville, cult. 28 Nov. 1972, leg. N. E. Nannenga-Bremekamp (#8316) (YY-1461=isotype).

Diachea aurantipes Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 86: 220, 1983.

Japan, Kochi Pref., Otoyo-cho, Mt. Kajigamori, cult. 3 July–3 Sept. 1981, leg. Y. Yamamoto (YY-1332=isotype).

Note. Yamamoto (1998) arranged this species name in a synonymy of *Diachea leucopodia* (Bull.) Rostaf.

Diachea deviata Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 89: 221, 1986.

Japan, Kochi Pref., Ikegawa-cho, Mt. Tsutsujo, 29 July 1979, leg. Y. Yamamoto (YY-353=holotype).

Note. Yamamoto (1998) arranged this species name in a synonymy of *Diachea subsessilis* Peck.

Diachea verrucospora Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 90: 316, 1987.

Japan, Kochi Pref., Kochi-shi, Ohtsu, 30 June 1985, leg. Y. Yamamoto (YY-2905=holotype).

Diacheopsis mitchellii Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 86: 224, 1983.

Japan, Kochi Pref., Otoyo-cho, Mt. Kajigamori, 17 Sept. 1980, leg. Y. Yamamoto (YY-857=holotype).

Diacheopsis pauxilla Mar. Mey. & Poulain

Bull. Fed. Myc. Dauphine Savoie, 150: 30, 1998.

France, Savoie, Bathie, 26 May 1997, leg. M. Meyer (#17460) (YY-17859=isotype).

Diacheopsis serpula Kowalski

Mycologia, 67: 619, 1975.

USA, Washington, Olympic National Park, 25 June 1972, leg. D. T. Kowalski (#12612) (YY-9595=isotype).

Diacheopsis spinosifila Farr & Critchfield

in Farr, Intern. J. Myc. Lichen., 3: 206, 1988.

USA, California, Tehama Co., 28 May 1984, leg. R. L. Critchfield (CA5-113) (YY-4891=isotype).

Diacheopsis synspora Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 89: 223, 1986.

Japan, Kochi Pref., Aki-shi, premises of Aki High School, 22 July 1982, leg. Y. Yamamoto (YY-1546=holotype).

Diacheopsis vermicularis Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 90: 318, 1987.

Japan, Kochi Pref., Kochi-shi, Ohtsu, 17 July 1986, leg. Y. Yamamoto (YY-4220=holotype).

Dianema subretisporum Kowalski

Mycologia, 59: 1080, 1967.

USA, California, Tehama Co., 18 June 1966, leg. D. T. Kowalski (#3607) (YY-9593=isotype).

Diderma badhamiopsis Y. Yamam. & Nann.-Bremek.

Proc. K. Ned. Akad. Wet., 98: 320, 1995.

Japan, Kochi Pref., Monobe-mura, Mt. Miune, 12 Nov. 1990, leg. Y. & Y. Yamamoto (YY-13879=holotype).

Diderma botryosum Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 89: 225, 1986.

Japan, Kochi Pref., Motoyama-cho, Mt. Shiraga, 17 Dec. 1979, leg. Y. Yamamoto (YY-524=holotype).

Diderma cingulatum Nann.-Bremek. var. **rimosum** (Eliasson & Nann.-Bremek.) Nann.-Bremek. f. **pallidosporum** Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet., 98: 321, 1995.

Japan, Tochigi Pref., Okunikko, 11 Sept. 1993, leg. M. Izawa (YY-13902=holotype).

Diderma cribrosum Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 89: 226, 1986.

Japan, Kochi Pref., Ochi-cho, Mt. Yokogura, 15 Aug. 1968, leg. Y. Yamamoto (YY-443=holotype).

Note. Yamamoto (1998) arranged this species name in a synonymy of *Diderma testaceum* (Schrud.) Pers.

Diderma effusum (Schwein.) Morgan var. **microsporum** Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 90: 321, 1987.

Japan, Kochi Pref., Gohoku-mura, Kamiyawa, 3 Aug. 1986, leg. Y. Yamamoto (YY-4505=holotype).

Note. Yamamoto (1998, 1999) raised this taxon to the rank of species, which becoming *Diderma microsporum*.

Diderma globosum Pers. var. **roseum** Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 90: 321, 1987.

Japan, Kochi Pref., Aki-shi, Becchaku, 5 Oct. 1984, leg. Y. Yamamoto (YY-2698=holotype).

