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A Review of Neotropical Myxomycetes (1828-2008)

by

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Abstract

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A synthesis of the accumulated knowledge on myxomycetes recorded from the Neotropical region is presented in this paper. The biodiversity of these microorganisms in the Neotropics has been underestimated, and this paper shows that half the known species in the world have been recorded from the region. The monograph by M.L. Farr, for the series Flora Neotropica, published in 1976, has been taken as a baseline. The records produced after this date, some older obscure records, and data from recently published catalogues, monographs and other papers have been incorporated. The information is presented in a table format by species and countries. Species names are listed with synonyms that have been used in Neotropical literature and nomenclature has been updated. A comprehensive list of references by country has been included. A characteristic assemblage of myxomycetes from the Neotropics has been identified. The richness of myxobiota in different countries has been evaluated, and gaps in current information and unexplored areas have become evident from the results. Use of the compiled information to direct conservation plans, and to serve as a starting point to establish and develop future strategies for the study of myxomycetes in this area of the world, is discussed. The importance of prioritizing this research on microorganismal biodiversity, in view of accelerated habitat destruction, is stressed.

Keywords: biodiversity, microorganisms, protists, Mycetozoa, tropics, geographical distribution, catalogue, Central America, Caribbean, South America.

Resumen

Lado, C. & Wrigley de Basanta, D. 2008. Revisión de los Myxomycetes del Neotrópico (1828-2008). *Anales Jard. Bot. Madrid* 65(2): 211-254 (en inglés).

Se realiza una síntesis sobre el conocimiento actual de los Myxomycetes en el Neotrópico. La biodiversidad de estos microorganismos en la región neotropical ha sido subestimada, pero este trabajo demuestra que la mitad de las especies conocidas en el mundo se han citado de esta región. La monografía que M.L. Farr publicó en 1976, para la serie Flora Neotrópica, se ha tomado como punto de partida para la realización de este trabajo. A ella se han incorporado las citas publicadas después de esta fecha, algunas más antiguas pero raras, y datos de catálogos, monografías y otros trabajos recientes. La información se presenta en una tabla de doble entrada, por orden alfabético de especies y por países. La nomenclatura de las especies se ha actualizado y se han añadido los sinónimos con los que han sido citadas en la bibliografía neotropical. También se incluye una lista de referencias bibliográficas por países. Se ha podido identificar un conjunto de especies de Myxomycetes que, por su abundancia de citas en los países neotropicales, parecen características de la región. Se evalúa, por países, la riqueza de su mixobiota y se ponen de manifiesto la falta de información y los escasos estudios que se han llevado a cabo en determinados territorios de esta región biogeográfica. Se discute y comenta el uso que se puede dar a esta información recopilada, como punto de partida para establecer y desarrollar estrategias de estudio sobre los Myxomycetes en esta parte del mundo. Por último, se llama la atención sobre la importancia y prioridad que se debe dar a la investigación sobre biodiversidad de microorganismos, a la hora de valorar la acelerada destrucción de hábitat.

Palabras clave: biodiversidad, microorganismos, protistas, Mycetozoa, trópicos, distribución geográfica, catálogo, América Central, Caribe, América del Sur.

Introduction

The biodiversity of microorganisms is a topic that is becoming increasingly important since they are the very basis of ecosystems. Myxomycetes are eukaryotic microorganisms, with unicellular and coenocytic phagotrophic phases. They inhabit all terrestrial ecosystems, feeding on bacteria and other microorganisms, in and on plant parts and plant remains. Some are known to be associated with specific ecosystems, while others are more cosmopolitan, and research into their diversity and their specific relationships within certain ecosystems is an emerging focus of recent research. This is especially critical in areas like the Neotropics, where rapid habitat loss endangers all components of the various biomes. The Neotropical region is one of the biogeographical regions with the highest biodiversity in the world. Estimates by Davis & al. (1997), show that more than 70.000 endemic plant species exist in the Neotropics, and the Tropical Andean region alone, contains about a sixth of all plant life in less than 1% of the world's land area. More than a third of the centres of plant diversity and endemisms recognized by Davis & al. (1997) and eight of the designated biodiversity "hot spots", where "exceptional concentrations of endemic species are undergoing exceptional loss of habitat" (Myers & al., 2000), are located in this area (Mittermeier & al., 2004). In contrast, the knowledge of myxomycetes of the Neotropics is far from complete. The first record of myxomycetes in the Neotropics was in 1828, from Chile (Bertero, 1828). In the 19th Century there were various publications from the region. Farr (1976), included these in a monograph published in the series Flora Neotropica, in which she compiled all the information available up to the year 1975. In this monograph, 250 of the almost 900 myxomycete species known in the world (Lado, 2008), were reported for this region. This is about the same as in single, possibly less diverse, but well studied countries, like the United Kingdom, the Netherlands, Ireland, France or Spain, which have 250-350 species recorded (Nannenga-Bremekamp, 1991; Lado, 1994; Ing, 1999).

Several research projects on Neotropical myxomycetes, supported by science foundations or research institutions from different countries such as Spain, USA, Brazil or Mexico, have been developed over the last decade and some are currently in progress. The objectives and outcomes of these projects are different but complementary. Some are devoted to the study of pristine tropical forest (Novozhilov & al., 2000; Schnittler & al., 2002; Lado & al., 2003; Stephenson & al., 2003), others to special microhabitats (Schnittler, 2001; Schnittler & Stephenson, 2002a; Maimoni-Rodella & Cavalcanti, 2006; Wrigley de Basanta & al., 2008), others to the knowledge of the myxobiota of specific environments (Mosquera & al., 2000b; Lado & al., 2007b; Estrada-Torres & al., in press), and others make inventories of regions (Hochgesand & Gottsberger, 1996; Pando, 1997; Lizárraga & al., 1997; Estrada-Torres & al., 2001; Putzke, 2002; Cavalcanti, 2002; Maimoni-Rodella, 2002). Additionally, some recent cheklists and catalogues of Myxomycetes, from regions or countries such as Colombia (Uribe-Meléndez, 1995), French Guayana (Courtecuisse & al., 1996), Brazil (Putzke, 1996), Mexico (Ogata & al., 1994; Illana & al., 2000; Moreno & al., 2007), the Caribbean (Minter & al., 2001) or Argentina (Crespo & Lugo, 2003), have been published, and new species or genera have been described from the region (Hochgesand & Gottsberger, 1989; Lado & al., 1999a, 2007b; Mosquera & al., 2003; Estrada-Torres & al., 2001, 2003). All these projects, and their resulting publications have provided, in a short time, an important and valuable body of information, on the myxobiota of this bioregion, but much of the data is dispersed and, in some cases, is difficult to obtain.

The objective of this paper is to compile and synthesize all the accumulated information on the presence of Myxomycetes, in this part of the world. Apart from providing an up to date view of the knowledge of myxomycetes from the Neotropics, it can be used to show gaps of information, and areas currently unexplored. In addition, it can be used to evaluate the richness of the myxobiota in different countries, and so provide information for future conservation and protection plans, and also serve as a starting point to establish and develop future strategies for the study of myxomycetes in this area of the world.

Geographic area covered

The geographic area covered by this review includes all of the American territories between the Tropic of Cancer and the Tropic of Capricorn, and encompasses all the Mesoamerica and Caribbean bioregions as well as South America. We consider whole countries in a political sense, even when the limits of all the territory of the country are not included between the limits of the Neotropical region in a strict sense, as is the case of Mexico, Argentina and Chile. Uruguay, the only country out of the limits of the tropics, but with subtropical features, is also included. With these criteria the paper includes all of the territories between Mexico (Fig. 1), as the northern limit, and Tierra del Fuego (Fig. 2), as the southern limit.

The area has been divided, for practical reasons, into thirty regions, which largely conform to political circumscriptions. But the designations of geographical entities do not imply the expression of any opinion whatsoever concerning the legal status of any country, territory or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries. The countries are designated with the three-letter code of Botanical Countries established by Brummitt (2001) in the World Geographical Scheme for Recording Plant Distributions. Some exceptions were made, to enable an easier interpretation of the data, and so a single code is used for all the continental territory of Mexico (MEX) as well as its Pacific and Caribbean Islands, and for all of the territories of Brazil (BZI). Those of Argentina (AGA) and Chile (CLI), include each country's area of Tierra del

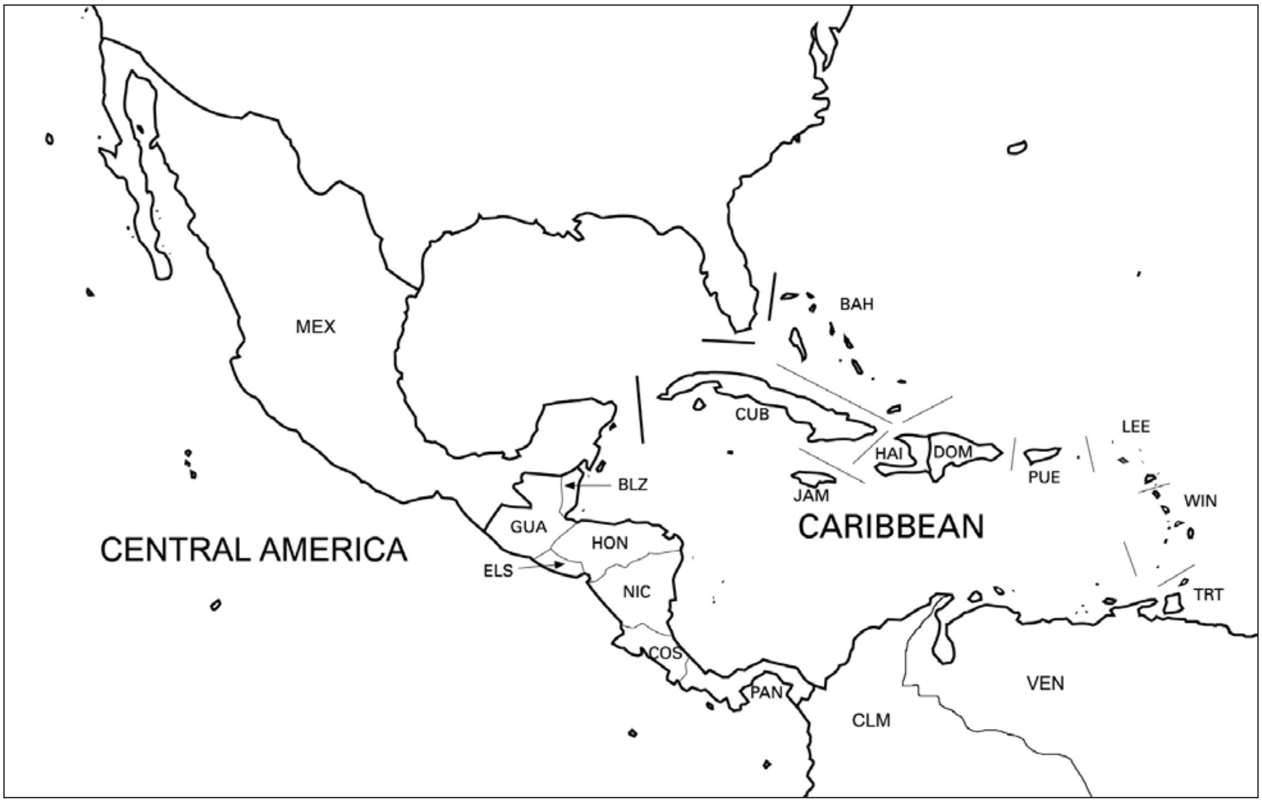

Fig. 1. Central America and the Caribbean.

Fuego. Tiny enclaves of one country in another have been ignored, and geographical disjunctions such as major or remote islands have been included in their countries of political dependence. According to these criteria, the Desventurados Islands and Juan Fernandez Islands are also included in Chile (CLI), the Galapagos Islands are included in Ecuador (ECU), and the Fernando de Noronha and Trindade Islands in Brazil (BZI).

Due to the large number of islands and to avoid too much division of the territory, the Leeward Islands of the Caribbean bioregion, such as Anguilla, Antigua-Barbuda, Guadalupe, Montserrat or the American Virgin Islands, have been considered as one territory (LEE). The same criteria have been applied to the Bahama Islands (BAH) and the Windward Islands (WIN), that include Barbados, Dominica, Grenada, St. Lucia, Martinique and St. Vincent. The little islands making up the Central American Pacific Islands such as Cocos, Coiba and Malpelo, are included in the countries of political dependence (Costa Rica, Panama or Colombia), as have the Southwest Caribbean Islands of Colombian, Honduran and Nicaraguan Islands. The Dutch territories of Aruba, Bonaire and Curaçao Islands, are included in Venezuela as well as the Venezuelan Antilles. The Turks and Caicos Islands have been included with the Bahamas, and the Cayman Islands jointly with Cuba. Abbreviations used herein are listed and shown on figs. 1-2.

Central America

MEX Mexico (Guadalupe Island, Rocas Alijos Islands and Revillagigedo Islands included)
BLZ Belize
GUA Guatemala
HON Honduras (Honduran Caribbean Islands included)
ELS El Salvador
NIC Nicaragua (Nicaraguan Caribbean Islands included)
COS Costa Rica (Cocos Island included)
PAN Panama (Coiba Island included)

Caribbean

BAH Bahamas (Turks and Caicos Islands included)
CUB Cuba (Cayman Islands included)
JAM Jamaica
HAI Haiti (Navassa Island included)
DOM Dominican Republic
PUE Puerto Rico
LEE Leeward Islands (Antigua-Barbuda, Anguilla, Aves Island, British Virgin Islands, Guadeloupe, Montserrat, Netherlands Leeward Islands, St. Kitts-Nevis, St. Martin-St. Barthélémy and Virgin Islands)
WIN Windward Islands (Barbados, Dominica, Grenada, Martinique, St. Lucia, St. Vincent)
TRT Trinidad and Tobago

Fig. 2. South America.

South America

CLM Colombia (Colombian Caribbean Islands and Malpelo Island included)
VEN Venezuela [Venezuelan Antilles and Netherlands Antilles (Curaçao and Bonaire), the island of Aruba included]
GUY Guyana
SUR Suriname
FRG French Guiana
ECU Ecuador (Galápagos Islands included)
PER Peru
BOL Bolivia
BZI Brazil (Fernando de Noronha and Trindade Island included)
PAR Paraguay
URU Uruguay
AGA Argentina (Tierra del Fuego and other islands included)
CLI Chile (Desventurados Islands, Juan Fernández Islands, Tierra del Fuego and other islands included)

Other criteria followed

To present the data, the same basic format employed by Lado (1994) in the checklist of Myxomycetes of the Mediterranean countries, has been followed. The review is similar to a checklist, basically a species listing (Table 1), including synonyms, of myxomycetes from the Neotropics cited in the literature, with species distribution by countries. With regard to nomenclature used, the generic and species treatment are those accepted by Lado (2001, 2008) and Hernández-Crespo & Lado (2005), the generic names *Amaurochaete, Ceratiomyxa* (traditionally considered a myxomycete until recently) and *Hemitrichia* are conserved according to Lado & al. (2005) (see also, Gams, 2005). Infraspecific taxa have not been considered, due to the inconsistency of distinctive characters in many of the cases, and are treated under their respective species. All the species names utilised in the consulted sources have been verified. Spelling variations and transcriptional errors have been corrected. The accepted names appear in bold, and the synonyms (homo or heterotypic synonyms), which have been used for species in the literature from the Neotropics, appear in italics. Records cited herein are compiled from the literature and no attempt has been made, for this paper, to examine or authenticate material.

