

MYXOMYCETES OF MEXICO II*

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INTRODUCTION

In Myxomycetes of Mexico I (Braun and Keller, 1976), the plasmodial slime molds found primarily on leaf litter were discussed, whereas in the present paper, emphasis will be placed on the corticolous Myxomycetes found through the use of the moist chamber technique. Corticolous Myxomycetes are those slime molds that grow and fruit on the bark surface of living trees and vines (Keller and Brooks, 1973). The species of tree and to some degree, the general shape of the tree, surface topography of the bark, and the presence of epiphytic cover of individual trees are factors that must be taken into consideration when searching for corticolous Myxomycetes. Trees have their own distinctive drainage patterns along inclined lateral branches and the main trunk axis. Natural water courses and crotches inhabited by algae, mosses, liverworts, ferns, and lichens increase the water-absorbing capacity of the bark and retain moisture over longer periods of time. Here certain species of corticolous Myxomycetes are found repeatedly while, others occur on bare bark in more exposed areas. Species of *Juniperus* seem to support the greatest diversity of corticolous Myxomycetes in the United States, and this is also true in Mexico. In contrast, rough-barked trees such as species of *Pinus* have far fewer species.

It is during the summer months and following lengthy rain showers that the corticolous Myxomycetes occur in great profusion. It has not been possible to collect corticolous Myxomycetes in the field when in Mexico, therefore, bark specimens were collected at approximately 1.5 meters in height (above ground level) from all sides of the main trunk axis of living trees and were then transported to the laboratory for future cultivation in moist chambers. Bark samples were placed in plastic bags and stored in paper sacks bearing the collection data. The trees were seldom known, but many were later identified by Rzedowski of the Escuela Nacional de Ciencias Biológicas, I. P. N.

* Supported by a grant to H. W. Keller from the National Science Foundation (BMS 75-19098 and DEB75-19098A01).

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at Mexico City. Bark samples collected at Kabah and Uxmal in Yucatán have already provided at least two new species (*Echinostelium arborescens* Keller and Brooks, and *Licea pseudoconica* Brooks and Keller) and very likely will yield additional new taxa with extended field work throughout other parts of Mexico.

Collecting in the rain forests of Palenque, in the State of Chiapas, turned out to be very disappointing for one of us (KLB), since one would expect to find many Myxomycete fruiting bodies under such excellent conditions. On the contrary, very few fructifications were found on the leaf litter and other ground sites. These collections have been studied and discussed in this paper, even though not new to Mexico, because of the unique nature of the collecting site. The tree bark from the rain forests has also produced few fruiting bodies in moist chamber. Farr (1976) in her monograph *Flore Neotropica*, also discusses the surprising lack of Myxomycetes in the tropical rain forests, and offers a few possible explanations.

SPECIES STUDIED *

LICEACEAE

Licea pedicellata (H. C. Gilbert) H. C. Glibert, in Martin, *Mycologia* 34: 702. 1942.

Guerrero: Taxco, from bark of living *Casuarina equisetifolia* L., collected 8 August 1975. Moist chamber wetted 6 November 1975, harvested 4 December 1975 (KLB 561, 562, 563). San Francisco Cuadra, from bark of living *Persea americana* L., collected 9 August 1975. Moist chamber wetted 5 November 1975, harvested 9 January 1976 (KLB 593). (ibid.). Moist chamber wetted 12 November 1975, harvested 16 December 1975 (HWK 1647). (ibid.). Moist chamber wetted 12 November 1975, harvested 12 January 1976 (HWK 1740). From bark of *Juniperus flaccida* Schl., collected 9 August 1975. Moist chamber wetted 10 November 1975, harvested 12 January 1976 (HWK 1792). From bark of living *Juniperus* sp., collected 9 August 1975. Moist chamber wetted 10 November 1975, harvested 24 November 1975 (HWK 1657). (ibid.). Moist chamber wetted 28 January 1977, harvested 11 March 1977 (DMS 3).

Morelos: Cuernavaca, from bark of living *Taxodium mucronatum* Ten., collected 14 August 1975. Moist chamber wetted 22 December 1975, harvested 9 June 1976 (HWK 1845).