Note. Yamamoto (1998, 1999) arranged this species name in a synonymy of *Diderma botryosum* Nann.-Bremek. & Y. Yamam.

Diderma nigrum Kowalski

Mycologia, 60: 601, 1968.

USA, California, Tehama Co., 24 June 1967, leg. D. T. Kowalski (#6389) (YY-9594=isotype).

Diderma ochraceum Hoffm. var. **izawae** Y. Yamam. & Nann.-Bremek.

Proc. K. Ned. Akad. Wet., 98: 327, 1995.

New Zealand, North Island, Waikaremoana, 16 May 1993, leg. M. Izawa (YY-13886=holotype).

Didymium dictyopodium Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 89: 230, 1986.

Japan, Kochi Pref., Gohoku-mura, Kamiyawa, 1 Aug. 1982, leg. Y. Yamamoto (YY-1617=holotype).

Didymium floccoides Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 90: 323, 1987.

Japan, Kochi Pref., Gohoku-mura, Kamiyawa, 20 Aug. 1985, leg. Y. Yamamoto (YY-3422=holotype).

Didymium tubi-crystallinum Nann.-Bremek. & Critchfield

Proc. K. Ned. Akad. Wet. C, 91: 416, 1988.

USA, California, Tehama Co., 4 Jan. 1988, leg. R. L. Critchfield (CA29-1044) (YY-6323=isotype).

Enteridium japonicum Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet., 98: 321, 1995.

Japan, Tokyo Pref., Hachijo Isl., 7 July 1993, leg. M. Izawa (YY-13923=holotype).

Note. Yamamoto (1998, 1999) treated this taxon as a variety of *Dictydiaethalium plumbeum* (Schum.) Rostaf.

Hemitrichia velutina Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 89: 233, 1986.

Japan, Kochi Pref., Tosa-cho, Higashi-ishihara, cult. 22 April–30 May 1982, leg. Y. Yamamoto (YY-1465=holotype).

Lamproderma granulosum Neubert, Nowotny & Schnittler

Beitr. Kenntn. Pilze Mitteleuropas, 6: 49, 1990.

Germany, Sachsen, Elbsandsteingebirge, 18 Sept. 1988, leg. M. Schnittler (Nowotny #2567) (YY-10908=isotype).

Lamproderma latifilum Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 86: 227, 1983.

Japan, Kochi Pref., Otoyo-cho, Mt. Kajigamori, 17 Sept. 1980, leg. Y. Yamamoto (YY-797=holotype).

Lamproderma latifilum Nann.-Bremek. & Y. Yamam. var. **pallidofilum** Y. Yamam. & Nann.-Bremek.

Proc. K. Ned. Akad. Wet., 98: 322, 1995.

Japan, Gifu Pref., Kosaka-machi, Nigorigonosen, 10 Oct. 1993, leg. K. Takahashi (#3197) (YY-13531=holotype).

Note. Yamamoto (1998, 1999) treated this taxon as a forma of the present species.

Lepidoderma crustaceum Kowalski

Mycologia, 59: 167, 1967.

USA, Washington, Butte Co., 6 April 1966, leg. D. T. Kowalski (CHSC #49596) (YY-9182=isotype).

Lepidoderma didermoides Kowalski

Mycologia, 63: 503, 1971.

USA, California, Whatcom Co., 22 June 1970, leg. D. T. Kowalski (#10580) (YY-9591=isotype).

Licea applanata Kowalski

Mycologia, 62: 1058, 1970.

USA, California, Butte Co., 16 April 1969, leg. D. T. Kowalski (CHSC #49597) (YY-9183=isotype).

Licea atricapilla Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 86: 208, 1983.

Japan, Kochi Pref., Susaki-shi, Hachimangu,

cult. 7–31 Oct. 1981, leg. Y. Yamamoto (YY-1277=holotype).

Licea bulbosa Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 90: 324, 1987.

Japan, Kochi Pref., Aki-shi, Nabika, cult. 28 April–16 May 1986, leg. Y. Yamamoto (YY-3919=holotype).

Licea erectoides Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 86: 209, 1983.

Japan, Kochi Pref., Motoyama-cho, Motoyama, cult. 1–19 July 1980, leg. Y. Yamamoto (YY-640=isotype).

Note. Yamamoto (1998, 1999) treated this taxon as a variety of *Licea erecta* Thind & Dhillon.

Licea kellerii Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 86: 211, 1983.

Japan, Kochi Pref., Kochi-shi, Sanbashi-2-chome, cult. 22 June–10 July 1981, leg. Y. Yamamoto (YY-1056=holotype).