The taxa, in the Table 1, are arranged alphabetically by genera and species. A query after a species under a certain country, means doubts as to its presence in that country, which is usually due to imprecision by the author of the paper, or the collector of the specimen. The countries or geographical units have been arranged more-or-less in order from the North to the South, in three major bioregions, starting with Central America, continuing with the Caribbean Islands and ending with South America. The totals for the number of species by countries and countries for each species have been given at the end and the side of the table. Doubtful excluded or species have been listed in a separate table (Table 2).

Sources of information

The monograph by Farr (1976) for the series Flora Neotropica, has been taken as a baseline for this review, and the reference has been included in all the countries for which she gave citations. This may lead to some duplication in the numbers of references for a country, but this has not caused duplication in the records of Myxomycetes, which have been listed only once. All the literature references of Farr's monograph have been incorporated into the list of references below, except those general works that recompile records or references, such as Lister (1911, 1925), Hagelstein (1944) or Macbride (1899, 1922). Some pre-1975 papers, omitted by Farr (1976), are also included. In addition, checklists, inventories, catalogues as well as more obscure papers with valuable information, published after 1975, have been perused for myxomycete records, and used as sources of information for this review. All the sources of information used for the myxomycete records listed in Table 1 are given below, arranged by countries and date. Compilation of this data by country should assist future researchers, and be useful as a guideline for future government initiatives. The sources are:

Argentina (AGA): Spegazzini (1880a, 1880b, 1880c, 1881, 1882, 1886, 1887b, 1889, 1896a, 1896b, 1899a, 1899b, 1909a, 1909b, 1912, 1913, 1919a, 1926, 1927), Berlese (1888), Massee (1889), Saccardo (1892), Saccardo & Sydow (1899, 1902), Fries (1903), Torrend (1908), Saccardo & Trotter (1913), Sturgis (1916), Digilio (1946, 1950), Farr (1971, 1973, 1974, 1976), Arambarri (1972, 1973, 1975), Deschamps (1972, 1974, 1975, 1976a, 1976b), Castillo & al. (1996), Crespo & Lugo (2003), Wrigley de Basanta & Stephenson (2005), Wright & Albertó (2006).

Bahamas (BAH): Britton & Millspaugh (1920).

Belize (BLZ): Ing & Haynes (1999).

Bolivia (BOL): Fries (1903), Saccardo & Saccardo (1906), Torrend (1908), Stevenson & Cardenas (1949), Farr (1976).

Brazil (BZI): Montagne (1837), Berkeley & Cooke (1876), Spegazzini (1881, 1888, 1889, 1919b, 1926), Berlese (1888), Massee (1889), Saccardo (1892, 1895), Hennings (1896, 1902a), Bresadola (1896), Pazschke (1896), Saccardo & Sydow (1899), Jahn (1902, 1904), Saccardo & Saccardo (1906), Höhnel (1907), Sydow & Sydow (1907), Torrend (1908, 1915, 1916), Batista (1949), Hashimoto (1953), Hertel (1954a, 1954b, 1955), Farr & Martin (1958), Farr (1959, 1960, 1968, 1973, 1974, 1976, 1985), Fidalgo & al. (1965), Ing (1967), Gottsberger (1968, 1971), Mariz (1968), Cavalcanti (1970, 1974a, 1974b, 1976, 1977, 1985, 1996a, 1996b, 2002), Dennis (1970), Gottsberger & Nannenga-Bremekamp (1971), Mariz & Cavalcanti (1970), Maimoni-Rodella & Gottsberger (1980), Bononi & al. (1981), Cavalcanti & al. (1982, 1985, 1993, 1999, 2005, 2006), Pôrto & Cavalcanti (1984, 1986), Pôrto & al. (1982), Cavalcanti & Araújo (1985), Cavalcanti & Dias Filha (1985), Cavalcanti & Marinho (1985), Cavalcanti & Oliveira (1985), Cavalcanti & Porto (1985), Cavalcanti & Silva (1985), Rodrigues (1985), Santos & al. (1986), Muchovej & Muchovej (1987), Capelari & Mazeiro (1988), Silva & Cavalcanti (1988), Santos & Cavalcanti (1988, 1991a, 1991b, 1995), Hochgesand & Gottsberger (1989, 1996), Hochgesand & al. (1989), Cavalcanti & Brito (1990), Mendes & Guerrero (1990), Rodrigues & Guerreiro (1990), Rogerson & al. (1990), Cavalcanti & Santos (1991), Gottsberger & al. (1992), Cavalcanti & Fortes (1994, 1995), Góes Neto (1996), Barbosa (1996), Putzke (1996, 2002), Alves & Cavalcanti (1996), Cavalcanti & Putzke (1998), Mobin & Cavalcanti (1998, 1999a, 1999b, 2000, 2001), Yamamoto & al. (2000), Cavalcanti & Mobin (2001, 2002, 2004), Góes Neto & Cavalcanti (2002), Maimoni-Rodella (2002), Matsumoto (2002), Chiappeta & al. (2003), Ponte & al. (2003), Maimoni-Rodella & Cavalcanti (2006), Bezerra & al. (2007), Rufino & Cavalcanti (2007).

Chile (CLI): Bertero (1828), Montagne (1837, 1852a, 1852b), Berlese (1888), Massee (1889), Saccardo (1892), Johov (1896), Saccardo & Sydow (1899), Torrend (1908), Sturgis (1916), Spegazzini (1887b, 1917, 1921), Fries (1920), Mújica & Vergara (1945), Lazo (1966), Farr (1976), Lado & al. (2007a).

Colombia (CLM): Leveille (1863), Massee (1889), Saccardo (1892), Torrend (1908), Chardon (1928), Muenscher (1930), Martin (1932, 1938a), Dennis (1970), Farr (1976), Guzmán & Varela (1978), Uribe-Meléndez (1995).

Costa Rica (COS): Hennings (1902b), Spegazzini (1919b), Welden (1954), Alexopoulos (1967), Alexopoulos & Sáenz (1975), Farr (1976), Edmunds & Stephenson (1996), Schnittler & Stephenson (2000, 2002a, 2002b), Schnittler (2001), Moore & Stephenson (2003), Stephenson & al. (2004b), Wrigley de Basanta & Lado (2005), Rojas & Stephenson (2007, 2008).

Cuba (CUB): Montagne (1837, 1838), Berkeley (1868), Berlese (1888), Massee (1889), Torrend (1908), Saccardo & Trotter (1913), Farr (1976), Camino (1991, 1996, 1998a, 1998b), Camino & Pérez (2000, 2001), Pérez & Camino (2000), Minter & al. (2001), Camino & Eliasson (2002), Camino & Moreno (2002), Camino & Rodríguez (2002), Krivomaz (2003), Wrigley de Basanta & al. (2003), Camino & al. (2005, 2007, in press), Wrigley de Basanta & Lado (2005).

Dominican Republic (DOM): Ciferri & González-Fragoso (1926), Toro (1926), Gonzalez-Fragoso & Ciferri (1927, 1928), Ciferri (1929, 1961), Farr (1976), Minter & al. (2001),

Ecuador (ECU): Patouillard & Lagerheim (1891, 1892, 1893, 1895a, 1985b), Saccardo (1895), Saccardo & Sydow (1899), Torrend (1908), Bonar (1939), Martin (1948), Harling (1967), Dennis (1970), Eliasson (1971, 2000), Farr (1974, 1976), Farr & al. (1979), Reid & al. (1981), Schinner (1981), Eliasson & Nannenga-Bremekamp (1983), Nannenga-Bremekamp (1989), Stephenson & Mitchell (1994), Schnittler (2001), Estrada & al. (2002c), Lado & al. (2002b), Schnittler & al. (2002), Schnittler & Stephenson (2002a, 2002b), Stephenson & al. (2004a, 2004b), McHugh (2005).

French Guiana (FRG): Farr (1976), Courtecuisse & al. (1996).

Guatemala (GUA): Farr (1976), Estrada-Torres & al. (2000).

Guyana (GUY): Montagne (1855), Cooke (1877), Berlese (1888), Torrend (1908), Gilbert (1928), Farr (1976), Rogerson & al. (1990).

Haiti (HAI): Benjamín & Slott (1969), Farr (1976), Minter & al. (2001).

Honduras (HON): Davis & Butterfield (1967), Alexopoulos (1970), Clark & Collins (1973), Farr (1976).

Jamaica (JAM): Saccardo (1895), Torrend (1908), Alexopoulos & Beneke (1954a, 1954b), Farr (1957, 1974, 1976), Alexopoulos (1967, 1970), Minter & al. (2001).

Leeward Islands (LEE): Lister (1898a, 1898b), Saccardo & Sydow (1902), Duss (1903, 1904), Seaver & Chardon (1926), Raunkiaer (1928), Hagelstein (1932), Alexopoulos (1970), Stevenson (1975), Farr (1976), Minter & al. (2001).

Mexico (MEX): Saccardo & Sydow (1902), Torrend (1908), Emoto (1933), Welden & Lemke (1961), Alexopoulos & Blackwell (1968), Martínez-Murillo & Ochotorena (1970), Guzmán (1972, 1983), Farr (1976), Braun & Keller (1976, 1986), Keller & Brooks (1976), Keller & Braun (1977), Welden & Guzmán (1978), Welden & al. (1979), Guzmán & Varela (1979), López & al. (1979, 1981a, 1981b, 1981c, 1982), Pérez-Silva (1979), Gómez-Sánchez & Castillo (1981), Dávalos & Guzmán (1981), Guzmán & Guzmán-Dávalos (1981), Mapes & al. (1981), López & Sosa (1982), Martínez-Alfaro & al. (1983), Villarreal (1983, 1985, 1990), Chacón & Guzmán (1984), Gómez-Pompa & al. (1984), Guzmán & Villarreal (1984), Pérez-Silva & Aguirre-Acosta (1985), Trujillo-Flores & al. (1986), Trujillo-Flores (1988), Pérez-Moreno & Villarreal (1988), Heredia (1989), Capello-García & Hernández-Trejo (1990), Hernández-Cuevas & al. (1991), Galindo-Flores (1992), Galindo-Flores & Estrada-Torres (1993), Galindo-Flores & al. (1993), Ogata & al. (1994, 1996), Estrada-Torres (1996), Illana (1996), Lizárraga & al. (1996, 1997, 1998, 1999a, 1999b, 1999c, 2003a, 2003b, 2004a, 2004b, 2005a, 2005b, 2006, 2007, 2008), López & García (1996a, 1996b, 1996c, 1996d, 1996e, 1996f, 1996g, 1996h, 1996i, 1996j, 2001a, 2001b, 2001c, 2001d, 2002a, 2002b, 2002c, 2002d, 2002e, 2002f, 2002g, 2005a, 2005b), Ogata & Andrade-Torres (1996), Rodríguez-Palma & Estrada-Torres (1996a, 1996b), Hernández-Cuevas & Estrada-Torres (1993a, 1993b, 1997), Rodríguez-Palma & al. (1996, 2002, 2005), Moreno & al. (1997a, 1997b, 1997c, 2000, 2001, 2004, 2006a, 2006b, 2007), Andrade-Torres (1998), Rodríguez-Palma (1998), Illana & al. (1999, 2000), Lado & al. (1999a, 1999b, 2002a, 2003, 2007b), Pérez-Silva & Bárcenas (1999), Mosquera & al. (2000a, 2000b, 2003), Yamamoto (2000), Estrada-Torres & al. (2001, 2002a, 2002b, 2002c, 2002d, 2003, 2005, in press), Pérez-Silva & al. (2001), Andrade-Torres & al. (2002a, 2002b), Lizárraga (2002), Stephenson & al. (2003, 2004a, 2004b), Wrigley de Basanta & al. (2002, 2003, 2008, in press), Wrigley de Basanta & Lado (2005).

Nicaragua (NIC): Macbride (1893), Saccardo (1895), Macbride & Smith (1896), Torrend (1908), Farr (1976).

Panama (PAN): Standley (1927, 1933), Weston (1933), Martin (1936, 1938b, 1957), Welden (1954), Davis & Butterfield (1967), Dennis (1970), Ling & Collins (1970), Farr (1974, 1976), Wheeler (1980), Pando (1997).

Paraguay (PAR): Hennings (1896), Saccardo & Trotter (1913), Spegazzini (1886, 1888, 1919b, 1923, 1926), Farr (1973, 1976).

Peru (PER): Rudolphi (1829), Farr (1976), Stephenson & Mitchell (1994), Wrigley de Basanta & Lado (2005), Wrigley de Basanta & al. (2008).

Puerto Rico (PUE): Klotzsch (1852), Seaver & Chardon (1926), Hagelstein (1927, 1932), Alexopoulos (1970), Stevenson (1975), Farr (1976), Stephenson & al. (1999, 2004b), Novozhilov & al. (2000), Minter & al. (2001), Schnittler (2001), Nieves-Rivera & Darrah (2002a, 2002b), Schnittler & Stephenson (2002a, 2002b), Nieves-Rivera (2003), Wrigley de Basanta & Lado (2005), Wrigley de Basanta & al. (2008).

Surinam (SUR): Gilbert (1928), Nannenga-Bremekamp (1961), Farr (1976), Rogerson & al. (1990).

Trinidad and Tobago (TRT): Rorer (1911), Baker & Dale (1951), Barnes (1963), Alexopoulos (1970), Dennis (1970), Farr (1976), Minter & al. (2001).

Uruguay (URU): Spegazzini (1881, 1926), Herter (1907, 1933, 1939), Farr (1976), García-Zorrón (1967, 1977).

Venezuela (VEN): Berlese (1888), Patouillard & Gaillard (1888), Massee (1889), Saccardo (1892, 1895), Torrend (1908), Saccardo & Trotter (1913), Heim (1928), Muenscher (1934), Rodríguez (1955, 1957), Dennis (1960, 1970), Farr & Kowalski (1974), Farr (1974, 1976), Buyck (1984), Verde de Millán & Jaimes (1987), Rogerson & al. (1990).

Windward Islands (WIN): Cooke (1889), Lister (1898a), Duss (1903, 1904), Chardon (1926), Hagelstein (1932), Alexopoulos (1967, 1970), Farr (1969, 1976), Dennis (1970), Minter & al. (2001).

Table 1. List of species by countries.

