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Lado, Carlos; Wrigley de Basanta, Diana

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# A Review of Neotropical Myxomycetes (1828-2008)

by

Carlos Lado & Diana Wrigley de Basanta

Real Jardín Botánico, CSIC, Plaza de Murillo 2, 28014 Madrid, Spain. lado@rjb.csic.es

## Abstract

Lado, C. & Wrigley de Basanta, D. 2008. A Review of Neotropical Myxomycetes (1828-2008). *Anales Jard. Bot. Madrid* 65(2): 211-254.

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.

## 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 mixobiotia 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.

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

**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 relation-

ships 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 19<sup>th</sup> 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 checklists 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

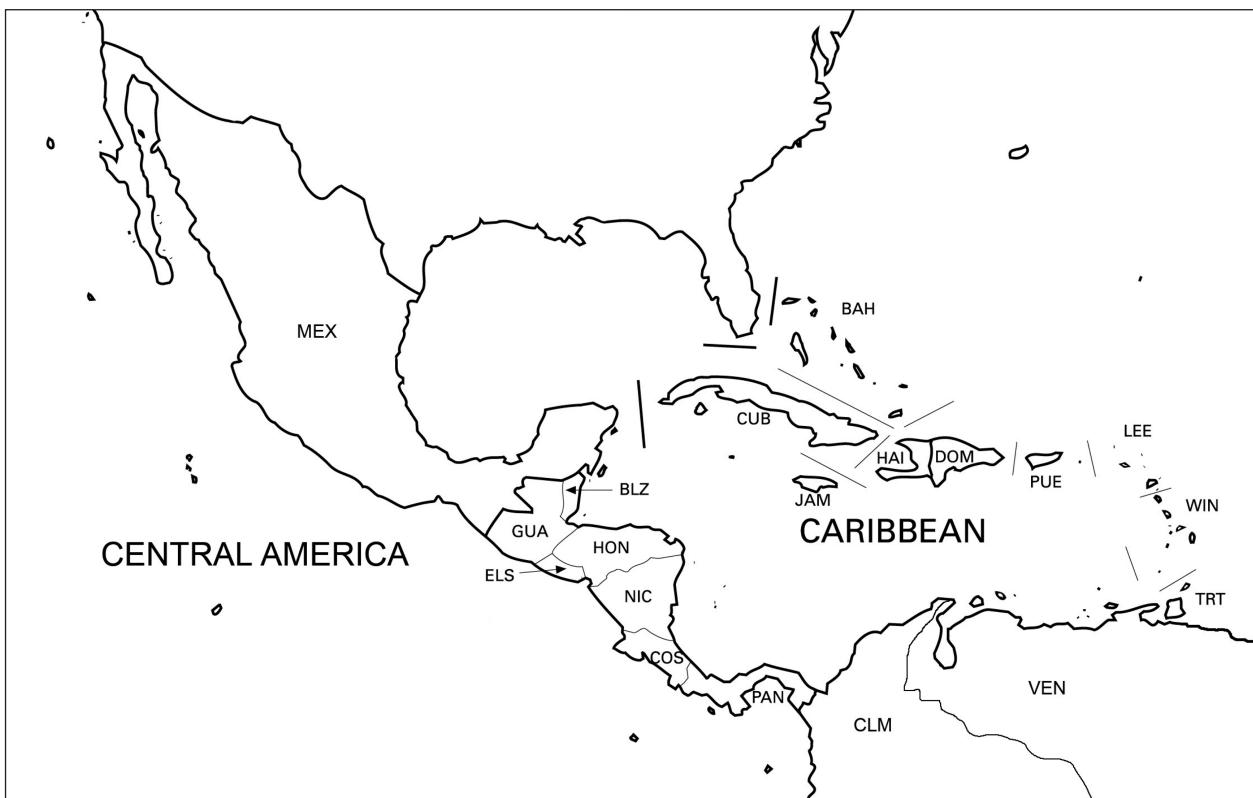
& al., 2001) or Argentina (Crespo & Lugo, 2003), have been published, and new species or genera have been described from the region (Hochgesand & Gottsberger, 1989; Lado & al., 1999a, 2007b; Mosquera & al., 2003; Estrada-Torres & al., 2001, 2003). All these projects, and their resulting publications 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. Barthélemy 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 re-

compile 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), Aramburre (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), Chiappetta & 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), Martín (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, 1895b), Saccardo (1895), Saccardo & Sydow (1899), Torrend (1908), Bonar (1939), Martín (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 & 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).