Licea lucens Nann.-Bremek.

Proc. K. Ned. Akad. Wet. C, 84: 285, 1981.

France, Jura, cult. 15 March–30 April 1979, N. E. Nannenga-Bremekamp (#11194) (YY-1464=isotype).

Licea rufocuprea Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 90: 325, 1987.

Japan, Kochi Pref., Kitagawa-mura, Notomo, cult. 22 Nov.–22 Dec. 1984, leg. Y. Yamamoto (YY-2726=holotype).

Licea rugosa Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 90: 326, 1987.

Japan, Kochi Pref., Agawa-mura, Mt. Nakatsu, cult. July 1984, leg. Y. Yamamoto (YY-2300=holotype).

Macbrideola argentea Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 86: 228, 1983.

Japan, Kochi Pref., Otoyo-cho, Mt. Kajiga-

mori, cult. 3–25 Oct. 1980, leg. Y. Yamamoto (YY-900=holotype).

Macbrideola ovoidea Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 86: 231, 1983.

Japan, Kochi Pref., Otoyo-cho, Mt. Kajigamori, cult. 7 Aug.–3 Sept. 1981, leg. Y. Yamamoto (YY-1187=holotype).

Macbrideola reticulospora Hooff & Nann.-Bremek.

Proc. K. Ned. Akad. Wet., 99: 49, 1996.

Netherlands, Helmond, 1 March 1995, leg. J. P. M. van Hooff (#2049) (YY-16744=isotype).

Macbrideola verrucosa Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 86: 233, 1983.

Japan, Kochi Pref., Susaki-shi, Hachimangu, cult. 7–30 Oct. 1981, leg. Y. Yamamoto (YY-1286=holotype).

Note. Yamamoto (1998, 1999) treated this taxon as a variety of *Macbrideola scintillans* H. C. Gilbert.

Perichaena vermicularis (Schw.) Rostaf. var. **microserma** Y. Yamam. & Nann.-Bremek.

Proc. K. Ned. Akad. Wet., 98: 323, 1995.

Japan, Kochi Pref., Kochi-shi, Ohtsu, 30 June 1984, leg. Y. Yamamoto (YY-2186=holotype).

Physarina alboscabra Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 89: 237, 1986.

Japan, Kochi Pref., Gohoku-mura, Kamiyawa, 1 Aug. 1982, leg. Y. Yamamoto (YY-1578=holotype).

Physarum columellatum Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 90: 327, 1987.

Japan, Kochi Pref., Gohoku-mura, Kamiyawa, 1 Aug. 1983, leg. Y. Yamamoto (YY-2029=holotype).

Physarum dubium Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 90: 330, 1987.

Japan, Kochi Pref., Monobe-mura, Mt. Sanrei, 1 Aug. 1984, leg. Y. Yamamoto (YY-2381=holotype).

Physarum hagiwarae Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 90: 331, 1987.

Japan, Kochi Pref., Aki-shi, Nishi-hachimangu, cult. 20 June–8 July 1983, leg. Y. Yamamoto (YY-1986=holotype).

Physarum lakhanpalii Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 90: 335, 1987.

Japan, Kochi Pref., Aki-shi, Ioki, cult. 10–30 April 1985, leg. Y. Yamamoto (YY-2738=holotype).

Physarum lenticulare Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 90: 337, 1987.

Japan, Kochi Pref., Geisei-mura, Wajiki, cult. 4–30 April 1982, leg. Y. Yamamoto (YY-4539=holotype).

Physarum mucosum Nann.-Bremek.

Med. Bot. Mus. Herb. Utrecht, 150: 782, 1958.

Netherlands, Gelderland, Doorwerth, 6 Sept. 1956, leg. N. E. Nannenga-Bremekamp (#1603) (YY-1402=isotype).

Physarum nasuense Emoto

Bot. Mag. Tokyo, 45: 551, 1931.

Japan, Tochigi Pref., Nasu, Nakatsusawa, 22 Aug. 1931 (#1210) (TNS-M-R-2159=lectotype).

Note. There is no collector name written on the specimen label. However, this specimen was collected by the Emperor Showa.

Although Emoto (1931b) didn't indicate any types, there were four specimens fitting the protologue of *Physarum nasuense* in the Emperor Showa's collection of Myxomycetes. One of them was designated here as a lectotype.

Physarum nigripodum Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 90: 340, 1987.