	Mexico	Belize	Guatemala	Honduras	El Salvador	Nicaragua	Costa Rica	Panama	Bahamas	Cuba	Jamaica	Haiti	Rep. Dominicana	Puerto Rico	Leeward Islands	Windward Islands	Trinidad and Tobago	Colombia	Venezuela	Guyana	Suriname	French Guiana	Brazil	Ecuador	Peru	Bolivia	Paraguay	Uruguay	Chile	Argentina	**Total**
	MEX	BLZ	GUA	HON	ELS	NIC	COS	PAN	BAH	CUB	JAM	HAI	DOM	PUE	LEE	WIN	TRT	CLM	VEN	GUY	SUR	FRG	BZI	ECU	PER	BOL	PAR	URU	CLI	AGA	
Arcyria affinis Rostaf.	MEX																							ECU							**2**
Arcyria afroalpina Rammeloo = *A. afroalpina* var. *mexicana* Lizárraga, G. Moreno & Illana	MEX						COS			CUB				PUE										ECU							**5**
Arcyria cinerea (Bull.) Pers. = *A. digitata* Schwein. = *A. cinerea* var. *digitata* (Schwein.) G. Lister = *A. albida* Pers. = *A. cookei* Massee = *A. cinerea* f. *rubella* Y. Yamam.	MEX	BLZ	GUA	HON		NIC	COS	PAN	BAH	CUB	JAM	HAI	DOM	PUE	LEE	WIN	TRT	CLM	VEN	GUY	SUR	FRG	BZI	ECU	PER	BOL		URU	CLI	AGA	**28**
Arcyria corymbosa M.L. Farr & G.W. Martin																							BZI							AGA	**2**
Arcyria denudata (L.) Wettst. = *A. punicea* Pers.	MEX	BLZ		HON		NIC	COS	PAN	BAH	CUB	JAM		DOM	PUE	LEE	WIN	TRT	CLM	VEN	GUY	SUR	FRG	BZI	ECU	PER	BOL		URU	CLI	AGA	**26**
Arcyria ferruginea Sauter	MEX																						BZI				PAR	URU		AGA	**5**
Arcyria fuegiana Aramb.																														AGA	**1**
Arcyria glauca Lister																														AGA	**1**
Arcyria globosa Schwein.	MEX									CUB				PUE				CLM					BZI	ECU							**6**
Arcyria incarnata (Pers. ex J.F. Gmel.) Pers.	MEX						COS			CUB	JAM	HAI		PUE	LEE	WIN	TRT	CLM	VEN				BZI	ECU			PAR		CLI	AGA	**16**
Arcyria insignis Kalchbr. & Cooke	MEX						COS	PAN		CUB	JAM			PUE	LEE		TRT	CLM	VEN			FRG	BZI	?		BOL		URU	CLI	AGA	**16**
Arcyria magna Rex = *A. magna* var. *rosea* Rex	MEX						COS	PAN		CUB						WIN							BZI								**6**
Arcyria major (G. Lister) Ing																							BZI	ECU							**2**
Arcyria minuta Buchet = *A. carnea* (G. Lister) G. Lister	MEX						COS	PAN															BZI							AGA	**5**
Arcyria nigella Emoto	MEX																														**1**
Arcyria obvelata (Oeder) Onsberg = *A. nutans* (Bull.) Grev. = *A. flava* Pers.	MEX						COS	PAN		CUB	JAM				LEE		TRT		VEN				BZI	ECU			PAR			AGA	**12**

Table 1. (Continuation).

Arcyria oerstedii Rostaf.	MEX						?	PAN	?	CUB									VEN				BZI				PAR			AGA	**7**
Arcyria pomiformis (Leers) Rostaf.	MEX							PAN			JAM			PUE				CLM	VEN				BZI	ECU						AGA	**9**
Arcyria stipata (Schwein.) Lister	MEX										JAM		DOM					CLM					BZI								**5**
Arcyriatella congregata Hochg. & Gottsb.																							BZI								**1**
Badhamia affinis Rostaf. = *B. orbiculata* Rex	MEX							PAN			JAM				LEE	WIN							BZI	ECU					CLI	AGA	**9**
Badhamia calcaripes Gottsb.																							BZI								**1**
Badhamia capsulifera (Bull.) Berk. = *B. hyalina* (Pers.) Berk.	MEX																	CLM											CLI	AGA	**4**
Badhamia cinerascens G.W. Martin							COS											CLM												AGA	**3**
Badhamia dubia Nann.-Bremek.																													CLI		**1**
Badhamia foliicola Lister	MEX																													AGA	**2**
Badhamia gigantospora Ukkola & Härk.																								ECU							**1**
Badhamia goniospora Meyl. = *B. dearnesii* Hagelst.	MEX																														**1**
Badhamia macrocarpa (Ces.) Rostaf.	MEX		GUA				?								LEE				VEN				BZI			BOL		URU	CLI	AGA	**9**
Badhamia melanospora Speg. = *B. gracilis* (T. Macbr.) T. Macbr. = *B. gracilis* var. *melanospora* (Speg.) Castillo, G. Moreno & Illana = *B. grandispora* Illana & G. Moreno	MEX							PAN		CUB				PUE	LEE								BZI	ECU					CLI	AGA	**9**
Badhamia nitens Berk. = *B. aurantiaca* Lizárraga, G. Moreno & Illana = *B. nitens* var. *aurantiaca* (Lizárraga, G. Moreno & Illana) Lizárraga, G. Moreno & Illana	MEX												DOM										BZI			BOL					**4**
Badhamia panicea (Fr.) Rostaf.	MEX															WIN							BZI	ECU		BOL		URU	CLI	AGA	**8**
Badhamia papaveracea Berk. & Ravenel	MEX																						BZI								**2**
Badhamia populina Lister & G. Lister																													CLI		**1**
Badhamia utricularis (Bull.) Berk.	MEX																									BOL					**2**
Badhamia versicolor Lister	MEX																													AGA	**2**
Badhamiopsis ainoae (Yamash.) T.E. Brooks & H.W. Keller = *Badhamia ainoae* Yamash.	MEX															?							BZI								**2**

Table 1. (Continuation).

Barbeyella minutissima Meyl.	MEX																														**1**
Brefeldia maxima (Fr.) Rostaf.								PAN																						AGA	**2**
Calomyxa metallica (Berk.) Nieuwl. = *Margarita metallica* (Berk.) Lister	MEX										JAM												BZI	ECU					CLI	AGA	**6**
Calomyxa synspora M.L. Farr & Kowalski																			VEN												**1**
Calonema foliicola Estrada, J.M. Ramírez & Lado = *Hemitrichia foliicola* (Estrada, J.M. Ramírez & Lado) Lizárraga, G. Moreno & Illana	MEX																														**1**
Ceratiomyxa fruticulosa (O.F. Müll.) T. Macbr. = *C. mucida* (Pers.) Schröt. = *C. arbuscula* (Berk. & Broome) Pat. = *C. fruticulosa* f. *aurea* (Link) Y. Yamam. = *C. fruticulosa* var. *flexuosa* Lister = *Ceratium aureum* Link = *Ceratium hydnoideum* (Jacq.) Alb. & Schwein.	MEX			HON		NIC	COS	PAN		CUB	JAM	HAI	DOM	PUE	LEE	WIN	TRT	CLM	VEN	GUY		FRG	BZI	ECU	PER	BOL	PAR	URU	CLI	AGA	**25**
Ceratiomyxa morchella A.L. Welden	MEX			HON			COS	PAN			JAM			PUE					VEN		SUR		BZI	ECU							**10**
Ceratiomyxa sphaerosperma Boedijn	MEX						COS	PAN		CUB	JAM					WIN		CLM	VEN	GUY		FRG	BZI	ECU							**12**
Clastoderma debaryanum A. Blytt = *C. debaryanum* var. *imperatorium* Emoto	MEX						COS	PAN		CUB	JAM			PUE	LEE	WIN	TRT	CLM	VEN				BZI	ECU					CLI		**14**
Clastoderma pachypus Nann.-Bremek.	MEX						COS																BZI								**3**
Collaria arcyrionema (Rosta.) Nann.-Bremek. ex Lado = *Lamproderma arcyrionema* Rostaf. = *Comatricha shimekiana* T. Macbr.	MEX	BLZ		HON		NIC	COS	PAN		CUB	JAM	HAI	DOM	PUE	LEE	WIN							BZI	ECU						AGA	**16**
Collaria lurida (Lister) Nann.-Bremek. = *Comatricha lurida* Lister	MEX						COS			CUB				PUE				CLM						?							**5**
Collaria rubens (Lister) Nann.-Bremek. = *Comatricha rubens* Lister	MEX						COS																	ECU						AGA	**4**
Colloderma oculatum (C. Lippert) G. Lister																								ECU				URU			**2**
Colloderma robustum Meyl.	MEX																														**1**
Comatricha afroalpina Rammeloo								PAN																							**1**
Comatricha aggregata M.L. Farr											JAM																				**1**
Comatricha anomala Rammeloo	MEX																														**1**

Table 1. (Continuation).

Comatricha argentinae J.R. Deschamps																														AGA	**1**
Comatricha elegans (Racib.) G. Lister	MEX						COS			CUB	JAM	HAI		PUE		WIN	TRT	CLM	VEN				BZI	ECU					CLI	AGA	**14**
Comatricha ellae Härk.	MEX																														**1**
Comatricha laxa Rostaf.	MEX		GUA				COS	PAN		CUB				PUE	LEE				VEN				BZI						CLI	AGA	**11**
Comatricha longipila Nann.-Bremek.	MEX																														**1**
Comatricha meandrispora A. Castillo, G. Moreno & Illana																							BZI								**1**
Comatricha nigra (Pers. ex J.F. Gmel.) J. Schröt. = *C. friesiana* Rostaf. = *Stemonitis ovata* Pers. = *C. obtusata* (Fr.) Preuss	MEX						COS	PAN		CUB	JAM				LEE							FRG	BZI	ECU		BOL			CLI	AGA	**12**
Comatricha pulchella (C. Bab.) Rostaf.	MEX						COS	PAN						PUE					VEN				BZI	ECU		BOL		URU		AGA	**10**
Comatricha reticulospora Ing & Holland	MEX																														**1**
Comatricha tenerrima (M.A. Curtis) G. Lister	MEX	BLZ					COS			CUB	JAM			PUE	LEE				VEN				BZI	ECU	PER					AGA	**12**
Craterium aureum (Schumach.) Rostaf.	MEX						COS				JAM		DOM	PUE		WIN		CLM	VEN				BZI	ECU	PER					AGA	**12**
Craterium concinnum Rex							COS			CUB	JAM							CLM						ECU							**5**
Craterium leucocephalum (Pers. ex J.F. Gmel.) Ditmar = *C. leucocephalum* var. *scyphoides* (Cooke & Balf. f.) G. Lister = *C. scyphoides* (Cooke & Balf. F.) Lizárraga, Illana & G. Moreno = *Cribraria perpusilla* Speg.	MEX		GUA				COS	PAN		CUB	JAM			PUE	LEE	WIN	TRT	CLM	VEN			FRG	BZI	ECU		BOL				AGA	**17**
Craterium minutum (Leers) Rostaf.	MEX									CUB								CLM					BZI								**4**
Craterium obovatum Peck = *Badhamia obovata* (Peck) S.J. Sm. = *C. obovatum* var. *dictyosporum* (Rostaf.) Moreno & Illana	MEX																											URU		AGA	**3**
Craterium paraguayense (Spef.) G. Lister = *Iocraterium rubescens* (Rex) E. Jahn = *Didymium paraguayense* Speg. = *D. guarapiense* Speg.	MEX							PAN										CLM	VEN			FRG	BZI	ECU			PAR			AGA	**9**
Cribraria argillacea (Pers. ex J.F. Gmel.) Pers.	MEX							PAN															BZI							AGA	**4**
Cribraria atrofusca G.W. Martin & Lovejoy	MEX																														**1**
Cribraria aurantiaca Schrad.	MEX							PAN			JAM								VEN				BZI						CLI	AGA	**7**

Table 1. (Continuation).

Cribraria cancellata (Batsch) Nann.-Bremek. = *Dictydium cancellatum* (Batsch) T. Macbr. = *D. cernuum* (Pers.) Nees = *C. cancellata* var. *fusca* (Lister) Nann.-Bremek. = *C. exilis* T. Macbr.	MEX	BLZ	GUA			NIC	COS	PAN	BAH	CUB	JAM			PUE	LEE	WIN	TRT	CLM	VEN			FRG	BZI	ECU	PER	BOL		URU	CLI	AGA	**23**
Cribraria confusa Nann.-Bremek. & Y. Yamam.	MEX															WIN							BZI	ECU							**4**
Cribraria costata Dhillon & Nann.-Bremek.																						FRG									**1**
Cribraria elegans Berk. & M.A. Curtis	MEX																						BZI								**2**
Cribraria ferruginea Meyl.	MEX																														**1**
Cribraria fragilis Lado & Estrada	MEX																														**1**
Cribraria intricata Schrad.	MEX						COS	PAN		CUB	JAM			PUE	LEE	WIN	TRT	CLM	VEN				BZI	ECU		BOL					**14**
Cribraria languescens Rex	MEX						COS	PAN			JAM			PUE	LEE	WIN	TRT		VEN				BZI	ECU							**11**
Cribraria laxa Hagelst.																							BZI								**1**
Cribraria lepida Meyl.	MEX																														**1**
Cribraria macrocarpa Schrad.	MEX																	CLM											CLI		**3**
Cribraria martinii Nann.-Bremek.	MEX																												?		**1**
Cribraria microcarpa (Schrad.) Pers. = *C. pachydictyon* Nann.-Bremek.	MEX	BLZ					COS	PAN		CUB	JAM			PUE	LEE	WIN	TRT	CLM	VEN			FRG	BZI								**14**
Cribraria minutissima Schwein.	MEX						COS				JAM				LEE	WIN	TRT						BZI					URU			**8**
Cribraria mirabilis (Rostaf.) Massee = *Dictydium mirabile* (Rostaf.) Meyl.	MEX						COS																BZI						CLI		**4**
Cribraria oregana H.C. Gilbert = *C. vulgaris* var. *oregana* (H.C. Gilbert) Nann.-Bremek. & Lado	MEX						COS																								**2**
Cribraria piriformis Schrad.	MEX		GUA				COS	PAN															BZI						CLI		**6**
Cribraria purpurea Schrad.	MEX																		VEN												**2**
Cribraria rubiginosa Fr.	MEX																														**1**
Cribraria rufa (Roth) Rostaf.	MEX																														**1**
Cribraria rutila (G. Lister) Nann.-Bremek.																														AGA	**1**
Cribraria splendens (Schrad.) Pers.	MEX						COS				JAM				LEE				VEN				BZI						CLI		**7**
Cribraria tenella Schrad.	MEX			HON			COS	PAN		CUB	JAM	HAI			LEE	WIN		CLM	VEN				BZI	ECU						AGA	**14**
Cribraria violacea Rex	MEX						COS	PAN		CUB	JAM			PUE	LEE	WIN	TRT		VEN				BZI	ECU				URU		AGA	**14**

Table 1. (Continuation).