Yucatán: Chichén Itzá, from bark of living *Acacia*, collected 26 December 1974. Moist chamber wetted 30 July 1975, harvested 14 August 1975 (HWK 1595). (ibid.). Moist chamber wetted 30 July 1975, harvested 29 September 1975 (HWK 1642). (ibid.). Moist chamber wetted 30 July 1975, harvested 16 December 1975 (HWK 1646).

* New records for Mexico are designated by an asterisk.

A number of the specimens assigned here to *Licea pedicellata* differ in that the overall dimensions of the stalked sporangia are smaller, the peridium is smoother and glossier, and the spores are slightly larger, 12-15 μm in diameter. Further study of type material and adequate specimens of *L. pedicellata* from throughout the world may reveal that there is only a single, variable species involved, or, on the other hand, that at least two or possibly three closely related but distinguishable species have been included here.

**Licea pseudoconica* Brooks and Keller, *Mycologia* 69: 678. 1977.

Yucatán: Uxmal, from bark of living tree (unidentified), collected 24 December 1974. Moist chamber wetted 3 January 1975, harvested 24 March 1976 (KLB 625). From bark of living *Psychotria*, collected 10 July 1976. Moist chamber wetted 8 March 1977, harvested 11 March 1977 (KLB 626). 50 m southeast of the Pyramid of the Magician, from bark of living *Psychotria*, collected 10 July 1976. Moist chamber wetted 14 August 1976, harvested 31 August 1976 (HWK 1966). (ibid.). Moist chamber wetted 14 August 1976, harvested 16 September 1976 (HWK 2031). 150 m south of Pyramid of the Magician at base of walk up to governor's palace, alt. 20 m, from bark of living tree (unidentified), collected 10 July 1976. Moist chamber wetted 9 September 1976, harvested 17 December 1976 (HWK 2035).

This is a distinctive species recently described as new by Keller and Brooks (1977). These Mexican collections consist of hundreds of well-formed sporangia that, because of their pyramidal shape and white apical cone of debris atop a dark base, appear much like miniature snow-capped mountains. This species has undoubtedly been passed over in moist chamber cultures as an ascomycete because of its perithecial-like appearance. This collection and a recent field-collection (HWK 2237) from Florida on *Liquidambar styraciflua* L. developed on a bark surface covered with a white coating which may account for the distinctly white upper half of the sporangia in these collections.

**Licea* sp.

Puebla: Puebla Autopista a Orizaba, alt. 2000 m, from bark of living *Juniperus*, collected 21 July 1976. Moist chamber wetted 14 January 1977, harvested 8 March 1977 (DMS 1).

Yucatán: Kabah, archeological site, from bark of living tree (unidentified), collected 24 December 1974. Moist chamber wetted 29 January 1975, harvested 18 March 1975 (KLB 556). (ibid.). Moist chamber wetted 18 March 1975, harvested 20 April 1975 (KLB 557). (ibid.). Moist chamber wetted 18 March 1975, harvested 18 April 1975 (KLB 559). (ibid.). Moist chamber wetted 29 January 1975, harvested 18 April 1975 (KLB 560).

Sporangia gregarious, sessile, globoid to pulvinate usually on a broadened base, reddish orange to rusty brown, 100 to 180 μm in diameter; peridium appearing as two persistent layers, the outer layer thickened deposits of granular refuse material and divided into platelets by distinct black ridges, the inner layer membranous, hyaline with a smooth inner surface; dehiscence along thickened sutures lacking ornamentation and external surface debris; spores in mass black, yellow-brown or reddish brown by transmitted light, 11 to 12 μm diameter, minutely roughened, with a sharply defined, colorless area on one side.

The black ridges represent points of contact of the peridial sutures and in these areas, because of the lack of any surface debris, the black spore mass shows through. This taxon appears closely related to *Licea hepatica* Kowalski and possibly to *Licea castanea* G. Lister. It is commonly found on many different species of living trees and appears constant in its morphological characteristics. Sporangia are abundant in the collections cited here. Certain type collections must be carefully studied before this taxon can be considered as new.

CRIBRARIACEAE

Cribraria violacea Rex, *Proc. Acad. Phila.* 43: 393, 1891.