	Mexico	Guatemala	Belize	Jamaica	Haiti	Puerto Rico	Windward Islands	Leeward Islands	Rep. Dominicana	Rep. Dominican	Trinidad and Tobago	Venezuela	Guyana	Suriname	French Guiana	Brazil	Peru	Bolivia	Paraguay	Chile	Argentina	Total	
<i>Arcyria affinis</i> Rostaf.	MEX																						2
<i>Arcyria afroalpina</i> Rammeloo = <i>A. afroalpina</i> var. <i>mexicana</i> Lizárraga, G. Moreno & Illana	MEX			COS	CUB	PUE																	5
<i>Arcyria cineraria</i> (Bull.) Pers. = <i>A. digitaria</i> Schwein. = <i>A. cineraria</i> var. <i>digitaria</i> (Schwein.) G. Lister = <i>A. albidia</i> Pers. = <i>A. cookei</i> Nassee = <i>A. cineraria</i> f. <i>rubella</i> Y. Yamam.	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																	28
<i>Arcyria corymbosa</i> M.L. Farr & G.W. Martin																							
<i>Arcyria denudata</i> (L.) Wetst. = <i>A. punicea</i> Pers.	MEX	BLZ	HON	NIC COS PAN BAH CUB JAM	DOM PUE LEE WIN	TRT CLM VEN GUY SUR	FRG BZI ECU PER BOL															AGA 2	
<i>Arcyria ferruginea</i> Sauter	MEX																						AGA 5
<i>Arcyria fuscigaster</i> Aramb.																							AGA 1
<i>Arcyria glauca</i> Lister																							AGA 1
<i>Arcyria globosa</i> Schwein.	MEX				CUB	PUE	CLM																6
<i>Arcyria incarnata</i> (Pers. ex J.F. Gmel.) Pers.	MEX		COS	CUB JAM HAI	PUE LEE WIN	TRT CLM VEN	BZI ECU																16
<i>Arcyria insignis</i> Kalchbr. & Cooke	MEX		COS PAN	CUB JAM	PUE LEE	TRT CLM VEN	FRG BZI ?																16
<i>Arcyria magna</i> Rex = <i>A. magna</i> var. <i>rosea</i> Rex	MEX		COS PAN	CUB		WIN																	6
<i>Arcyria minor</i> Büchel = <i>A. carneae</i> (G. Lister) G. Lister	MEX		COS PAN																				5
<i>Arcyria nigrella</i> Emoto	MEX																						1
<i>Arcyria obvelata</i> (Oeder) Onsberg = <i>A. nutans</i> (Bull.) Grev. = <i>A. flava</i> Pers.	MEX		COS PAN	CUB JAM	LEE	TRT VEN	BZI ECU															AGA 12	

Table 1. List of species by countries.

Table 1. (Continuation).