Cribraria vulgaris Schrad.	MEX						COS																BZI							AGA	**4**
Cribraria zonatispora Lado, Mosquera & Beltrán-Tej.	MEX																														**1**
Diachea bulbillosa (Berk. & Broome) Lister	MEX						COS	PAN		CUB	JAM			PUE		WIN		CLM	VEN				BZI	ECU							**11**
Diachea leucopodia (Bull.) Rostaf. = *D. elegans* (Trentep.) Fr. = *D. confusa* Massee	MEX						COS	PAN		CUB	JAM		DOM	PUE	LEE	WIN	TRT	CLM	VEN				BZI	ECU		BOL	PAR	URU	CLI	AGA	**19**
Diachea radiata G. Lister & Petch	MEX							PAN																					CLI		**3**
Diachea silvaepluvialis M.L. Farr	MEX															WIN															**2**
Diachea subsessilis Peck	MEX														LEE				VEN												**3**
Diacheopsis insessa (G. Lister) Ing	MEX																														**1**
Diadema corticatum Lister	MEX																														**1**
Dianema harveyi Rex	MEX																														**1**
Dictydiaethalium plumbeum (Schumach.) Rostaf. = *D. plumbeum* var. *entoxhantum* (Berk.) G. Lister = *D. plumbeum* var. *cinnabarinum* (Berk. & Broome) Shirai & Hara = *Clathroptychium rugulosum* (Wallr.) Rostaf.	MEX					NIC	COS	PAN					DOM	PUE	LEE			CLM	VEN				BZI						CLI	AGA	**12**
Diderma acanthosporum Estrada & Lado	MEX																														**1**
Diderma antarcticola E. Horak																														AGA	**1**
Diderma antarcticum (Speg.) Sturgis = *Licea antarctica* Speg.																													CLI	AGA	**2**
Diderma asteroides (Lister & G. Lister) G. Lister	MEX																													AGA	**2**
Diderma chondrioderma (de Bary & Rostaf.) G. Lister	MEX	BLZ					COS				JAM			PUE		WIN							BZI	ECU							**8**
Diderma cingulatum Nann.-Bremek.	MEX																							ECU							**2**
Diderma cor-rubrum T. Macbr.																							BZI								**1**
Diderma corrugatum T.E. Brooks & H.W. Keller							COS			CUB													BZI	ECU							**4**
Diderma crustaceum Peck	MEX																														**1**
Diderma deplanatum Fr.	MEX						COS																BZI								**3**

Table 1. (Continuation).

Diderma effusum (Schwein.) Morgan = *Physarum effusum* Schwein. = *D. cubense* Berk. & M.A. Curtis = *Chondrioderma reticulatum* (Rostaf.) Rostaf.	MEX	BLZ					COS	PAN		CUB	JAM			PUE	LEE	WIN	TRT	CLM	VEN				BZI	ECU				URU	?	AGA	**16**
Diderma fallax (Rostaf.) Lado = *D. lyallii* (Massee) T. Macbr.																													CLI		**1**
Diderma floriforme (Bull.) Pers. = *Chondrioderma floriforme* Rostaf.	MEX														?																**1**
Diderma fragile Aramb.																														AGA	**1**
Diderma gigantocolumellae M.L. Farr																														AGA	**1**
Diderma globosum Pers.																			VEN					ECU	PER					AGA	**4**
Diderma gracile Aramb.																														AGA	**1**
Diderma hemisphaericum (Bull.) Hornem. = *Chondrioderma michelii* (Lib.) Rostaf.	MEX		GUA				COS	PAN		CUB	JAM	HAI		PUE	LEE	WIN	TRT	CLM	VEN				BZI	ECU	PER			URU		AGA	**18**
Diderma maculatum Buyck																			VEN												**1**
Diderma miniatum Nann.-Bremek.	MEX																							ECU							**2**
Diderma montanum (Meyl.) Meyl.																			VEN												**1**
Diderma niveum (Rostaf.) T. Macbr. = *Chondrioderma niveum* Rostaf.	MEX						COS											CLM											CLI	AGA	**5**
Diderma ochraceum Hoffm.	MEX																														**1**
Diderma radiatum (L.) Morgan	MEX																	CLM											CLI	AGA	**4**
Diderma rimosum Eliasson & Nann.-Bremek.	MEX																							ECU							**2**
Diderma robustum Aramb.																														AGA	**1**
Diderma rugosum (Rex) T. Macbr. = *Chondrioderma rugosum* Rex	MEX							PAN			JAM				LEE	WIN	TRT														**6**
Diderma saundersii (Massee) Lado = *D. platycarpum* var. *berkeleyanum* Nann.-Bremek.	MEX																							ECU							**2**
Diderma sauteri (Rostaf.) T. Macbr.	MEX						COS												VEN												**3**
Diderma scabrum Eliasson & Nann.-Bremek.																								ECU							**1**
Diderma simplex (J. Schröt.) G. Lister																							?						CLI		**1**
Diderma spumarioides (Fr.) Fr.	MEX		GUA					PAN		CUB	JAM			PUE	LEE	WIN			VEN				BZI			BOL			CLI	AGA	**13**

Table 1. (Continuation).

Diderma stellulum M.L. Farr																							BZI								**1**
Diderma subasteroides M.L. Farr																														AGA	**1**
Diderma subdictyospermum (Rostaf.) G. Lister	MEX																		VEN												**2**
Diderma subincarnatum Kowalski	MEX																												CLI		**2**
Diderma testaceum (Schrad.) Pers. = *Chondrioderma cubense* (Berk. & M.A. Curtis) Rostaf.	MEX						COS			CUB	JAM		DOM		LEE								BZI						CLI		**8**
Diderma umbilicatum Pers.	MEX		GUA																												**2**
Diderma yucatanense Estrada, Lado & S.L. Stephenson	MEX																														**1**
Didymium anellus Morgan	MEX										JAM			PUE			TRT	CLM					BZI	ECU					CLI	AGA	**9**
Didymium applanatum Nann.-Bremek.	MEX																							ECU							**2**
Didymium aquatile Gottsb. & Nann.-Bremek.																							BZI								**1**
Didymium bahiense Gottsb. = *D. bahiense* var. *microsporum* Hochg.	MEX																	CLM	VEN				BZI	ECU							**5**
Didymium clavodecus K.D. Whitney	MEX																														**1**
Didymium clavus (Alb. & Schwein.) Rabenh.	MEX	BLZ					COS	?		CUB	JAM	HAI		PUE	LEE	WIN	TRT	CLM	VEN				BZI	ECU		BOL				AGA	**16**
Didymium columellacavum Hochg., Gottsb. & Nann.-Bremek.																							BZI								**1**
Didymium comatum (Lister) Nann.-Bremek.																WIN															**1**
Didymium crustaceum Fr.	MEX						COS			CUB						WIN			?							BOL					**5**
Didymium difforme (Pers.) Gray = *Diderma difforme* Pers. = *Chondrioderma difforme* (Pers.) Rostaf. = *Chondrioderma micraspis* Speg.	MEX						COS				JAM	HAI				WIN		CLM	VEN				BZI	ECU		BOL	PAR	URU	CLI	AGA	**14**
Didymium dubium Rostf.	MEX						COS											CLM	VEN											AGA	**5**
Didymium eremophilum M. Blackw. & Gilb.	MEX																														**1**
Didymium flexuosum Yamash.																							BZI								**1**
Didymium floccosum G.W. Martin, K.S. Thind & Rehill	?																		VEN					ECU						AGA	**3**
Didymium intermedium J. Schröt. = *D. excelsum* Lister						NIC		PAN			JAM					WIN		CLM					BZI							AGA	**7**

Table 1. (Continuation).

Didymium iridis (Ditmar) Fr. = *D. proximum* Berk, & M.A. Curtis = *D. nigripes* var. *xanthopus* (Ditmar) Lister	MEX			HON		NIC	COS	PAN		CUB	JAM	HAI	DOM	PUE	LEE	WIN	TRT	CLM	VEN			FRG	BZI	ECU		BOL		URU	CLI	AGA	**22**
Didymium karstensii Nann.-Bremek.																								ECU							**1**
Didymium laxifilum G. Lister & J. Ross	MEX																														**1**
Didymium leoninum Berk. & Broome	MEX										JAM							CLM						ECU							**4**
Didymium listeri Massee	MEX																							ECU							**2**
Didymium megalosporum Berk. & M.A. Curtis	MEX																						BZI								**2**
Didymium melanospermum (Pers.) T. Macbr. = *D. farinaceum* Schrad.	MEX			HON						CUB	JAM		DOM		LEE	WIN			VEN				BZI	ECU		BOL			CLI	AGA	**13**
Didymium mexicanum G. Moreno, Lizárraga & Illana	MEX																														**1**
Didymium minus (Lister) Morgan	MEX						COS				JAM				LEE	WIN		CLM					BZI	ECU				URU	CLI	AGA	**11**
Didymium nigripes (Link) Fr. = *D. tenue* Pat. & Gaill.	MEX		GUA	HON			COS	PAN			JAM	HAI	DOM	PUE	LEE	WIN	TRT	CLM	VEN	GUY			BZI	ECU		BOL		URU	CLI	AGA	**21**
Didymium ochroideum G. Lister	MEX						COS							?									BZI	ECU							**4**
Didymium orthonemata H.W. Keller & T.E. Brooks	MEX																														**1**
Didymium ovoideum Nann.-Bremek.	MEX						COS																								**2**
Didymium perforatum Yamash.																														AGA	**1**
Didymium quitense (Pat.) Torrend																								ECU							**1**
Didymium rubeopus G. Moreno, A. Castillo & Illana = *D. rubeopus* var. *albocapillitium* G. Moreno, A. Castillo, Illana & Lizárraga	MEX																														**1**
Didymium serpula Fr.	MEX	BLZ																													**2**
Didymium squamulosum (Alb. & Schwein.) Fr. = *D. costatum* Fr. = *D. herbarum* Fr. = *D. effusum* Link	MEX					NIC	COS	PAN	BAH	CUB	JAM	HAI	DOM	PUE	LEE	WIN	TRT	CLM	VEN				BZI	ECU	PER	BOL	PAR	URU	CLI	AGA	**23**
Didymium sturgisii Hagelst.	MEX																														**1**
Didymium subreticulosporum Oltra, G. Moreno & Illana	MEX																														**1**
Didymium synsporon T.E. Brooks & H.W. Keller																													CLI		**1**

Table 1. (Continuation).

Didymium tehuacanense Estrada, D. Wrigley & Lado	MEX																														**1**
Didymium trachysporum G. Lister	MEX																														**1**
Didymium umbilicatum D. Wrigley, Lado & Estrada	MEX																														**1**
Didymium vaccinum (Durieu & Mont.) Buchet	MEX																		VEN									URU	CLI		**4**
Didymium verrucosporum A.L. Welden	MEX							PAN										CLM	?				?	ECU							**4**
Didymium wildpretii Mosquera, Estrada, Beltrán-Tej., D. Wrigley & Lado	MEX																														**1**
Echinostelium apitectum K.D. Whitney	MEX																							ECU							**2**
Echinostelium arboreum H.W. Keller & T.E. Brooks	MEX																						BZI	ECU							**3**
Echinostelium bisporum (L.S. Olive & Stoian.) K.D. Whitney & L.S. Olive							COS			CUB																					**2**
Echinostelium brooksii K. D. Whitney	MEX																														**1**
Echinostelium coelocephalum T.E. Brooks & H.W. Keller		BLZ																													**1**
Echinostelium colliculosum K.D. Whitney & H.W. Keller	MEX	BLZ																					BZI								**3**
Echinostelium corynophorum K.D. Whitney	MEX																														**1**
Echinostelium cribrarioides Alexop.																WIN															**1**
Echinostelium elachiston Alexop.	MEX										JAM					WIN															**3**
Echinostelium fragile Nann.-Bremek.	MEX																												CLI		**2**
Echinostelium minutum de Bary	MEX	BLZ					COS	PAN		CUB	JAM			PUE	LEE	WIN	TRT	CLM					BZI	ECU	PER						**14**
Elaeomyxa cerifera (G. Lister) Hagelst.	MEX		GUA																												**2**
Enerthenema papillatum (Pers.) Rostaf.	MEX																						BZI	ECU					CLI	AGA	**5**
Fuligo cinerea (Schwein.) Morgan	MEX						COS			CUB	JAM				LEE	WIN							BZI							AGA	**8**
Fuligo intermedia T. Macbr.	MEX																														**1**
Fuligo megaspora Sturgis	MEX		GUA				COS																BZI							AGA	**5**
Fuligo muscorum Alb. & Schwein.										CUB									VEN												**2**
Fuligo septica (L.) F.H. Wigg. = *F. varians* Sommerf. = *Aethalium septicum* (L.) Fr. = *F. septica* var. *flava* (Pers.) Lázaro Ibiza	MEX					NIC	COS	PAN		CUB	JAM		DOM	PUE	LEE	WIN	TRT		VEN			FRG	BZI	ECU		BOL	PAR	URU	CLI	AGA	**20**

Table 1. (Continuation).

Hemitrichia abietina (Wigand) G. Lister																														AGA	**1**
Hemitrichia calyculata (Speg.) M.L. Farr = *Hemiarcyria calyculata* Speg. = *Hyporhamma calyculata* (Speg.) Lado = *Hemitrichia stipitata* (Massee) T. Macbr. = *H. clavata* var. *calyculata* (Speg.) Y. Yamam. = *Hermiarcyria plumosa* Morgan	MEX		GUA	HON		NIC	COS	PAN		CUB	JAM		DOM	PUE	LEE	WIN	TRT	CLM	VEN			FRG	BZI	ECU	PER		PAR		CLI	AGA	**22**
Hemitrichia clavata (Pers.) Rostaf. = *Hemiarcyria clavata* (Pers.) Rostaf.	MEX					?		?	BAH	CUB			DOM	PUE	LEE	WIN	TRT	CLM	VEN				BZI	ECU				URU	CLI	AGA	**15**
Hemitrichia insignis Torrend																							BZI								**1**
Hemitrichia intorta (Lister) Lister	MEX																		VEN												**2**
Hemitrichia leiocarpa (Cooke) Lister = *Arcyria leiocarpa* (Cooke) G.W. Martin & Alexop.	MEX	BLZ					COS	PAN		CUB						WIN		CLM					BZI								**8**
Hemitrichia leiotricha (Lister) G. Lister	MEX																		VEN												**2**
Hemitrichia minor G. Lister = *Perichaena minor* (G. Lister) Hagelst. = *Hyporhamma minor* (G. Lister) Lado	MEX	BLZ					COS	PAN								WIN							BZI						CLI		**7**
Hemitrichia montana (Morgan) T. Macbr.	MEX																														**1**
Hemitrichia paragoga M.L. Farr											JAM					WIN															**2**
Hemitrichia pardina (Minakata) Ing = *Perichaena minor* var. *pardina* (Minakata) Hagelst.	MEX						COS			CUB				PUE									BZI	ECU							**6**
Hemitrichia parviverrucospora (Lizárraga, G.Moreno & Illana) G. Moreno & Illana = *H. serpula* var. *parviverrucospora* Lizárraga, Illana & G. Moreno	MEX																														**1**
Hemitrichia serpula (Scop.) Rostaf. ex Lister = *Hemiarcyria serpula* (Scop.) Rostaf. = *Hyporhamma serpula* (Scop.) Lado = *Hemitrichia serpula* var. *piauiensis* Cavalcanti & Mobin = *Mucor serpula* Scop. = *Trichia serpula* (Scop.) Pers. = *Arcyria serpula* (Scop.) Massee	MEX		GUA			NIC	COS	PAN		CUB	JAM		DOM	PUE	LEE	WIN	TRT	CLM	VEN			FRG	BZI	ECU		BOL		URU	CLI	AGA	**21**
Lamproderma arcyrioides (Sommerf.) Rostaf.	MEX										JAM		DOM	PUE									BZI							AGA	**6**

Table 1. (Continuation).