Guerrero: Taxco, alt. ca. 1705 m, from *Juniperus* sp., collected 9 August 1975. Moist chamber wetted 5 June 1977, harvested 6 July 1977 (DMS 12). San Francisco Cuadra, alt. ca. 1705 m, on bark of *Casuarina equisetifolia* Ten., collected 11 August 1975. Moist chamber wetted 9 December 1975, harvested 14 December 1975 (KLB 568).

Puebla: Puebla Autopista a Orizaba, alt. ca. 2000 m, on red cedar, collected 21 July 1976. Moist chamber wetted 3 March 1977, first seen 10 March 1977, harvested 4 April 1977 (DMS 4).

Tabasco: Villahermosa, alt. 10 m, on bark of living *Salix chilensis*, collected 14 July 1976. Moist chamber wetted 18 October 1976, harvested 18 November 1976 (KLB 627).

Yucatán: Uxmal, alt. 20 m, on bark of Spanish red cedar, collected 24 December 1974. Moist chamber wetted 30 July 1975, harvested 18 December 1975 (HWK 1659).

The very small nodes and small calyculus agree with Maylan's description of *Cribraria lepida*, but the stipes are much shorter than would be expected for that species. Although the identification of specimen KLB 627 is debatable, it does agree for the most part with the description of *C. violacea* given in Martin and Alexopoulos (1969).

ECHINOSTELIACEAE

Echinostelium arboreum Keller and Brooks, *Mycologia* 68: 1204.1976.

Yucatán: Uxmal, alt. 20 m, from bark of living *Psychotria*, collected 10 July 1976. Moist chamber wetted 13 October 1976, harvested 17 October 1976 (KLB 651). Kabah, alt. 65 m, on bark of living tree (unidentified), collected 24 December 1974. Moist chamber wetted 29 January 1975, harvested 6 February 1975 (HWK 1381). (ibid.). Moist chamber wetted 18 March 1975, first seen 24 March 1975, harvested 27 March 1975 (HWK 1396). (ibid.). Moist chamber wetted 7 May 1975, first seen 13 May 1975, harvested 15 May 1975 (HWK 1416).

Fructifications sporangiate, scattered, spherical, stipitate and erect, shiny, usually golden yellow, 50 μm in diameter, total height (sporangium + stipe) 120-125 μm ; peridium very delicate, but usually remaining intact until removed for slide preparation, at which time the peridium frequently breaks away leaving a well-defined collar; columella terete, 25 μm long and 2.5 μm in diameter, extending approximately to the center of the sporangium, divided at the top into two main branches which later branch dichotomously without anastomosing; stipe tapering, 2.5 μm wide at top (under the peridial collar) widening to 15 μm at the base, stipe and columella both pale-yellow by transmitted light; spores spherical, pale-yellow in mass, 6-7.5 μm in diameter, minutely roughened, with walls of uniform thickness.

This is the species reported in *Myxomycetes of Mexico I* (Braun and Keller, 1976) as unnamed, and later described and named in *Mycologia* (Keller and Brooks, 1976). This species has now been found in Mexico at Uxmal as well as Kabah. Collection (KLB 651) is in excellent condition and at least a hundred sporangia are clearly visible. Although this specimen is certainly *Echinostelium arboreum*, the spores are slightly smaller than those collected at Kabah.

Echinostelium minutum de Bary, in Rost., *Mon.* 215. 1874.

Guerrero: Taxco, alt. ca. 1705 m, on bark of *Pinus montezumae* Lamb., collected 11 August 1975. Moist chamber wetted 16 November 1975, harvested 17 December 1975 (HWK 1645). Moist chamber wetted 16 November 1975, harvested 16 December 1975 (HWK 1698). San Francisco Cuadra, alt. ca. 1705 m. Moist chamber wetted 5 November 1975, harvested 5 December 1975, (KLB 571).

Morelos: Cuernavaca, alt. 1550 m, on bark of *Taxodium mucronatum* Ten., collected 14 August 1975. Moist chamber wetted 22 December 1975, harvested 5 January 1975 (HWK 1821).

Publa: Autopista Puebla a Orizaba, alt. ca. 2000 m, on *Juniperus* sp., collected 21 July 1976. Moist chamber wetted 14 January 1977, first seen 21 January 1977, harvested 21 January 1977 (DMS 5).

This species appears to be the most common and abundant of all the *Echinostelia*. It is one of the few species that occurs regularly on species of *Pinus*.