	MEX			?	PAN	?	CUB					VEN			BZL			PAR		AGA	7	
<i>Arcyria oerstedii</i> Rostaf.	MEX				PAN	JAM		PUE				CLM	VEN		BZL	ECU				AGA	9	
<i>Arcyria pomiformis</i> (Leers) Rostaf.	MEX					JAM		DOM				CLM			BZL					AGA	9	
<i>Arcyria stipata</i> (Schwein.) Lister	MEX														BZL					5		
<i>Arcyriatella congregata</i> Hochg. & Gottsb.															BZL					1		
<i>Badhamia affinis</i> Rostaf. = <i>B. orbiculata</i> Rex	MEX				PAN	JAM		LEE	WIN						BZL	ECU				CLU	AGA	9
<i>Badhamia calcicarpes</i> Gotsb.															BZL					1		
<i>Badhamia capsulifera</i> (Bull.) Berk. = <i>B. hyalina</i> (Pers.) Berk.	MEX														CLM					CLU	AGA	4
<i>Badhamia cinerascens</i> G.W. Martin					COS										CLM					AGA	3	
<i>Badhamia dubia</i> Nann.-Bremek.																			CLU	1		
<i>Badhamia foliicola</i> Lister	MEX																			AGA	2	
<i>Badhamia gigantospora</i> Ukkola & Häkki.															ECU					1		
<i>Badhamia goniiospora</i> Mey. = <i>B. dearnessii</i> Hägeleit.	MEX																			1		
<i>Badhamia macrocarpa</i> (Ces.) Rostaf.	MEX	GUА		?				LEE				VEN			BZL					ECU		
<i>Badhamia melanospora</i> Speg. = <i>B. gracilis</i> (T. Macbr.) T. Macbr. = <i>B. gracilis</i> var. <i>melanospora</i> (Speg.) Castillo, G. Moreno & Illana = <i>B. grandispora</i> Illana & G. Moreno	MEX				PAN	CUB		PUE	LEE						BZL	ECU				CLU	AGA	9
<i>Badhamia nitens</i> Berk. = <i>B. aurantiaca</i> Lizárraga, G. Moreno & Illana = <i>B. nitens</i> var. <i>aurantiaca</i> (Lizárraga, G. Moreno & Illana) Lizárraga, G. Moreno & Illana	MEX											DOM			BZL	ECU				4		
<i>Badhamia panicea</i> (Fr.) Rostaf.	MEX														WIN					BOL		
<i>Badhamia papaveracea</i> Berk. & Ravenel	MEX														BZL	ECU				CLU	1	
<i>Badhamia populina</i> Lister & G. Lister																			BOL			
<i>Badhamia utricularis</i> (Bull.) Berk.	MEX																			2		
<i>Badhamia versicolor</i> Lister	MEX																			AGA	2	
<i>Badhamia alnoae</i> (Yamash.) T.E. Brooks & H.W. Keller = <i>Badhamia alnoae</i> Yamash.	MEX														?					BZL	2	

**Table 1.** (Continuation).

<i>Balbeyella minutissima</i> Mey.	MEX					PAN												1																
<i>Brefeldia maxima</i> (Fr.) Rostaf.							JAM										AGA	2																
<i>Calomyxa metallica</i> (Berk.) Nieuwl. = <i>Margarita metallica</i> (Berk.) Lister	MEX													BZL	ECU			AGA	6															
<i>Calomyxa synspora</i> M.L. Farr & Kowalski																			1															
<i>Calonema foliicola</i> Estrada, J.M. Ramírez & Lado = <i>Hemitrichia foliicola</i> (Estrada, J.M. Ramírez & Lado) Lizárraga, G. Moreno & Illana	MEX																		1															
<i>Ceratiomyxa fruticulososa</i> (O.F. Müll.) T. Macrò. = <i>C. mucicida</i> (Pers.) Schröt. = <i>C. arbuscula</i> (Berk. & Broome) Pat. = <i>C. fruticulososa</i> f. <i>aurea</i> (Link) Y. Yamam. = <i>C. fruticulososa</i> var. <i>flexuosa</i> Lister = <i>Ceratiomyxa aureum</i> Link = <i>Ceratiomyxa hygrodeum</i> (Jacq.) Alb. & Schwein.	MEX					HON	NIC	COS	PAN	CUB	JAM	HAI	DOM	PUE	LEE	WIN	TRT	CLM	GUY	FRG	BZL	ECU	PER	BOL	PAR	URU	CLI	AGA	25					
<i>Ceratiomyxa morchella</i> A.L. Welden	MEX					HON				COS	PAN			JAM		PUE																		
<i>Ceratiomyxa sphaerosperma</i> Boedijn	MEX						COS	PAN		CUB	JAM				WIN																			
<i>Clastoderrima debaryanum</i> A. Blitt = <i>C. debaryanum</i> var. <i>imperatorium</i> Emoto	MEX						COS	PAN		CUB	JAM			PUE	LEE	WIN	TRT	CLM	VEN															
<i>Clastoderrima pachypus</i> Nann.-Bremek.	MEX						COS																											
<i>Collaria acrylonema</i> (Rosta.) Nann.-Bremek. ex Lado = <i>Lamproderma acrylonema</i> Rostaf. = <i>Comatricha shimekiana</i> T. Macbr.	MEX					HON	NIC	COS	PAN	CUB	JAM	HAI	DOM	PUE	LEE	WIN					BZL	ECU							AGA	16				
<i>Collaria lurida</i> (Lister) Nann.-Bremek. = <i>Comatricha lurida</i> Lister = <i>Comatricha rubens</i> Lister	MEX						COS			CUB				PUE				CLM															5	
<i>Collaria rubens</i> (Lister) Nann.-Bremek. = <i>Comatricha rubens</i> Lister	MEX						COS																											
<i>Collocladium oculatum</i> (C. Lippert) G. Lister																																		
<i>Collocladium robustum</i> Mey.	MEX																																	
<i>Comatricha afroalpina</i> Rammeloo														PAN																				
<i>Comatricha aggregata</i> M.L. Farr														JAM																				
<i>Comatricha anomala</i> Rammeloo	MEX																																	1