Lamproderma columbinum (Pers.) Rostaf.	MEX						COS																								**2**
Lamproderma cribrarioides (Fr.) R.E. Fr.							COS																								**1**
Lamproderma echinulatum (Berk.) Rostaf.	MEX						COS																								**2**
Lamproderma gulielmae Meyl.	MEX																														**1**
Lamproderma muscorum (Lév.) Hagelst. = *Enerthenema muscorum* Lév.	MEX						COS											CLM	VEN				BZI	?							**5**
Lamproderma sauteri Rostaf.							COS																								**1**
Lamproderma scintillans (Berk. & Broome) Morgan	MEX						COS	PAN		CUB	JAM	HAI		PUE	LEE	WIN		CLM	VEN				BZI	ECU		BOL					**14**
Lamproderma tuberculosporum M.L. Farr																		CLM													**1**
Leocarpus fragilis (Dicks.) Rostaf. = *L. vernicosus* S.F. Gray	MEX						COS											CLM					BZI						CLI	AGA	**6**
Lepidoderma granuliferum (W. Phillips) R.E. Fr.																														AGA	**1**
Lepidoderma trevelyanii (Grev.) Poulain & Mar. Mey. = *Diderma trevelyanii* (Grev.) Fr.																													CLI	AGA	**2**
Lepidoderma tigrinum (Schrad.) Rostaf.	MEX																														**1**
Leptoderma megaspora Aramb. & Spinedi																														AGA	**1**
Licea belmontiana Nann.-Bremek.	MEX																														**1**
Licea biforis Morgan	MEX	BLZ					COS			CUB	JAM							CLM					BZI	ECU					CLI		**9**
Licea bulbosa Nann.-Bremek. & Y. Yamam.										CUB																					**1**
Licea castanea G. Lister	MEX																						BZI								**2**
Licea denudescens H.W. Keller & T.E. Brooks	MEX	BLZ																					BZI								**3**
Licea erecta K.S. Thind & Dhillon = *L. erectoides* Nann.-Bremek. & Y. Yamam.		BLZ								CUB													BZI								**3**
Licea floriformis T.N. Lakkh. & R.K. Chopra = *L. floriformis* var. *aureospora* M.T.M. Willemse & Nann.-Bremek.	MEX																														**1**
Licea kleistobolus G.W. Martin	MEX	BLZ																					BZI								**3**
Licea marginata Nann.-Bremek.		BLZ																													**1**
Licea minima Fr.	MEX							PAN																				URU			**3**

Table 1. (Continuation).

Licea nannengae Pando & Lado	MEX																														**1**
Licea operculata (Wingate) G.W. Martin	MEX						COS	PAN						PUE		WIN			VEN				BZI	ECU	PER			URU			**10**
Licea parasitica (Zukal) G.W. Martin	MEX	BLZ																					BZI								**3**
Licea pedicellata (H.C. Gilbert) H.C. Gilbert	MEX							PAN						PUE		WIN							BZI	ECU							**6**
Licea perexigua T.E. Brooks & H.W. Keller	MEX	BLZ					COS																	ECU							**4**
Licea poculiformis Ukkola	MEX																														**1**
Licea pseudoconica T.E. Brooks & H.W. Keller	MEX	BLZ																													**2**
Licea punctiformis G.W. Martin		BLZ																										URU			**2**
Licea pusilla Schrad.	MEX							PAN			JAM																				**3**
Licea pygmaea (Meyl.) Ing	MEX																														**1**
Licea rugosa Nann.-Bremek. & Y. Yamam. = *L. rugosa* var. *fujiokana* (Y. Yamam.) D. Wrigley & Lado	MEX																														**1**
Licea scyphoides T.E. Brooks & H.W. Keller	MEX	BLZ								CUB														ECU	PER						**5**
Licea succulenticola Mosquera, Lado, Estrada & Beltran-Tej.	MEX																							ECU					CLI		**3**
Licea tenera E. Jahn	MEX																						BZI					URU			**3**
Licea tuberculata G.W. Martin								PAN																							**1**
Licea variabilis Schrad. = *L. flexuosa* Pers.	MEX																						BZI						CLI		**3**
Lindbladia tubulina Fr.	MEX																													AGA	**2**
Lycogala confusum Nann.-Brekem. ex Ing																								ECU							**1**
Lycogala conicum Pers.	MEX					NIC		PAN		CUB	JAM				LEE								BZI								**7**
Lycogala epidendrum (L.) Fr. = *L. miniatum* Pers. = *L. epidendrum* var. *terrestre* (Fr.) Y. Yamam.	MEX					NIC	COS	PAN	BAH	CUB	JAM		DOM	PUE	LEE	WIN	TRT	CLM	VEN			FRG	BZI	ECU				URU	CLI	AGA	**20**
Lycogala exiguum Morgan	MEX						COS	PAN		CUB	JAM			PUE	LEE	WIN		CLM	VEN	GUY		FRG	BZI	ECU							**14**
Lycogala flavofuscum (Ehrenb.) Rostaf.	MEX							PAN															BZI					URU		AGA	**5**
Macbrideola cornea (G. Lister & Cran) Alexop.	MEX						COS																	ECU							**3**
Macbrideola decapillata H.C. Gilbert	MEX						COS																	ECU							**3**
Macbrideola herrerae Lizárraga, G. Moreno & Illana	MEX																														**1**

Table 1. (Continuation).

Macbrideola lamprodermoides G. Moreno, Lizárraga & Illana	MEX																														**1**
Macbrideola martinii (Alexop. & Beneke) Alexop. = *Comatricha martinii* Alexop. & Beneke	MEX	BLZ					COS				JAM					WIN							BZI	ECU							**7**
Macbrideola oblonga Pando & Lado	MEX																														**1**
Macbrideola scintillans H.C. Gilbert = *M. scintillans* var. *verrucosa* (Nann.-Bremek. & Y. Yamam.) Y. Yamam.	MEX	BLZ					COS																								**3**
Macbrideola synsporos (Alexop.) Alexop.	MEX																														**1**
Metatrichia floriformis (Schwein.) Nann.-Bremek. = *Trichia floriformis* (Schwein.) G. Lister = *T. lateritia* Lév.	MEX						COS				JAN			PUE					VEN				BZI	ECU					CLI	AGA	**9**
Metatrichia horrida Ing	MEX									CUB																				AGA	**3**
Metatrichia vesparia (Batsch) Nann.-Bremek. ex G.W. Martin & Alexop. = *Hemitrichia vesparia* (Batsch) T. Macbr. = *Trichia rubiformis* Pers. = *T. pyriformis* Leers ex Hoffm. = *Hemiarcyria rubiformis* (Pers.) Rostaf.	MEX					NIC	COS	PAN		CUB	JAM		DOM	PUE	LEE	WIN	TRT		VEN				BZI	ECU		BOL				AGA	**16**
Mucilago crustacea F.H. Wigg. = *M. dictyospora* (R.E. Fr.) Lizárraga, G. Moreno & Illana	MEX									CUB														ECU		BOL		URU	CLI	AGA	**7**
Oligonema dancoi Aramb. & Spinedi																														AGA	**1**
Oligonema schweinitzii (Berk.) G.W. Martin	MEX																						BZI							AGA	**3**
Paradiachea caespitosa (Sturgis) Hertel ex H. Neubert, Nowotny & K. Baumann = *Comatricha caespitosa* Sturgis																														AGA	**1**
Paradiacheopsis curitibana Hertel																							BZI								**1**
Paradiacheopsis fimbriata (G. Lister & Cran) Hertel ex Nann.-Bremk. = *Comatricha fimbriata* G. Lister & Cran = *P. fimbriata* var. *penicillata* (Nann.-Bremek. & Y. Yamam.) Y. Yamam.	MEX																							ECU							**2**
Paradiacheopsis longipes Hooff & Nann.-Bremek.							COS																								**1**

Table 1. (Continuation).

Paradiacheopsis rigida (Brandza) Nann.-Bremek.		BLZ																													**1**
Perichaena chrysosperma (Curr.) G. Lister = *Hemitrichia melanopeziza* Speg. = *Hemiarcyria melanopeziza* (Speg.) Berl. = *Ophiotheca wrightii* Berk. & M.A. Curtis = *Cornuvia wrigthii* (Berk. & M.A. Curtis) Rostaf. = *O. chrysosperma* Curr.	MEX	BLZ				NIC	COS	PAN		CUB	JAM		DOM	PUE	LEE	WIN	TRT	CLM	VEN	GUY			BZI	ECU				URU	CLI	AGA	**20**
Perichaena corticalis (Batsch) Rostaf. = *P. corticalis* var. *liceoides* (Rostaf.) G. Lister	MEX						COS	PAN		CUB			DOM										BZI	ECU					CLI	AGA	**9**
Perichaena depressa Lib.	MEX					NIC	COS	PAN		CUB	JAM			PUE	LEE	WIN	TRT	CLM	VEN				BZI	ECU		BOL		URU	CLI	AGA	**18**
Perichaena dictyonema Rammeloo							?							PUE										ECU							**2**
Perichaena luteola (Kowalski) Gilert = *Calonema luteola* Kowalski	MEX																														**1**
Perichaena microspora Penz & Lister										CUB													BZI								**2**
Perichaena pedata (Lister & G. Lister) G. Lister ex E. Jahn	MEX						COS																	ECU							**3**
Perichaena quadrata T. Macbr.	MEX																														**1**
Perichaena stipitata Lado, Estrada & D. Wrigley	MEX																														**1**
Perichaena syncarpon T.E. Brooks	MEX																														**1**
Perichaena vermicularis (Schwein.) Rostaf.	MEX						COS	PAN		CUB					LEE	WIN							BZI	ECU	PER	BOL			CLI	AGA	**12**
Physarella oblonga (Berk. & M.A. Curtis) Morgan = *Tilmadoche oblonga* (Berk. & M.A. Curtis) Rostaf. = *Ph. oblonga* f. *alba* Alexop. = *Ph. mirabilis* (Peck) Peck = *Perichaena pseudoaecidium* Speg.	MEX					NIC	COS	PAN		CUB	JAM			PUE	LEE	WIN	TRT	CLM	VEN	GUY		FRG	BZI	ECU			PAR			AGA	**18**
Physarina echinospora K.S. Thind & Manocha	MEX																														**1**
Physarum aeneum (Lister) R.E. Fr.	MEX													PUE	LEE	WIN							BZI	ECU		BOL					**7**
Physarum album (Bull.) Chevall. = *Ph. nutans* Pers. = *Tilmadoche nutans* (Pers.) Rostaf. = *Didymium furfuraceum* (Schummach.) Fr.	MEX	BLZ	GUA				COS	PAN		CUB	JAM		DOM	PUE		WIN	TRT	CLM	VEN			FRG	BZI	ECU		BOL		URU	CLI	AGA	**20**
Physarum alpinum (Lister & G. Lister) G. Lister																			VEN												**1**

Table 1. (Continuation).

Physarum alvoradianum Gottsb.	MEX																						BZI								**2**
Physarum auriscalpium Cooke = *Ph. limonium* Nann.-Bremek. = *Ph. chlorinum* Cooke?	MEX	BLZ					?	PAN						PUE	LEE	WIN			VEN				BZI								**8**
Physarum bethelii T. Macbr. ex G. Lister																							BZI						CLI	AGA	**3**
Physarum bitectum G. Lister	MEX						COS				JAM			PUE				CLM	VEN												**6**
Physarum bivalve Pers. = *Leocarpus melaleucus* Mont. = *Ph. sinuosum* (Bull.) Weinm.	MEX						COS	PAN		CUB		HAI			LEE			CLM	VEN			FRG	BZI	ECU	PER				CLI	AGA	**14**
Physarum bogoriense Racib.	MEX						COS	PAN		CUB	JAM			PUE	LEE	WIN	TRT	CLM	VEN	GUY	SUR	FRG	BZI	ECU	PER	BOL		URU		AGA	**20**
Physarum brunneolum (W. Phillips) Massee	MEX						COS											CLM	?										CLI		**4**
Physarum bubalinum M.L. Farr																WIN															**1**
Physarum carneum G. Lister & Sturgis	MEX																														**1**
Physarum cinereum (Batsch) Pers. = *Didymium cinereum* (Batsch) Fr.	MEX					NIC	COS	PAN		CUB	JAM	HAI	DOM	PUE	LEE	WIN	TRT	CLM	VEN		SUR		BZI	ECU		BOL	PAR	URU	CLI	AGA	**22**
Physarum citrinum Schumach.	MEX						COS								LEE	WIN		CLM	VEN										CLI	AGA	**8**
Physarum compressum Alb. & Schwein.	MEX	BLZ	GUA				COS	PAN	BAH	CUB	JAM	HAI	DOM	PUE	LEE	WIN	TRT	CLM	VEN		SUR	FRG	BZI	ECU	PER	BOL			CLI	AGA	**24**
Physarum contextum (Pers.) Pers.	MEX					NIC	COS																							AGA	**4**
Physarum crateriforme Petch	MEX	BLZ					COS			CUB				PUE	LEE	WIN							BZI	ECU							**9**
Physarum decipiens M.A. Curtis	MEX						COS																BZI		PER	BOL					**5**
Physarum dictyospermum Lister & G. Lister																			VEN										CLI		**2**
Physarum dictyosporum G.W. Martin	MEX						COS											CLM													**3**
Physarum diderma Rostaf.																														AGA	**1**
Physarum didermoides (Pers.) Rostaf. = *Ph. platense* Speg.	MEX		GUA				COS	PAN		CUB	JAM		DOM	PUE		WIN	TRT	CLM					BZI	ECU						AGA	**14**
Physarum echinosporum Lister								PAN			JAM				LEE	WIN							BZI	ECU				URU	CLI		**8**
Physarum flavicomum Berk.	MEX	BLZ					?								LEE		TRT	CLM					BZI						CLI		**7**
Physarum flavidum (Peck) Peck							COS																								**1**
Physarum fulgens Pat.								PAN			JAM			PUE		WIN		CLM					BZI	ECU							**7**
Physarum galbeum Wingate	MEX					NIC				CUB	JAM					WIN		CLM					BZI	?						AGA	**8**
Physarum globuliferum (Bull.) Pers. = *Diderma globuliferum* (Bull.) Fr. = *Ph. delicatissimum* Speg.	MEX						COS	PAN	BAH		JAM				LEE		TRT	CLM	VEN			FRG	BZI	ECU	PER				CLI	AGA	**15**

Table 1. (Continuation).