DIANEMACEAE

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

Distrito Federal: Mexico City, Chapultepec Park, alt. 2220 m, from bark of living *Taxodium mucronatum* Ten., collected 17 August 1975. Moist chamber wetted 7 November 1975, harvested 5 December 1975 (KLB 564, 565, 587).

Fructifications sporangiate to plasmodiocarpous, irregular in size, sessile, dark brown, iridescent; peridium delicate, membranous; hypothallus inconspicuous; capillitial threads yellowish, smooth, tubercles not apparent; spores spherical, spinulose, 11 μ m in diameter, olivaceous by transmitted light and also by reflected light.

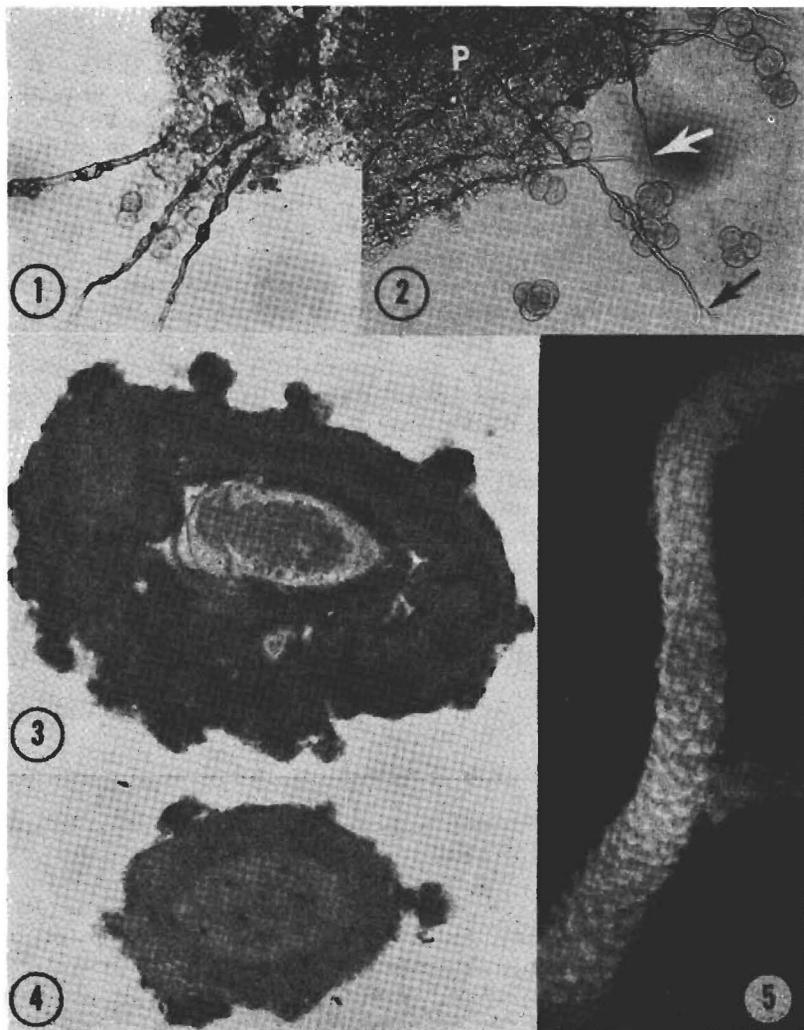
**Dianema* sp.

FIGS. 1-5

Puebla: Autopista Puebla a Orizaba, alt. ca., 2000 m, from bark of living *Juniperus* sp., collected 21 July 1976. Moist chamber wetted 12 February 1977, first seen 1 March 1977, harvested 12 May 1977 (DMS 11).