Table 1. (Continuation).

<i>Comatricha argentinae</i> J.R. Deschamps	MEX		COS	CUB	JAM	HAI	PUE	WIN	TRT	CLM	VEN	BZL	ECU							AGA 1	
<i>Comatricha elegans</i> (Rach.) G. Lister	MEX																			CLI AGA 14	
<i>Comatricha ellae</i> Häk.	MEX																			1	
<i>Comatricha laxa</i> Rostaf.	MEX	GUA	COS	PAN	CUB		PUE	LEE			VEN	BZL				CLI AGA 11					
<i>Comatricha longipila</i> Nam.-Bremek.	MEX																			1	
<i>Comatricha meandrispora</i> A. Castillo, G. Moreno & Illana												BZL								1	
<i>Comatricha nigra</i> (Pers. ex J.F. Gmel.) Schröt. = <i>C. frisiaea</i> Rostaf. = <i>Stemonitis ovata</i> Pers. = <i>C. obtusata</i> (Fr.) Preuss	MEX		COS PAN	CUB	JAM		PUE				LEE					FRG	BZL	ECU	BOL		
<i>Comatricha pulchella</i> (C. Bab.) Rostaf.	MEX		COS PAN	CUB	JAM		PUE				PUE					BZL	ECU	BOL	URU	AGA 10	
<i>Comatricha reticulosa</i> (Pursh) Holland	MEX																			1	
<i>Comatricha tenerima</i> (M.A. Curtis) G. Lister	MEX	BZL		COS	CUB	JAM	PUE	LEE			VEN					BZL	ECU	PER		AGA 12	
<i>Craterium aureum</i> (Schumach.) Rostaf.	MEX		COS	CUB	JAM	PUE	DOM	PUE	WIN	CLM	VEN	BZL	ECU	PER					AGA 12		
<i>Craterium concinnum</i> Rex			COS	CUB	JAM				CLM						ECU				5		
<i>Craterium leucocephalum</i> (Pers. ex J.F. Gmel.) Ditmar = <i>C. leucocephalum</i> var. <i>scyphoides</i> (Cooke & Balf. f.) G. Lister = <i>C. scyphoides</i> (Cooke & Balf. f.) Lizárraga, Illana & G. Moreno = <i>Cribaria perpusilla</i> Speg.	MEX	GUA	COS PAN	CUB	JAM	PUE	LEE	WIN	TRT	CLM	VEN				FRG	BZL	ECU	BOL		AGA 17	
<i>Craterium minutum</i> (Lees) Rostaf.	MEX									CLM			BZL								
<i>Craterium obovatum</i> Peck = <i>Badhamia obovata</i> (Peck) S.J. Sm. = <i>C. obovatum</i> var. <i>dictyosporum</i> (Rostaf.) Moreno & Illana	MEX																		URI	AGA 3	
<i>Craterium paraguayense</i> (Spef.) G. Lister = <i>locaterium tuberosum</i> (Rey) E. Jahn = <i>Didymnum paraguayense</i> Speg. = <i>D. guarapiense</i> Speg.	MEX						PAN									FRG	BZL	ECU	PAR		AGA 9
<i>Cribaria agillicrea</i> (Pers. ex J.F. Gmel.) Pers.	MEX						PAN									BZL				AGA 4	
<i>Cribaria atrofusca</i> G.W. Martin & Lovejoy	MEX						PAN									VEN				1	
<i>Cribaria aurantiaca</i> Schrad.	MEX						JAM									BZL				CLI AGA 7	