Physarum gyrosum Rostaf. = *Fuligo gyrosa* (Rostaf.) E. Jahn	MEX													?				CLM					BZI					URU			**4**
Physarum hongkongense Chao H. Chung	MEX																													**1**
Physarum javanicum Racib.	MEX						COS			CUB	JAM			PUE			TRT	CLM	VEN			FRG	BZI	ECU							**11**
Physarum lakhanpalii Nann.-Bremek. & Y. Yamam.																								ECU							**1**
Physarum lateritium (Berk. & Ravenel) Morgan = *Ph. inaequale* Peck	MEX														LEE	WIN							BZI						CLI		**5**
Physarum leucophaeum Fr. = *Ph. nutans* var. *leucophaeum* (Fr.) Lister	MEX									CUB	JAM		DOM		LEE	WIN			?				BZI	ECU					CLI	AGA	**10**
Physarum leucopus Link = *Didymium squamulosum* var. *leucopus* (Link) Rostaf. = *Didymium leucopus* (Link) Fr.	MEX		GUA				COS	PAN			JAM					WIN		CLM					BZI				PAR			AGA	**10**
Physarum licheniforme (Schwein.) Lado = *Ph. lividum* Rostaf. = *Ph. didermoides* var. *lividum* (Rostaf.) Lister	MEX									CUB																					**2**
Physarum luteolum Peck	MEX																														**1**
Physarum megalosporum T. Macbr.	MEX																						BZI						CLI		**3**
Physarum melleum (Berk. & Broome) Massee = *Ph. rubropunctatum* Pat.	MEX		GUA				COS	PAN		CUB	JAM		DOM	PUE	LEE	WIN	TRT	CLM	VEN				BZI	ECU		BOL				AGA	**17**
Physarum mennegae Nann.-Bremek.																					SUR		BZI								**2**
Physarum murinum Lister	MEX						COS																								**2**
Physarum mutabile (Rostaf.) G. Lister	MEX																		VEN				BZI							AGA	**4**
Physarum newtonii T. Macbr.	MEX																														**1**
Physarum nicaragüense T. Macbr.	MEX	BLZ				NIC	COS				JAM	HAI		PUE			TRT						BZI								**9**
Physarum nitens (Lister) Ing = *Ph. virescens* var. *nitens* Lister																							BZI								**1**
Physarum notabile T. Macbr. = *Ph. connatum* Peck	MEX						COS				JAM					WIN							BZI			BOL				AGA	**7**
Physarum nucleatum Rex	MEX					NIC	COS			CUB	JAM			PUE	LEE	WIN	TRT		VEN			FRG	BZI	ECU						AGA	**14**
Physarum nudum T. Macbr.																							BZI								**1**
Physarum oblatum T. Macbr.	MEX	BLZ						PAN			JAM					WIN		CLM	VEN				BZI	ECU							**9**
Physarum ovisporum G. Lister	?																	CLM					BZI						CLI	AGA	**4**

Table 1. (Continuation).

Physarum penetrale Rex	MEX						PAN			JAM					WIN			VEN			FRG	BZI	?					CLI		**8**
Physarum pezizoideum (Jungh.) Pavill. & Lagarde = *Trichamphora pezizoidea* Jungh = *Ph. pezizoideum* var. *microsporum* M.L. Farr	MEX								CUB	?			?									BZI			?				AGA	**4**
Physarum polycephalum Schwein. = *Didymium polymorphum* Mont. = *Ph. polymorphum* (Mont.) Rostaf. = *Ph. polycephalum* var. *obrusseum* (Berk. & M.A. Curtis) Lister	MEX				NIC	COS			CUB	JAM			PUE	LEE	WIN	TRT			GUY	SUR		BZI					URU		AGA	**14**
Physarum psittacinum Ditmar							PAN								WIN		CLM	VEN										CLI		**5**
Physarum pulcherrimum Berk. & Ravenel																										PAR				**1**
Physarum pulcherripes Peck = *Ph. petersii* Berk. & M.A. Curtis	MEX					COS	PAN			JAM					WIN	TRT		VEN												**7**
Physarum pusillum (Berk. & M.A. Curtis) G. Lister	MEX	BLZ				COS	PAN		CUB	JAM	HAI	DOM	PUE	LEE	WIN		CLM					BZI	ECU	PER	BOL		URU	CLI	AGA	**19**
Physarum reniforme (Massee) G. Lister													PUE									BZI								**2**
Physarum rigidum (G. Lister) G. Lister						COS				JAM			PUE	LEE		TRT						BZI					URU		AGA	**8**
Physarum robustum (Lister) Nann.-Bremek.	MEX																													**1**
Physarum roseum Berk. & Broome	MEX					?				JAM					WIN		CLM					BZI				PAR				**6**
Physarum rubiginosum Fr.	MEX									JAM					WIN															**3**
Physarum serpula Morgan	MEX					COS	PAN		CUB	JAM						TRT						BZI	ECU						AGA	**9**
Physarum sessile Brandza																	CLM	VEN				BZI	?							**3**
Physarum spectabile Nann.-Bremek., Lado & G. Moreno	MEX																											CLI		**2**
Physarum stellatum (Massee) G.W. Martin = *Ph. columbinum* (Rostaf.) Sturgis = *Ph. wingatense* T. Macbr. = *Tilmadoche compacta* Wingate = *Ph. compactum* (Wingate) Lister = *Didymium barteri* Massee	MEX				NIC	COS	PAN		CUB	JAM			PUE	LEE	WIN	TRT	CLM	VEN			FRG	BZI	ECU		BOL					**16**
Physarum straminipes Lister	MEX					?																						CLI		**2**
Physarum sulphureum Alb. & Schwein.	MEX									JAM			PUE	LEE				VEN				BZI							AGA	**7**
Physarum superbum Hagelst.	MEX					COS					HAI		PUE					VEN				?	ECU	PER						**7**

Table 1. (Continuation).

Physarum tenerum Rex = *Ph. maculatum* T. Macbr.	MEX					NIC	COS	PAN			JAM			PUE	LEE	WIN	TRT	CLM	?	GUY			BZI	ECU						AGA	**14**
Physarum tropicale T. Macbr.	MEX	BLZ																	?												**2**
Physarum vernum Sommerf.	MEX		GUA				?			CUB								CLM	?				BZI						CLI	AGA	**7**
Physarum virescens Ditmar	MEX																		VEN				BZI				PAR			AGA	**5**
Physarum viride (Bull.) Pers. = *Tilmadoche viridis* (Bull.) Sacc. = *T. mutabilis* Rostaf. = *Ph. viride* var. *aurantium* (Bull.) Lister = *T. mutabilis* var. *aurantiaca* Rostaf. = *Ph. viride* var. *incanum* G. Lister = *Ph. viride* f. *incanum* (G. Lister) Y. Yamam.	MEX			HON		NIC	COS	PAN	BAH	CUB	JAM			PUE	LEE	WIN	TRT	CLM	VEN			FRG	BZI	ECU	PER		PAR	URU	CLI	AGA	**22**
Physarum xanthinum Nann.-Bremek. & Döbbeler																								ECU							**1**
Protophysarum phloiogenum M. Blackw. & Alexop.	MEX																														**1**
Prototrichia metallica (Berk.) Massee	MEX																	CLM													**2**
Reticularia intermedia Nann.-Bremek. = *Enteridium intermedium* (Nann.-Bremek.) M.L. Farr	MEX								?																					AGA	**2**
Reticularia jurana Meyl. = *Enteridium juranum* (Meyl.) L.H. Cavalc. & S. C. Brito = *E. splendens* var. *juranum* (Meyl.) Härk	MEX																						BZI								**2**
Reticularia lycoperdon Bull. = *Enteridium lycoperdon* (Bull.) M.L. Farr	MEX							PAN			JAM		DOM	PUE		WIN		CLM					BZI	ECU				URU	CLI	AGA	**12**
Reticularia olivacea (Ehrenb.) Fr.	MEX																												CLI	AGA	**3**
Reticularia splendens Morgan = *Enteridium splendens* (Morgan) T. Macbr. = *E. rozeanum* (Rostaf.) Wingate	MEX							PAN																					CLI		**3**
Stemonaria gracilis Nann.-Bremek. & Y. Yamam.																									PER						**1**
Stemonaria irregularis (Rex) Nann.-Bremek., R. Sharma & Y. Yamam. = *Comatricha irregularis* Rex											JAM			PUE		WIN			VEN				BZI	?						AGA	**6**

Table 1. (Continuation).

Stemonaria longa (Peck) Nann.-Bremek., R. Sharma & Y. Yamam. = *Comatricha longa* Peck	MEX					NIC		PAN		CUB	JAM			PUE	LEE	WIN	TRT					FRG	BZI			BOL		URU		AGA	**14**
Stemonitis axifera (Bull.) T. Macbr. = *S. ferruginea* Enrenb. = *S. smithii* T. Macbr. = *S. axifera* var. *smithii* (T. Macbr.) Hagelst.	MEX			HON		NIC	COS	PAN		CUB	JAM	HAI	DOM	PUE	LEE	WIN	TRT	CLM	VEN				BZI	ECU	PER			URU	CLI	AGA	**21**
Stemonitis flavogenita E. Lahn	MEX		GUA				COS	PAN		CUB	JAM			PUE		WIN	TRT		VEN				BZI	ECU						AGA	**13**
Stemonitis foliicola Ing																									PER						**1**
Stemonitis fusca Roth = *S. nigrescens* Rex = *S. fusca* var. *nigrescens* (Rex) Torrend = *S. carolinensis* T. Macbr. = *S. maxima* Schwein = *S. castillensis* T. Macbr.	MEX					NIC	COS	PAN		CUB	JAM		DOM	PUE	LEE	WIN	TRT	CLM	VEN			FRG	BZI	ECU	PER			URU	CLI	AGA	**20**
Stemonitis herbatica Peck	MEX	BLZ	GUA				COS		BAH	CUB	JAM		DOM	PUE	LEE	WIN			VEN				BZI	ECU						AGA	**15**
Stemonitis inconspicua Nann.-Bremek.	MEX																													AGA	**2**
Stemonitis mussoriensis G.W. Martin, K.S. Thind & Sohi = *S. brasiliensis* M.L. Farr & G.W. Martin	?																						BZI								**1**
Stemonitis pallida Wingate	MEX							PAN		CUB	JAM			PUE			TRT		VEN			FRG	BZI	ECU						AGA	**11**
Stemonitis splendens Rostaf. = *S. webberii* Rex = *S. lignicola* Nann.-Bremek.	MEX	BLZ	GUA			NIC	COS	PAN		CUB	JAM			PUE	LEE	WIN	TRT	CLM	VEN			FRG	BZI	ECU	PER	BOL	PAR	URU	CLI	AGA	**23**
Stemonitis virginiensis Rex	MEX							PAN															BZI							AGA	**4**
Stemonitopsis aequalis (Peck.) Y. Yamam. = Comatricha aequalis Peck							COS	PAN			JAM					WIN							BZI								**5**
Stemonitopsis gracilis (G. Lister) Nann.-Bremek. = *Comatricha pulchella* var. *gracilis* G. Lister	MEX									CUB													BZI								**3**
Stemonitopsis hyperopta (Meyl.) Nann.-Bremek. = *Stemonitis hyperopta* Meyl.	MEX		GUA				COS	PAN			JAM			PUE		WIN							BZI						CLI	AGA	**10**
Stemonitopsis microspora (Lister) Nann.-Bremek. = *Stemonitis microsperma* Ing	MEX																													AGA	**2**
Stemonitopsis reticulata (H.C. Gilbert) Nann.-Bremek. & Y. Yamam. = *Comatricha dictyospora* L.F. Celak.																							BZI							AGA	**2**

Table 1. (Continuation).

Stemonitopsis subcaespitosa (Peck) Nann.-Bremek. = *Comatricha subcaespitosa* Peck	MEX						COS									WIN			VEN				BZI							AGA	**6**
Stemonitopsis typhina (F.H. Wigg.) Nann.-Bremek. = *Comatricha typhoides* (Bull.) Rostaf. = *C. typhina* (F.H. Wigg.) Rostaf. = *Stemonitis platensis* Speg. = *C. typhoides* var. *longipes* E. Jahn = *C. typhoides* var. *similis* G. Lister	MEX		GUA			NIC	COS	PAN		CUB	JAM		DOM	PUE	LEE	WIN	TRT	CLM	VEN	GUY		FRG	BZI	ECU	PER			URU	CLI	AGA	**22**
Symphytocarpus amaurochaetoides Nann.-Bremek.	MEX																														**1**
Symphytocarpus confluens (Cooke & Ellis) Ing & Nann.-Bremek. = *Stemonitis confluens* Cooke & Ellis	MEX																						BZI							AGA	**3**
Symphytocarpus flaccidus (Lister) Ing & Nann.-Bremek.																							BZI								**1**
Symphytocarpus trechisporus (Berk. ex Torrend) Nann.-Bremek. = *Stemonitis trechispora* (Berk. ex Torrend) T. Macbr.	MEX																		VEN					?					?		**2**
Trabrooksia applanata H.W. Keller																								ECU							**1**
Trichia affinis de Bary	MEX							PAN		CUB							TRT							ECU					CLI		**6**
Trichia agaves (G. Moreno, Lizárraga & Illana) Mosquera, Lado, Estrada & Beltrán-Tej. = *T. perichaenoides* Mosquera, Lado, Estrada & Beltrán-Tej.	MEX																														**1**
Trichia antarctica Aramb. & Spinedi																														AGA	**1**
Trichia botrytis (J.F. Gmel.) Pers. = *T. botrytis* var. *cerifera* G.Lister = *T. lorinseriana* Corda = *T. fragilis* (Sowerby) Rostaf.	MEX						COS				JAM		DOM										BZI						CLI	AGA	**7**
Trichia conglobata M.L. Farr																			VEN												**1**
Trichia contorta (Ditmar) Rostaf. = *Hemitrichia karstenii* (Rostaf.) Lister	MEX																						BZI						CLI		**3**
Trichia crateriformis G.W. Martin																														AGA	**1**
Trichia decipiens (Pers.) T. Macbr. = *Arcyria decipiens* Pers. = *T. fallax* Pers. = *T. pusilla* (Hedw.) G.W. Martin = *T. decipiens* var. *olivacea* (Meyl.) Meyl.	MEX		GUA				COS			CUB	JAM			PUE					VEN				BZI	ECU					CLI	AGA	**11**

Table 1. (Continuation).