Fructifications plasmodiocarpous, widely scattered, pulvinate to applanate, occasionally hemispheric, usually circular to oblong in outline, yellowish or reddish brown varying to gray or white when invested with dense crystalline deposits, 0.2-0.9 mm across and up to 3.6 mm in length; peridium cartilaginous, consisting of an inner membranous layer, minutely roughened on its inner surface and thickly covered on the outer surface by an opaque layer of refuse matter (Fig. 2), the upper portion of the fructification separating near the base; capillitium scanty to abundant, consisting of mostly simple, unbranched threads, minutely roughened, circular in sectional view, 2.0 μ m in diameter (Figs. 3-5) not at all narrowed at the upper extremity, uniform in width but attenuating to a slender, hyaline, sometimes bifurcate attachment at the base of the fructification (Figs. 1, 2); spores in mass olivaceous, light pale ochraceous to pale orange, by transmitted light pale ochraceous, adhering in more or less irregular clusters of 2 to 20 (Fig. 2), minutely spinulose on the exposed surface, smooth on the adhering faces, 10-15 \times 8-10 μ m in diameter. Plasmodium orange.

This taxon apparently represents an undescribed new species but its taxonomic status cannot be determined until the type specimen of *Dianema repens* G. Lister and Cran can be examined. The description given here is a composite description based on the specimen from Mexico and a number of specimens collected in the United States (HWK 171, 202, 756, 1295, 1312, 1461, 1611, T. E. Brooks 2536, 2587, 2598, 2686, 2786, 2851, 2983, 3059, 3815). The specimens



Figs. 1-5. *Dianema* sp. 1. Unbranched capillitial threads shown in section view in Figs. 3 and 4 (TEB 3815), X 250. 2. Peridium (P) with attached capillitial threads with unbranched (white arrow) and bifurcate (black arrow) ends detached from the floor of the fructification. Note clustered spores in various optical planes of focus (HWK 756), X 250. 3. Cross-section of capillitial thread (TEM) some distance behind point of attachment, X 50,000. 4. Cross-section of capillitial thread (TEM) nearer point of attachment, X 54,000. 5. Whole mount of capillitial thread (SEM) showing surface ornamentation (HWK 202), X 6,000.

from the United States are all from living trees, primarily *Juniperus virginiana* and *Ulmus americana*.

These specimens were first assigned to *Dianema corticatum* Lister but there are a number of differences between these two taxa. The habitat of *D. corticatum* is decaying wood (ground sites) and that of *Dianema* sp. is the bark surface of living trees. *Dianema corticatum* is described as being 1 mm in diameter and hemispheric, or more often forming elongated, ring-shaped, or net-like plasmodiocarps 3-30 mm in length (Lister 1925). The consistently smaller size of the plasmodiocarps of the *Dianema* described here (generally 1-2 mm in length) that never appear as ring-shaped or net-like plasmodiocarps differs markedly from *D. corticatum*. The peridium of *D. corticatum* is dark reddish-brown and lacks crystalline matter on the outer layer, whereas in *Dianema* sp. the peridium is much lighter colored, usually yellowish-brown and often grey or white when invested with crystalline material on the outer layer. The capillitial threads of *D. corticatum* are usually unbranched, 500 μ m to 700 μ m in length, either smooth or marked with a single spiral band. When the capillitium is abundant, several threads are often twisted around one another. In *Dianema* sp. the capillital threads are much shorter, the longest threads being 120 μ m in length, and are marked with warts that uniformly cover the surface. Although both taxa have clustered spores, *D. corticatum* has a spore mass lighter in color and the spore clusters consist of fewer spores in groups of two's and three's; in *Dianema* sp. the spores are darker in mass, sometimes olivaceous, and the spore clusters are usually made up of 4 to 6 spores or more. Collectively, these characteristics appear distinct enough to recognize two separate taxa.

TRICHIACEAE

**Arcyria ferruginea* Sauter, *Flora* 24: 316. 1841.

Tlaxcala: La Malinche, alt. 4000 m, bosque de *Pinus hartwegii*, collected September, 1970 (Juárez 53 ENCB).

Fructifications sporangiate, clustered, stipitate, globose to pyriform, erect, orange-yellow, 1 mm in diameter and 2 mm in total height; peridium evanescent; stipe 1.3 to 1.5 mm long, orange colored, terete, filled with spore-like cells; columela a shallow funned (1 mm wide at the top and 1 mm deep); capillitium dense, elastic but not expanded, spinulose or with cogs that extend only halfway around the thread; spores spherical, 10-11 μ m in diameter, orange-yellow in mass, pale yellow by transmitted light.

Although clearly infundibuliform, the calyculus is somewhat shallow. The yellow color is unusual in this specimen, but the capillitium is fairly typical and is easily separated from the calyculus.