**Table 1.** (Continuation).

<i>Cibaria cancellata</i> (Batsch) Nann.-Bremek. = <i>Dictyidium cancellatum</i> (Batsch) T. Madbr. = <i>D. cennuum</i> (Pers.) Nees = <i>C. cancellata</i> var. <i>fusca</i> (Lister) Nann.-Bremek. = <i>C. exilis</i> T. Madbr.	MEX	BLZ	GUA	NIC	COS	PAN	BAH	CUB	JAM	PUE	LEE	WIN	TRT	CLM	VEN	FRG	BZL	ECU	PER	BOL	URU	CLI	AGA	23
<i>Cibaria confusa</i> Nann.-Bremek. & Y. Yamam.	MEX									WIN						BZL	ECU							4
<i>Cibaria costata</i> Dillon & Nann.-Bremek.																FRG								1
<i>Cibaria elegans</i> Berk. & M.A. Curtis	MEX															BZL								2
<i>Cibaria ferruginea</i> Meyl.	MEX																							1
<i>Cibaria fragilis</i> Lado & Estrada	MEX																							1
<i>Cibaria intricata</i> Schrad.	MEX									COS	PAN	CUB	JAM		PUE	LEE	WIN	TRT	CLM	VEN	BZL	ECU		14
<i>Cibaria langescens</i> Rex	MEX									COS	PAN	JAM		PUE	LEE	WIN	TRT	VEN		BZL	ECU		11	
<i>Cibaria laxa</i> Haged.																				BZL			1	
<i>Cibaria lepida</i> Meyl.	MEX																							1
<i>Cibaria macrocarpa</i> Schrad.	MEX														CLM							CLI		3
<i>Cibaria martinii</i> Nann.-Bremek.	MEX																							?
<i>Cibaria microcarpa</i> (Schrad.) Pers. = <i>C. pachydictyon</i> Nann.-Bremek.	MEX	BLZ								COS	PAN	CUB	JAM	PUE	LEE	WIN	TRT	CLM	VEN	FRG	BZL			14
<i>Cibaria minutissima</i> Schwein.	MEX									COS		JAM		LEE	WIN	TRT				BZL				8
<i>Cibaria mirabilis</i> (Rostaf.) Massee = <i>Dictyidium mirabile</i> (Rostaf.) Meyl.	MEX									COS										BZL		CLI		4
<i>Cibaria oregana</i> H.C. Gilbert = <i>C. vulgaris</i> var. <i>oregana</i> (H.C. Gilbert) Nann.-Bremek. & Lado	MEX									COS														2
<i>Cibaria piniformis</i> Schrad.	MEX									COS	PAN									BZL		CLI		6
<i>Cibaria purpurea</i> Schrad.	MEX															VEN								2
<i>Cibaria rubiginosa</i> Fr.	MEX																							1
<i>Cibaria rufa</i> (Roth) Rostaf.	MEX																							1
<i>Cibaria ruticila</i> (G. Lister) Nann.-Bremek.																							AGA	1
<i>Cibaria splendens</i> (Schrad.) Pers.	MEX									COS		JAM		LEE										7
<i>Cibaria tenella</i> Schrad.	MEX									HON	COS	PAN	CUB	JAM	PUE	LEE	WIN	TRT	VEN	BZL	ECU		AGA	14
<i>Cibaria violacea</i> Rex	MEX									COS	PAN	CUB	JAM							BZL	ECU		AGA	14

Table 1. (Continuation).