Trichia erecta Rex	MEX																														**1**
Trichia favoginea (Batsch) Pers. = *Lycoperdon favogineum* Batsch = *T. chrysosperma* (Bull.) Lam. & DC. = *T. kalbreyeri* Massee	MEX						COS	PAN		CUB	JAM		DOM	PUE	LEE	WIN	TRT	CLM	VEN			FRG	BZI	ECU	PER	BOL		URU	CLI	AGA	**20**
Trichia flavicoma (Lister) Ing	MEX												DOM																		**2**
Trichia lutescens (Lister) Lister	MEX																						BZI								**2**
Trichia macbridei M. Peck																														AGA	**1**
Trichia munda (Lister) Meyl. = *T. botritis* var. *munda* Lister																													CLI		**1**
Trichia persimilis P. Karst.	MEX							PAN																	PER				CLI		**4**
Trichia scabra Rostaf.	MEX						COS				JAM							CLM	VEN				BZI	ECU						AGA	**8**
Trichia subfusca Rex																														AGA	**1**
Trichia varia (Pers. ex J.F. Gmel.) Pers. = *T. nigripes* Pers.	MEX						COS			CUB	JAM								VEN					ECU			PAR		CLI	AGA	**9**
Trichia verrucosa Berk.	MEX						COS			CUB	JAM					WIN		CLM					BZI						CLI	AGA	**9**
Tubifera bombarda (Berk. & Broome) G.W. Martin							COS				JAM			PUE					VEN			FRG	BZI								**6**
Tubifera casparyi (Rostaf.) T. Macbr.	MEX																													AGA	**2**
Tubifera dimorphotheca Nann.-Bremek. & Loer.																							BZI								**1**
Tubifera ferruginosa (Batsch) J.F. Gmel. = *Tubulina cylindrica* (Bull.) DC.	MEX						COS	PAN			JAM		DOM	PUE	LEE	WIN						FRG	BZI	ECU					CLI	AGA	**13**
Tubifera microsperma (Berk. & M.A. Curtis) G. W. Martin = *Licea microsperma* Berk. & M.A. Curtis = *Tubulifera microsperma* (Berk. & M.A. Curtis) Lado = *Tubulina stipitata* Berk. & Ravenel ex Rostaf. = *Licea stipata* Berk. & Rabéenle = *Tubifera stipitata* (Berk. & Ravenel ex Rostaf) T.Macbr.	MEX					NIC	COS	PAN		CUB	JAM			PUE	LEE	WIN	TRT	CLM	VEN		SUR	FRG	BZI	ECU				URU		AGA	**18**
Willkommlangea reticulata (Alb. & Schwein.) Kuntze = *Cienkowskia reticulata* (Alb. & Schwein.) Rostaf.	MEX	BLZ					COS	PAN											VEN				BZI		PER			URU		AGA	**9**
TOTAL NUMBER OF SPECIES: 431	**323**	**41**	**26**	**12**	**0**	**33**	**143**	**106**	**10**	**101**	**119**	**20**	**39**	**93**	**83**	**106**	**62**	**96**	**111**	**12**	**9**	**37**	**206**	**136**	**31**	**42**	**20**	**52**	**102**	**160**	

Table 2. Doubtful and Excluded species.

Doubtful species

Arcyodes incarnata (Alb. & Schwein.) O.F. Cook [= *Lachnobolus incarnatus* Alb. & Schwein.] — cited by Spegazzini (1921) from Chile but Farr (1976: 280) doubted the identification. Also recorded by Lazo (1966) but probably based on Spegazzini's record.
Arcyria carletae Hertel — described from Brazil (Hertel,1954). No material available for examination (Farr, 1976: 80).
Arcyria fonsecae Hertel — described by Hertel (1954) from Brazil. No material available for examination (Farr, 1976: 81).
Arcyria occidentalis (T. Macbr.) G. Lister — reported from Brazil by Teixeira (1971), probably based on the uncertain listing by Martin & Alexopoulos (1969), fide Farr (1976: 82).
Arcyria ramulosa (F. Rudolphi) Wigand [= *Trichia ramulosa* F. Rudolphi] — described by Rudolphi (1829) from Peru. According to Martin & Alexopulos (1969) could represent a new genus.
Arcyria stellfeldii Hertel — described by Hertel (1954) from Brazil. No material available for examination (Farr, 1974: 82).
Arcyria versicolor W. Phillips — cited by Torrend (1915) from Brazil and Spegazzini (1909) and Digilio (1946) from Argentina. Highly improbable, fide Farr (1976: 83).
Chondrioderma frustulosum Pat. & Lagerh. — cited by Patouillard & Lagerheim (1895a) from Ecuador, probably a synonym of *Diderma globosum,* fide Farr (1976: 205).
Comatricha fluminensis (Speg.) & Torrend [= *Stemonitis fluminensis* Speg.] — described by Spegazzini (1881) from Brazil. Identity uncertain, fide Farr (1976: 279).
Comatricha suksdorfii Ellis & Everh. — cited by Torrend (1915) from Brazil. Identity uncertain, fide Farr (1976: 266).
Comatricha typhoides var. *cinerea* Hertel — described by Hertel (1955) from Brazil. No material available for examination (Farr, 1976: 267).
Cribraria colossea Speg. — described by Spegazzini (1909) from Argentina, probably a synonym of *C. tenella* Schrad., fide Farr (1976: 54).
Cribraria staminiformis Speg. — described by Spegazzini (1880) from Argentina. Identity uncertain, fide Farr (1976: 56).
Didymium discoideum Torrend — described from Brazil by Torrend (1915). No material available for study, fide Farr (1976: 235).
Didymium ossicola Pat. & Gaillard — described by Patouillard & Gaillard (1888) from Venezuela. Identity uncertain, fide Farr (1976: 236).
Didymium platense Speg. — described by Spegazzini (1899) from Argentina. Identity uncertain.
Didymium pruinosum Berk. & M.A. Curtis — described in Berkeley (1868) from Cuba. Identity uncertain, fide Farr (1976: 236)
Enteridium antarcticum Speg. — described from Chile by Spegazzini (1887b) and cited from Argentina (Spegazzini, 1912), probably a synonym of *Reticularia olivacea,* fide Farr (1976: 40).
Hemitrichia insignis Torrend — described by Torrend (1916) from Brazil. Identity uncertain.
Hemitrichia pusilla Speg. [= *Hemiarcyria pusilla* (Speg.) Berl. = *Arcyria pusilla* (Speg.) Massee] — described by Spegazzini (1881a) from Argentina. Identity uncertain, fide Farr (1976: 101).
Lamproderma inconspicuum J. Schröt. — reported from Brazil by Hennings (1896). Identity uncertain, fide Farr (1976: 253).
Lamproderma sauteri Rostaf. — reported from Brazil by Farr (1960, 1968). Identity uncertain, moldy material, fide Farr (1976: 253).
Licea floriformis T.N. Lakh. & R.K. Chopra [= *Licea floriformis* var. *aureospora* M.T.M. Willemse & Nann.-Bremek. = *L. longa* Flatau] — reported from Ecuador by McHugh (2005). Identity uncertain.
Licea schoenleinii Johow — described by Johow (1896) from Chile. Identity uncertain, fide Farr (1976:28).
Lycogala platense Speg. — described from Argentina by Spegazzini (1899a) but identity uncertain, fide Farr (1976: 36).
Paradiacheopsis erythropodia Ing; reported from Mexico by Estrada-Torres & al., (in press). Identity uncertain.
Physarum albescens Ellis ex T. Macbr. — reported from Brazil by Cavalcanti (2002). Identity uncertain.
Physarum chlorinum Cooke — cited by Cooke (1877) from Guyana. Identity uncertain, fide Farr (1976: 173).
Physarum conglomeratum (Fr.) Rostaf. — cited by Lister (1898a) from Antigua and Torrend (1908) from "Antilles". Identity uncertain, fide Farr (1976: 173).
Physarum anomalum (Massee) Torrend [= *Tilmadoche anomala* Massee] — cited by Massee (1889) from Venezuela. Identity uncertain.
Physarum crustiforme Speg. — described by Spegazzini (1899b) from Argentina. Identity uncertain, fide Farr (1976: 281).
Stemonitis confluens var. "*minuta*?" Batista — described by Batista (1949) from Brazil. Identity uncertain, fide Farr (1976: 279).
Stemonitis curitibensis Hertel — described by Hertel (1955) from Brazil. Identity uncertain, fide Farr (1976: 279).
Stemonitis fluminensis Speg. — described by Spegazzini (1881a) from Brazil. Identity uncertain fide Farr (1976: 279).
Trichia turbinata (Bolton) Whit. [= *T. chrysosperma* var. *turbinata* "Hds."] — cited by Berkeley (1868) from Cuba, by Spegazzini (1886) from Paraguay and by Montagne (1852a, 1852b) from Chile. Identity uncertain.

Excluded species

Chondrioderma andinum Speg. — an unpublished species, fide Farr (1976: 280), cited from Argentina.
Colloderma pustulatum G.W. Martin — the name apparently has remained unpublished, fide Farr (1976: 246), cited from Mexico.
Comatricha platensis Speg. — apparently an unpublished name, fide Farr (1976: 266), cited from Argentina.
Cornuvia minutula Speg.— described from Brazil. Identity uncertain fide Farr (1976: 280).
Licea berteroana Mont. — described from Chile. Not a myxomycete, fide Martin & Alexopoulos (1969).
Licea guaranitica Speg. — described from Paraguay. Not a myxomycete, fide Farr (1976: 28).
Tubulina guaranitica (Speg.) Speg. — based on *Licea guaranitica* Speg. See comments under this species
Reticularia affinis Berk. & M.A. Curtis — described from Cuba. Not a myxomycete, fide Martin & Alexopoulos (1969).
Reticularia atrorufa Berk. & M.A. Curtis — described from Cuba. Not a myxomycete, fide Farr (1976: 41).
Reticularia pyrrhospora Berk. — described from Cuba, not a myxomycete, fide Farr (1976: 41).
Reticularia venulosa Berk. & M.A. Curtis — described from Cuba. Not a myxomycete, fide Martin & Alexopoulos (1969).
Rostafinskia australis Speg. — described from Argentina. Not a myxomycete, fide Farr (1976: 281).
Physarum areolatum Bertero — apparently an unpublished name, fide Farr (1976: 173), cited from Chile.
Physarum argentinense Speg. — apparently and unpublished name, fide Farr (1976: 173), cited from Argentina.

Discussion

This review includes 431 myxomycete taxa from 51 genera reported from countries of the Neotropics. This is almost half of the total number of species known in the world (Lado, 2008), and in four decades of research, nearly double the number previously published from the region by Farr (1976). It includes 86% of known genera, most (71%) represented by more than one species. Of the thirty countries included in Table 1, Mexico, with 323 species, has by far the largest number of myxomycete species registered, and El Salvador has the least, since no myxomycetes have yet been published from this country. Although eleven countries have over 100 species published, twelve of the countries have recorded fewer than 10% of the total (Table 1). Very few species can be considered pan-neotropical as only 22 of the species (5%) were found in 20 countries or more, whereas 144 species (33%) have been reported from only one country in the Neotropics. Some of the latter have only been found in a single country worldwide, such as *Arcyriatella congregata, Calomyxa synspora, Diderma robustum,* or *Physarum bubalinum,* but others have been reported from other countries in different parts of the world, and still others have been recently described, and may well be found to be more widely distributed in the future.

Arcyria cinerea has been reported from 28 of the 30 countries. This species, and many of the others that make up the 5%, such as *Arcyria denudata, Cribraria cancellata, Didymium nigripes, D. squamulosum, Fuligo septica, Hemitrichia calyculata, H. serpula, Lycogala epidendrum, Perichaena chrysosperma, Physarum album, Ph. viride, Stemonitis fusca* or *Trichia favoginea,* are the most common species in many environments, and considered to be generalists, with the ability to exploit the conditions in both temperate and tropical habitats. In addition, there seem to be ecotypes or varieties of some species in the tropics which future work may show are species complexes, but they are all included at present under the same name. The assemblage of myxomycetes which does appear to be characteristically Neotropical, in that they have been recorded from many of the strictly tropical countries, includes *Ceratiomyxa morchella, C. sphaerosperma, Comatricha tenerrima, Craterium paraguayense, Cribraria microcarpa, C. tenella, Diachea bulbillosa, Diderma chondrioderma, Didymium intermedium, Lycogala conicum, L. exiguum, Physarella oblonga, Physarum aeneum, Ph. crateriforme, Ph. fulgens, Ph. javanicum, Ph. nicaraguense, Ph. nucleatum, Ph. oblatum, Ph. roseum, Ph. stellatum, Ph. superbum, Stemonaria longa, Stemonitis herbatica, S. pallida, Tubifera bombarda* and *T. microsperma*.

The list also includes 13 new species that have been described in the last decade from material from the Neotropics, which are *Calonema foliicola* Estrada, J.M. Ramirez & Lado, *Cribraria fragilis* Lado & Estrada, *C. zonatispora* Lado, Mosquera & Beltrán-Tej., *Diderma acanthosporum* Estrada & Lado, *D. yucatanensis* Estrada, Lado & S.L. Stephenson*, Didymium tehuacanense* Estrada, D. Wrigley & Lado, *D. umbilicatum* D. Wrigley, Lado & Estrada, *D. wildpretii* Mosquera, Estrada, Beltrán-Tej., D. Wrigley & Lado, *Licea succulenticola* Mosquera, Lado, Estrada & Beltrán-Tej., *Macbrideola herrerae* Lizárraga, G. Moreno & Illana, *M. lamprodermoides* G. Moreno, Lizárraga & Illana, *Perichaena stipitata* Lado, Estrada & D. Wrigley, and *Trichia agaves* (G. Moreno, Lizárraga & Illana) Mosquera, Lado, Estrada & Beltrán-Tej. (described as *Hemitrichia agaves*).

The most representative order from the Neotropics was the Physarales, which is also the order with the greatest number of species. However, if the size of each order is looked at as a percentage of the total number of myxomycete species (Fig. 3) and compared to the percentage of each order found in the Neotropics, it can be seen that the Physarales are indeed more prevalent and more diverse in this area. Among these were 75 species of *Physarum* and 42 species of *Didymium*, the most representative genera. Almost 50% of the species in arid areas of Chile or Mexico (Lado & al, 2007, Estrada & al, in press) and over 40% in a cloud forest in Ecuador (Schnittler & al., 2002) were also from this order. Not all tropical areas are the same, however, since very few species of these genera were found in the high elevation forests of Costa Rica (Rojas & Stephenson, 2007). The orders Trichiales and Echinosteliales also seem to be better represented in the Neotropics than are the Stemonitales or Liceales (Fig. 3).