Calonema luteolum Kowalski, *Madroño* 20: 4, 1969.

State of Mexico: Teotihuacán, alt. ca. 2278 m, near pyramid of the Sun, on leaf litter, collected 30 June 1971 (KLB 555).

This specimen was collected in the same area as KLB 514, identified earlier as *Calonema luteolum* Kowalski and reported in *Myxomycetes of Mexico I* (Braun and Keller, 1976). This specimen was only recently identified, however, and is included here because of its rarity in the Neotropics.

**Hemitrichia intorta* (A. Lister) A. Lister, *Mycet.* 176. 1894.

State of Mexico: Teotihuacán, alt. ca. 2278 m, to the west of Pirámide del Sol, on leaf litter, collected 30 June 1971 (KLB 552).

Fructifications sporangiate, crowded, obovoid, a few stipitate but mostly sessile, yellow-brown, 0.5 mm in diameter; peridium persistent; hypothallus inconspicuous; capillitial threads yellowish, long, seldom branched but often broken with blunt ends, 3 μ m wide, occasional swollen regions along filaments, ends usually pointed with loose spirals, clearly spinulose, spines two to three microns long; spores globoid, 10-13 μ m in diameter, minutely spinulose, yellow by transmitted light, yellowish-brown by reflected light.

Farr (personal comm. with KLB, 1977) studied the specimen and made the following comments: "... 552 appears to be a *Hemitrichia*, close to *H. intorta*, a little known species of which we have hardly any material. The main divergence in your material is the larger spore size."

Perichaena chrysosperma (Currey) A. Lister, *Mycet.* 196. 1894.

Guerrero: Taxco, San Francisco Cuadra, alt. ca. 1705 m, on bark from *Casuarina equisetifolia* L., collected 8 August 1975. Moist chamber wetted 9 December 1975, harvested 20 December 1975 (KLB 539).

Puebla: Autopista Puebla-Orizaba, alt. ca. 2000 m, on bark of *Juniperus* sp., collected 21 July 1976. Moist chamber wetted 14 March 1977, first seen 24 March 1977, harvested 5 April 1977 (DMS 9).

Perichaena depressa Libert, *Pl. Crypt.* 378. 1837.

Morelos: Cuernavaca, alt. ca. 1550 m, on bark from *Taxodium mucronatum* Ten., collected 14 August 1975. Moist chamber wetted 6 November 1975, harvested 7 December 1975 (KLB 547).

Puebla: Puebla Autopista a Orizaba, alt. ca. 2000 m, on bark from *Juniperus* sp., collected 21 July 1976. Moist chamber wetted 5 June 1977, harvested 6 July 1977 (DMS 11).

**Trichia scabra* Rost., Mon. 258-259. 1875.

Morelos: Carretera Cuernavaca to Yautepec, alt. ca. 1900 m, collected 28 January 1968 (KLB 554).

Fructifications sporangiate, crowded, globose, yellow-brown, shiny, mostly sessile or occasionally substipitate; peridium delicate, falling (with age) away at the apex, persisting at the base; hypothallus inconspicuous; columella lacking; capillitium consisting of abundant elaters, yellow-brown, some very short, 95 μm in length and 5 μm in diameter, most much longer, with pointed ends attaining 10 μm in length, spiny, spines 3-7 μm long, elaters clearly and uniformly spiraled; spores spherical, 10-11 μm in diameter, pale yellow by transmitted light, minutely spinulose.

The above does not seem to be *Trichia varia* (Pers.) Pers. because the threads are spiny and there are more than two spirals; not *Trichia lutescens* (A. Lister) A. Lister because the threads are spiny. We have placed it in *Trichia scabra* Rost. because of the clearly spiny threads (after Morgan) even though we cannot see any reticulation on the spores.

Farr (personal communication with KLB, 1977) observed the contents of two sporangia and found one to have smooth capillitium and verruculose spores, while the other had spinulose capillitium and partly reticulate spores. She found that none of the capillitial threads fit *T. varia*, and agreed that the specimen is probably *T. scabra*.

STEMONITACEAE

Macbrideola cornea (G. Lister and Cran) Alexop., *Mycologia* 59: 112. 1967.