<i>Cribaria vulgaris</i> Schrad.	MEX		COS							BZL											AGA	4	
<i>Cribaria zonatispora</i> Lado, Mosquera & Beltrán-Tej.	MEX																						1
<i>Diachea bulbiflora</i> (Berk. & Broome) Lister	MEX		COS	PAN	CUB	JAM	PUE	WIN	CLM	VEN				BZL	ECU							11	
<i>Diachea leucopodia</i> (Bull.) Rostaf. = <i>D. elegans</i> (Trentep.) Fr. = <i>D. confusa</i> Massee	MEX		COS	PAN	CUB	JAM	DOM	PUE	LEE	WIN	TRT	CLM	VEN	BZL	ECU	BOL	PAR	URU	CLI	AGA	19		
<i>Diachea radiata</i> G. Lister & Petch	MEX		PAN																		CLI	3	
<i>Diachea silvæpluvialis</i> M.L. Farr	MEX							WIN														2	
<i>Diachea subsessilis</i> Peck	MEX							LEE		VEN											CLI	3	
<i>Diacheopsis insessa</i> (G. Lister) Ing	MEX																					1	
<i>Diadema corticatum</i> Lister	MEX																					1	
<i>Dianema hanveyi</i> Rex	MEX																					1	
<i>Dictydiaethalium plumbeum</i> (Schumach.) Rostaf. = <i>D. plumbeum</i> var. <i>entoxanthum</i> (Berk.) G. Lister = <i>D. plumbeum</i> var. <i>annabaritnum</i> (Berk. & Broome) Shirai & Hara = <i>Clathroptychium rugulosum</i> (Wall.) Rostaf.	MEX		NIC	COS	PAN		DOM	PUE	LEE		CLM	VEN		BZL							CLI	AGA	12
<i>Didemna acanthosporum</i> Estrada & Lado	MEX																					1	
<i>Didemna antarctica</i> E. Horak																						AGA	1
<i>Didemna antarcticum</i> (Speg.) Sturgis = <i>Licea antarctica</i> Speg.																					CLI	AGA	2
<i>Didemna asteroides</i> (Lister & G. Lister)	MEX																					AGA	2
<i>Didemna chondriodema</i> (de Bary & Rostaf.) G. Lister	MEX	BLZ	COS			JAM		PUE		WIN					BZL	ECU						8	
<i>Didemna cingulatum</i> Nam.-Bremek.	MEX																				ECU		
<i>Didemna cor-rubrum</i> T. Macbr.															BZL							2	
<i>Didemna corrugatum</i> T.E. Brooks & H.W. Keller															BZL	ECU						1	
<i>Didemna crustaceum</i> Peck	MEX																					4	
<i>Didemna deplanatum</i> Fr.	MEX														COS							1	
															BZL							3	