Myxomycetes have been found to date in all major biomes (Ing, 1994), living on decaying remains of all types of vegetation. Information on vegetation, and particularly vascular plants, as the habitats and substrates for all myxomycetes, is therefore fundamental to understanding their distribution. In the Neotropical region, even specific parts of plants have been shown to be new microhabitats for myxomycetes, such as the inflorescences of tropical plants (Schnittler & Stephenson, 2002a, 2002b), living and dead lianas (Wrigley de Basanta & al., 2008), or the interior of succulent plants (Estrada-Torres & al., in press). Other potential microhabitats probably exist too in poorly studied vegetation, such as the mangrove swamps or the grasslands of the pampa. In addition to information on the vegetation, other factors must be taken into consideration when analyzing the data compiled above in Table 1. The geographical exten-

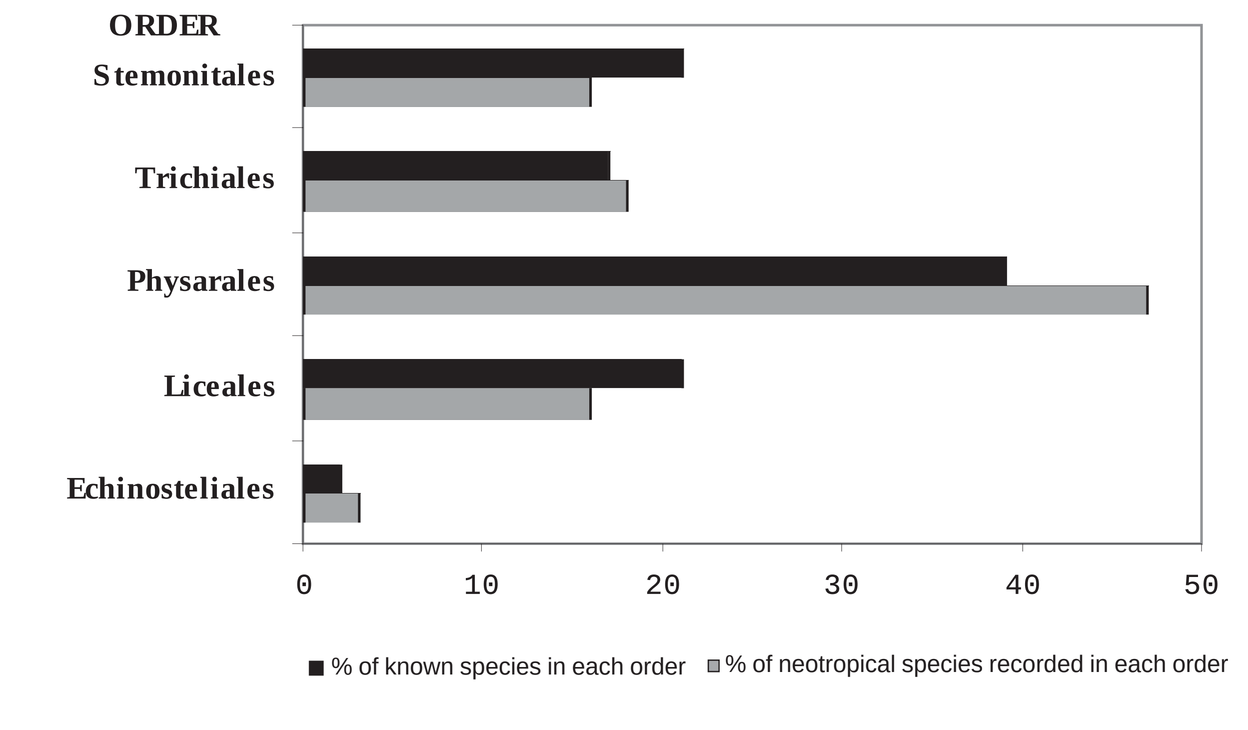

Fig. 3. Percentage of known Myxomycetes in different Orders compared to the percentage of species from the Neotropics in each order.

sion of each country obviously affects the potential number of myxomycetes to be found, and also the extent to which the country has been studied. The problem with any biogeographical analyses, as mentioned by Morawetz & Raedig (2007), is the difficulty in measuring the sampling effort. As the authors note, there can be insufficient sampling in places which are difficult to access, and intense sampling in easily accessible places. In order to enable a more realistic evaluation of the data in Table 1 to be made, a comparison of some of this information is given in Table 3.

Mexico, with the greatest number of myxomycetes, including all thirteen of the new species described from the region in the last decade, has been surveyed in a number of recent projects. Records appear in 138 papers, of which almost 100 are since 1990 (Table 3), but its myxomycete richness is also because it is so geographically diverse. It is the area where Boreal, Neotropical and Caribbean vegetation overlap. Some of these areas do not strictly belong to the Neotropics, as mentioned earlier, but for the purposes of this paper the records from all parts of the countries like Mexico and Argentina have been included, since records of some surveys did not include specific locations. Some parts of Mexico are in Central America, but others pertain to North America. For this reason we treat it alone. Mexico is also a country of varied relief with the trans-Mexican volcanic belt perpendicular to the two north-south mountain chains. This creates a profusion of different microclimates and vegetation islands in the valleys and consequently many varied habitats for myxomycetes. Its diversity of vegetation according to Davis & al. (1997) is comparable only to India and Peru. Rzedowski (1991) also highlights the high level of plant endemism particularly in arid or semi-arid areas and subhumid montane highlands. Recent surveys have been done in arid areas of the country, such as the Tehuacán-Cuicatlán Valley in Puebla and Oaxaca (Estrada-Torres & al., in press) or Sonora (Lizárraga & al., 2007, 2008), in tropical moist forests such as El Eden in Quintana Roo, and Los Tuxtlas in Veracruz (Lado & al., 2003) or in a dry forest in Chamela, Jalisco (Lado & al., 1999), among others. Many areas of interest remain to be studied in Mexico, however, including the Lacandona region (Chiapas), the Upper Mezquital River region (Durango), or the Sierra de Juárez (Oaxaca).

Central America is of particular interest as it is the land bridge between North and South America, literally closing the circulation between the Pacific and the Atlantic oceans during its formation, and permitting the exchange of organisms between the two land masses. The region has a very varied topography, with

Table 3. Neotropical countries included in this paper: A comparison of land area, vascular plant species richness, myxomycete species richness and number of publications; *na* = information not available. Sources: Gentry (1982, 1992); Davis & al. (1997).

Country	Area (km²)	Vascular plants (approx.)	Myxomycete species	Publications
Mexico	1,972,546	30,000	323	138
Central America				
Belize	22,800	4,400	41	1
Costa Rica	51,060	10,500	143	16
El Salvador	20,720	2,500	0	0
Guatemala	108,430	8,000	26	2
Honduras	111,890	6,000	12	4
Nicaragua	118,750	7,000	33	5
Panama	75,990	9,000	106	14
Caribbean				
Bahamas	14,260	1,300	10	1
Cuba	108,722	7,000	101	25
Dominican Republic	48,441	5,500	39	8
Haiti	27,749	with Dominican Republic	20	3
Jamaica	11,425	3,700	119	10
Leeward Islands	na	na	83	12
Puerto Rico	8,897	2,900	93	19
Trinidad and Tobago	4,838	2,600	62	7
Windward Islands	na	na	106	12
South America				
Argentina	2,736,690	9,370	160	46
Bolivia	1,084,380	17,350	42	5
Brazil	8,456,510	56,000	206	114
Chile	748,800	5,200	102	19
Colombia	1,038,700	45,000	96	12
Ecuador	276,840	21,000	136	31
French Guiana	90,976	4,000	37	2
Guyana	196,850	6,400	12	7
Paraguay	397,300	8,000	20	9
Peru	1,280,000	19,000	31	5
Surinam	156,000	5,000	9	4
Uruguay	174,810	2,270	52	8
Venezuela	882,050	21,070	111	19

mountains, valleys and high plateaus, which affects the climate and vegetation types. Although it is made up of small countries, it contains up to 8% of the world's plant species (Davis & al., 1997) many of which are endemic (Gentry, 1992). Some of the Central American countries have been sampled in several surveys recently, most notably Costa Rica (Schnittler & Stephenson, 2000) and Panama (Pando, 1997) which have more than 100 species of myxomycete recorded, but others such as El Salvador have not been studied at all. The three largest countries Guatemala, Honduras and Nicaragua are only cited in a total of 11 publications and have fewer than 50 myxomycete species recorded between them of the 195 different species recorded from Central America, apart from Mexico (Table 3). Even in well studied countries there are vegetation types or specific areas which have received little or no attention. For instance in Costa Rica (16 publications), a recent study (Rojas & Stephenson, 2007) in high elevation oak forest apported 11 new species to the country record, as previously there had been very little work done in that type of forest. Of the great variety of vegetation in Central America from lowland rain forest and swamps to arid areas full of cacti, the Petén region of Guatemala or the Darién Province of Panama are unexplored endangered areas and of great interest for future work.

The Caribbean Islands are a group of islands with different origins, and some are remains of continents, others of recent volcanoes. Each major tropical island cluster has independently evolved its own native flora, influenced by the fact that some of the islands, such as Hispaniola, have been formed from several territories, which separated and rejoined various times in their geologic history (Davis & al., 1997). Myxomycetes from the Caribbean have been relatively well studied (Table 3) and cited in 98 publications, 26% of them from Cuba, the largest island with the greatest number of vascular plant species. In addition, other islands, such as Jamaica or the Windwards which have been the site of intensive surveys, have as many or more myxomycetes, although reported in fewer papers. A total of 174 different myxomycete species have been recorded from these islands. Some areas of high plant diversity as yet understudied for myxomycetes in these islands, are the Oriente in Cuba, the Morne Trois Pitons National Park in Dominica, the Central Highlands and Sierra de Neiba in the Dominican Republic, the Pic Macaya or the Morne La Visite in Haiti, the Blue and John Crow Mountains, or the Cockpit Country in Jamaica and the Aripo Savannas Scientific Reserve in Trinidad.

The continent of South America has about one-eighth of the Earth's land surface. It has been an island continent during most of the period of angiosperm evolution, and it has been joined to North America by the Isthmus of Panama, and then separated, more than once in its geologic history. The topography of South America is varied and ranges from the Brazilian lowland with its tropical rain forest to the snow-covered Andes. The Andes is the longest mountain range in the world, and stretches for over 7,000 km forming the backbone of the continent from Colombia to Tierra del Fuego. It has the highest mountain in the Western Hemisphere, the Aconcagua. Most of the continent of South America is in the tropics, but the elevation of the Andes and the presence of cold ocean currents, like the Humboldt stream, cause cool temperatures even at the equator. The combined effect of these environmental factors accounts for the variety of vegetation in this area, which in turn provides multiple substrates, and distinct macro and microhabitats for myxomycetes. In South America, Brazil with the largest land area (Table 3) has by far the largest number of vascular plants. It has also been intensively studied for myxomycetes (114 publications), but mainly in the northeastern area of the country. Vast areas of the Amazon have never been surveyed, and geographic areas of special scientific interest such as the Pantepui region, the Gran Chaco, the Transverse Dry Belt, have not been sampled. Some areas of distinct vegetation are also of great interest such as the Atlantic moist forest, the Tabuleiro forest, the Caatinga of north-eastern Brazil, or the Cerrado of central Brazil.

Argentina has the second largest land mass and the third number of myxomycete species of the region to date. It was initially studied for these organisms over a hundred years ago, but until recently little intensive work has been done since (only 46 publications). A recent research project, Myxotropic, was undertaken to study the Myxomycetes that develop on endemic succulent plants (Cactacea and sclerophyllous shrubs) of the Neotropical region. The first phase of the project was directed towards the study of this group of organisms from arid regions of Mexico (Estrada Torres & al., in press). The second phase of the Project, involves the unexplored arid areas of Argentina and the North of Chile, specifically the desert areas of El Monte and Atacama, which are among the most arid of the planet (Lado & al., 2007a). This study extends and complements a current International project "Global Biodiversity of Eumycetozoa" supported by the National Science Foundation (NSF) of the United States, developed to investigate unexplored regions of the world (Stephenson & al., 2005). To date the Myxotropic project has provided more than 1200 myxomycete collections from Argentina which are currently under study.

The number of different myxomycete species recorded from all of South America is 328. It is evident from the list that several countries are totally undersurveyed. For example, considering their landmass and richness in vascular plants, Peru, Colombia, and Bolivia have relatively few myxomycete records. Some of the specific areas of interest in these countries would be the Iquitos region, or the eastern slopes of the Andes in Peru, the Chocó or the Chiribiquete-Araracuara-Cahuinarí region in Colombia, and the Gran Chaco or the Madidi-Apolo region of Bolivia. There are a number of ecosystems and types of vegetation, that span several countries on the continent, and which would provide interesting data and analyses on the role of specific microhabitats or plant species in the distribution of myxomycetes. Some of these are mangrove swamps, dry forest, the cerrado and caatinga, open grass savanna, the Patagonian steppe, and the Valdivian forest.

If the number of publications is taken as an indication of the amount of research done in a country, the suggestion that apparent distribution of myxomycetes follows the distribution pattern of research efforts (Stephenson & Stempen, 1994) is supported by these data. The research intensity, however, is not always related to the number of papers since some papers listed may have only a few records while others, such as the Bahamas or Belize, may have the total for the country in one paper. Myxomycete records have appeared in fewer than ten publications from over half (16) of the 30 countries listed (Table 3), which gives an idea of the enormous amount of research still to be done.

This paper indicates that almost half the known species of myxomycetes have been recorded from the Neotropics. It also indicates that there are many areas that remain under studied, or not investigated at all. This can be seen graphically on the map (Fig. 4), generated by the GBIF (Global Biodiversity Information Facility) network, from their database of geo-referenced records of myxomycetes in major herbaria, which shows sparse points in many of the areas of the Neotropics and none in vast areas of the South American continent. The biodiversity occurrence data for the area mapped from this database, is provided by: University of Arkansas (2008), Staatliche Naturwissenschaftliche Sammlungen Bayerns (2008), GBIF-Sweden, Gothenburg Herbarium (2008), Real Jardín Botánico, Madrid (2008), Utah State University (2008).

The importance and urgency attached to the completion of more biodiversity surveys for these microorganisms in the Neotropics lies in the fact that this area contains some of the most threatened environments on earth. Habitat loss and destruction of the vegetation, to which the myxomycetes are so intimately linked, is on the increase. As Mittermeier & al., (2004) have pointed out, the tropical Andes is the richest and most diverse biodiversity hotspot on earth, and yet only 25% of the original primary vegetation of the tropical Andes remained when Myers & al., (2000) went to press. Approximately 100 Neotropical plant narrowendemisms per year are now being lost due to forest conversion (Morawetz & Raedig, 2007). The importance of the conservation of these habitats is not limited to the larger flora or fauna of major conservation efforts. Microorganisms, such as the myxomycetes, with unknown ecological importance and unsuspected species richness are subject to the same, or greater, risks. Protection of their gene pools, and investigation into their ecological importance, before their threatened habitats shrink further, should give high priority to biodiversity research on myxomycetes in the Neotropics.

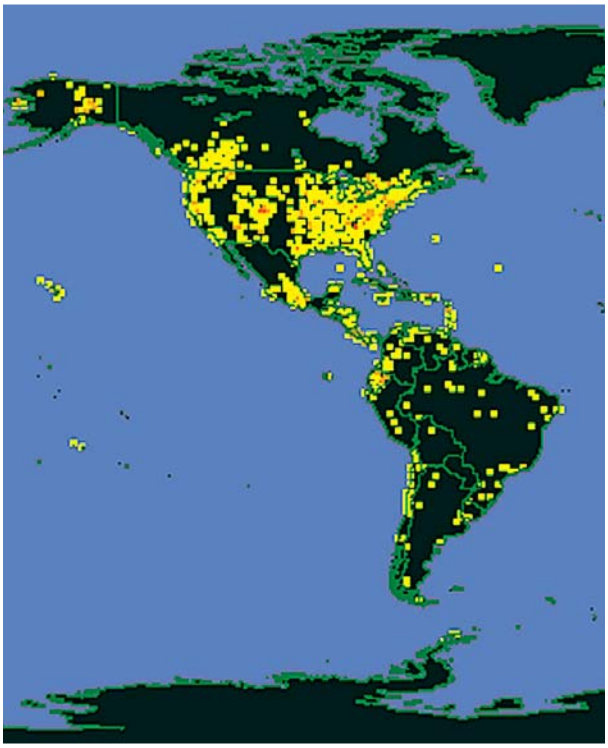

Fig. 4. Myxomycete biodiversity occurrence data from North and South America. This map only shows records with coordinates from the GBIF network and may not properly represent the total distribution of Myxomycetes.

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