Guerrero: Taxco, San Francisco Cuadra, from bark of living *Juniperus flaccida* Schl., collected 9 August 1975. Moist chamber wetted 7 November 1975, harvested 18 November 1975 (KLB 567).

Yucatán: Uxmal, near Pyramid of the Magician, bark of living tree, collected 24 December 1974. Moist chamber wetted 3 January 1975, harvested 24 March 1976 (KLB 528).

This corticolous species is known only from the bark surface of living trees. It is widely distributed and common, occurring most frequently on species of *Ulmus* and *Juniperus*.

**Macbrideola decapillata* H. C. Gilbert, *Univ. Iowa Stud. Nat. Hist.* 16: 158. 1934, emend. Alexop., *Mycologia* 59: 113. 1967.

Puebla: Autopista Puebla-Orizaba, alt. 2000 m, from bark of living *Juniperus* sp., collected 21 July 1976. Moist chamber wetted 24 February 1977,

first seen 1 March 1977, harvested 8 March 1977 (DMS 52). (ibid.) from bark of living *Cupressus lindleyii* Klotzch, collected 21 July 1976. Moist chamber wetted 8 December 1976, harvested 8 January 1977 (KLB 622).

This corticolous species is known only from the bark surface of living trees.

PHYSARACEAE

Craterium leucocephalum (Persoon) Ditmar in Sturm, Deuts. Fl. Abt. III. Pilze 1: 21. 1813.

Tabasco: Villahermosa, La Venta, alt. 10 m, on leaf litter. Collected 14 July 1976 (KLB 629).

Physarella oblonga (Berk. and Curt.) Morgan, Jour. Cincinnati Soc. Nat. Hist. 19: 7. 1896.

Chiapas: Palenque Ruins, alt. 500 m, from yellow plasmodium on log. Collected 15 July 1976 (KLB 515).

**Physarum bitectum* G. Lister, Mycet. ed. 2. 78. 1911.

Jalisco: Guadalajara to La Piedad, Barranca del Río Santiago, alt. ca. 1000 m, on leaf litter, collected 14 August 1975 (Guzmán 12366 ENCB).

Fructifications sporangiate to plasmodiocarpous, clustered, sessile, flattened laterally, grayish-white, 0.3-0.5 mm wide 0.6-1.0 mm deep, length variable (2-10 mm); peridium grayish-white, double, outer layer calcareous, breaking away at the top exposing a thin inner layer; hypothallus inconspicuous; columella lacking but a pseudocolumella present; capillitium delicate, branched, with conspicuous, white, calcareous nodules, nodes angular; spores usually ovate 11-13 μm , spinulose, many with a ring at the equator (with more ornamentation on one side than the other), frequently paler on one side, brownish-black in mass, dark brown by transmitted light.

This specimen has the habit and general shape of *Physarum bivalve*, but the capillitium and spores of *P. bitectum*. Farr studied this specimen and made the following comments (personal communication with KLB):

"Guzmán 12366 certainly seems to fit *Physarum bitectum* fairly well; however, some of its fruiting bodies are rather strongly compressed and these are somewhat intermediate to *P. bivalve*. We have several similar specimens in the herbarium — someone should study this species intensively and determine its nebulous boundaries. The spores of 12366 are more intensely pigmented and strongly echinulate than I have seen in other specimens

but perhaps because they are fresher. The "equatorial ring" looks to me more like partial lines formed by spinules or the margin of the spore wall where it becomes a little thinner."

Physarum compressum Alb. and Schw., *Consp. Fung.* 97. 1805.

Morelos: Cuernavaca, from bark of living *Taxodium mucronatum* Ten., collected 14 August 1975. Moist chamber wetted 6 November 1975, harvested 3 December 1975 (KLB 543).

This species is not considered to be a true corticolous Myxomycete. It is very commonly isolated from ground sites. The long period of time, between wetting and harvesting from moist chambers, suggests that this specimen may have developed from spore to spore as a contaminant of the bark surface.

DIDYMIACEAE

**Didymium clavus* (Alb. and Schw.) Rab., *Deuts. Krypt.-Fl.* 1: 280. 1844.

Yucatán: Kabah, alt. 65 m, from bark of living tree, collected 10 July 1976. Moist chamber wetted 20 September 1976, harvested 6 October 1976 (KLB 532).