Japan, Kochi Pref., Aki-shi, Higashi-hachimangu, 24 June 1985, leg. Y. Yamamoto (YY-2841=holotype).

Physarum nutans Pers. f. **rubrum** Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 90: 341, 1987.

Japan, Kochi Pref., Otoyoko-cho, Mt. Kajigamori, 1 Aug. 1979, leg. Y. Yamamoto (YY-380=holotype).

Physarum pseudodiderma Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 90: 342, 1987.

Japan, Saitama Pref., Chichibu-gun, Otakimura, 31 July 1985, leg. Y. Yamamoto (YY-3310=holotype).

Physarum puniceum Emoto

Bot. Mag. Tokyo, 45: 229, 1931.

China, Lü-shun, Lao-t'ieh-shan, Aug. 1930, leg. K. Kurita (TNS-M-925=holotype).

Note. Emoto (1931a) indicated no type. In his collection of Myxomycetes, there was only one specimen fitting the protologue of the present species. Therefore, it was automatically designated as a holotype.

Stemonaria clausifila Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet., 98: 324, 1995.

Japan, Kochi Pref., Motoyama-cho, Mt. Shiraga, 15 Aug. 1991, leg. Y. & Y. Yamamoto (YY-11745=holotype).

Stemonaria fuscoidea Nann.-Bremek. & Y. Yamam. var. *longipes* Y. Yamam. & Nann.-Bremek.

Proc. K. Ned. Akad. Wet., 98: 325, 1995.

Japan, Okinawa Pref., Ishigaki Isl., Yonehara, 23 June 1994, leg. J. Matsumoto (YY-14090=holotype).

Stemonaria gracilis Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 87: 461, 1984.

Japan, Kochi Pref., Kochi-shi, premises of Marunouchi High School, cult. 18 July–3 Aug. 1981, leg. Y. Yamamoto (YY-1127=holotype).

Stemonaria laxa Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 87: 459, 1984.

Japan, Kochi Pref., Aki-shi, Iokido, 3 Aug. 1979, leg. Y. Yamamoto (YY-360=holotype).

Stemonaria minuta Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 90: 347, 1987.

Japan, Kochi Pref., Aki-shi, Kuse-cho, 6 July 1985, leg. Y. Yamamoto (YY-2961=holotype).

Stemonaria rufipes Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 87: 456, 1984.

Japan, Kochi Pref., Motoyama-cho, premises of Motoyama Elementary School, cult. 28 Sept.–29 Oct. 1981, leg. Y. Yamamoto (YY-1264=holotype).

Stemonitis aequalis (Peck) Massee var. **microspora** Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 86: 237, 1983.

Japan, Kochi Pref., Motoyama-cho, Sogauchi, 20 June 1980, leg. Y. Yamamoto (YY-626=holotype).

Note. Yamamoto (1998) arranged this species name in a synonymy of *Stemonitopsis gracilis* (G. Lister) Nann.-Bremek.

Stemonitis emotoi Nann.-Bremek. & Y. Yamam.

Proc. K. Ned. Akad. Wet. C, 87: 463, 1984.

Japan, Kochi Pref., Gohoku-mura, Kamiyaka, 24 Aug. 1980, leg. Y. Yamamoto (YY-765=holotype).

Note. Yamamoto (1998, 1999) treated this taxon as a variety of *Stemonitis mussooriensis* G. W. Martin.

Stemonitopsis curiosa Nann.-Bremek. & Y.

Yamam.

Proc. K. Ned. Akad. Wet. C, 86: 239, 1983.

Japan, Kochi Pref., Ikegawa-cho, Mt. Tsutsujo, 29 July 1979, leg. Y. Yamamoto (YY-352=holotype).

Trichia synspora Kowalski & McNichols

Mycologia, 66: 372, 1974.

USA, Washington, Olympic National Park, 22 June 1972, leg. D. T. Kowalski (#12547) (YY-9592=isotype).

Tubifera dictyoderma Nann.-Bremek. & Loerak.

In Nannenga-Bremekamp, Proc. K. Ned. Akad. Wet. C, 88: 121, 1985.

Netherlands, Marknesse, 19 Oct. 1983, leg. J. A. Hoogstrate (Nannenga-Bremekamp #14148) (YY-2696=isotype).

Tubifera dimorphotheca Nann.-Bremek. & Loerak.

Proc. K. Ned. Akad. Wet. C, 84: 237, 1981.

Netherlands, Aalsmeer, Oct. 1977, leg. unknown (Nannenga-Bremekamp #10675) (YY-1427=isotype).

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