Although this species is frequently found on ground sites, it is nevertheless a true corticolous Myxomycete and is often found in the field on living trees.

Didymium difforme (Pers.) S. F. Gray, *Nat. Arr. Brit. Pl.* 1: 571. 1821.

Distrito Federal: Mexico City, Chapultepec Park, alt. 2220 m, on bark from living *Taxodium mucronatum* Ten., collected 17 August 1975. Moist chamber wetted 9 December 1975, harvested 15 December 1975 (KLB 566).

Fructifications of this species have not been observed on the bark surface of living trees or vines in the field. Of interest in this regard is the repeated association of this species with dead milkweed pods that have been collected from standing dead plants in the field and then placed in moist chambers.

**Didymium melanospermum* (Pers.) Macbr. *N. Am. Slime-Moulds* 88. 1899.

Guerrero: Taxco, San Francisco Cuadra, alt. ca. 1705 m, on leaf litter, collected 2 July 1971 (KLB 615).

This specimen was reported incorrectly as *Didymium iridis* (Ditmar) Fries in Myxomycetes of Mexico I (Braun and Keller, 1976).

**Diderma chondrioderma* (de Bary & Rost.) G. Lister, in Lister, *Mycet. ed.* 3. 258. 1925.

Yucatán: Chichén Itzá, alt. ca. 25 m, on bark from living *Acacia* sp., collected 26 December 1974. Moist chamber wetted 30 July 1975, harvested 29 September 1975 (HWK 1639). (ibid.) Moist chamber wetted 30 July 1975, harvested 3 November 1975 (HWK 1652).

This species is a common corticolous Myxomycete occurring on many different trees but most frequently on species of *Juniperus* and *Ulmus*. The white, lime-filled peridia of the sporangia from the specimens cited here facilitate correct identification, but limeless phases do occur and these are often troublesome to identify, leading to confusion with other species.

Diderma hemisphaericum (Bulliard) Horn., Fl. Dan. 33: 13. 1829.

Chiapas: Palenque Ruins, alt. 500 m, on rain forest leaf litter, collected 15 July 1976 (KLB 622).

Tabasco: Villahermosa, La Venta, alt. 10 m, on leaf litter, collected 14 July 1976 (KLB 628).

ACKNOWLEDGEMENTS

We wish to thank Dr. Jerzy Rzedowski from ENCB for the tree identifications. Dr. Gastón Guzmán contributed specimens collected by him and his students, provided for the use of the herbarium (ENCB), and served as a gracious host while one of us (KLB) visited Escuela Nacional de Ciencias Biológicas at the Instituto Politécnico Nacional. Dr. Marie L. Farr identified several of the more difficult specimens. Special thanks go to student research assistants Mary Jo Buben, Pamela Taulbee, and Laura Anderson who set up moist chambers and harvested fructifications. Mr. David Smith kindly contributed specimens isolated from Mexican bark as part of a class project. Dr. Jean D. Schoknecht provided the photograph for Figure 5. We should also like to thank Jeanne Braun for the Spanish translation of the abstract.

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ABSTRACT

Twenty-five taxa of Myxomycetes are reported from Mexico, 12 of them for the first time. Emphasis in this paper is given to the corticolous Myxomycetes and the majority of the taxa listed were obtained in most chamber cultures from the bark of living trees. Two apparently undescribed taxa, a species of *Licea* and that of *Dianema*, are characterized but formal description must await careful study of type specimens. Specimens have been deposited in the ENCB herbarium at the Instituto Politécnico Nacional, Mexico City, and BPI herbarium at National Fungus Collections, Beltsville, Maryland, U.S.A.

RESUMEN

Veinticinco taxa de Mixomicetos se registran de México, doce de ellas por primera vez. Este artículo trata principalmente de los mixomicetos cortícolas; la mayoría de los especímenes fueron obtenidos sobre la corteza de árboles vivos, usando la técnica de cámara húmeda. Se discuten dos especies que aparentemente no están descritas, una de *Licea* y otra de *Dianema*. Los especímenes han sido depositados en el herbario ENCB del Instituto Politécnico Nacional, Escuela Nacional de Ciencias Biológicas, México, D. F. y en el herbario BPI de la National Fungus Collections, Beltsville, Maryland, E.U.A.