**Table 1.** (Continuation).

					COS	PAN	CUB	JAM	PUE	LEE	WIN	TRT	CLM	VEN	BZL	ECU		URU	?	AGA	16
<i>Didemna effusum</i> (Schwein.) Morgan = <i>Physarum effusum</i> Schwein. = <i>D. cubense</i> Berk. & M.A. Curtis = <i>Chondriodera reticulatum</i> (Rostaf.) Rostaf.	MEX	BLZ																		CLI	1
<i>Didemna fallax</i> (Rostaf.) Lado = <i>D. hyalii</i> (Massal.) T. Maibr.																					
<i>Didemna floriforme</i> (Bull.) Pers. = <i>Chondriodera floriforme</i> Rostaf.	MEX																				1
<i>Didemna fragile</i> Aramb.																					AGA 1
<i>Didemna gigantocolumella</i> M.L. Farr																					AGA 1
<i>Didemna globosum</i> Pers.																					AGA 4
<i>Didemna gracile</i> Aramb.																					AGA 1
<i>Didemna nemphaeum</i> (Bull.) Hornem. = <i>Chondriodera michelii</i> (Lib.) Rostaf.	MEX																				AGA 18
<i>Didemna maculatum</i> Büyck																					
<i>Didemna miniatum</i> Nann.-Bremek.	MEX																				1
<i>Didemna montanum</i> (Meyl.) Meyl.																					2
<i>Didemna niveum</i> (Rostaf.) T. Maibr. = <i>Chondriodera niveum</i> Rostaf.	MEX																				1
<i>Didemna ochraceum</i> Hoffm.	MEX																				CLU AGA 5
<i>Didemna radiatum</i> (L.) Morgan	MEX																				1
<i>Didemna rimosum</i> Eliasson & Nann.-Bremek.	MEX																				CLU AGA 4
<i>Didemna robustum</i> Aramb.																					2
<i>Didemna rugosum</i> (Rey) T. Maibr. = <i>Chondriodera rugosum</i> Rey	MEX																				AGA 1
<i>Didemna saundersii</i> (Massal.) Lado = <i>D. platycarpum</i> var. <i>berkeleyanum</i> Nann.-Bremek.	MEX																				6
<i>Didemna sauteri</i> (Rostaf.) T. Maibr.	MEX																				3
<i>Didemna scabrum</i> Eliasson & Nann.-Bremek.																					1
<i>Didemna simplex</i> (J. Schröt.) G. Lister																					1
<i>Didemna spumarioides</i> (Fr.) Fr.	MEX																				13

Table 1. (Continuation).

<i>Didemnum stellatum</i> M.L. Farr													
<i>Didemnum subasteroides</i> M.L. Farr													
<i>G. Lister</i>	MEX												
<i>Didemnum subincanatum</i> Kowalski	MEX												
<i>Didemnum testaceum</i> (Schrad.) Pers. = <i>Chondroderma cubense</i> (Berk. & M.A. Curtis) Rostaf.	MEX	COS	CUB	JAM	DOM	LEE			BZL			CLI	
<i>Didemnum umbilicatum</i> Pers.	MEX	GUÀ											
<i>Didemnum yucatanense</i> Estrada, Lado & S.L. Stephenson	MEX												
<i>Didymium anellus</i> Morgan	MEX				JAM	PUE		TRT	CLM		BZL	ECU	
<i>Didymium applanatum</i> Nann.-Bremek.	MEX											ECU	
<i>Didymium aquatile</i> Gottsb. & Nann.-Bremek.											BZL		
<i>Didymium bahiense</i> Gottsb. = <i>D. bahiense</i> var. <i>microsporum</i> Hochg.	MEX							CLM	VEN		BZL	ECU	
<i>Didymium clavodecus</i> K.D. Whitney	MEX	COS	?	CUB	JAM	HAI	PUE	LEE	WIN	TRT	CLM	VEN	
<i>Didymium clavus</i> (Alb. & Schwein.) Rabenh.	MEX	BLZ									BZL	ECU	BOL
<i>Didymium columbellacavum</i> Hochg., Gottsb. & Nann.-Bremek.											BZL		
<i>Didymium comatum</i> (Lister) Nann.-Bremek.								WIN					
<i>Didymium crustaceum</i> Fr.	MEX	COS	CUB				WIN		?			BOL	
<i>Didymium difforme</i> (Pers.) Gray = <i>Didemnum difforme</i> Pers. = <i>Chondroderma difforme</i> (Pers.) Rostaf. = <i>Chondroderma micraspis</i> Speg.	MEX				JAM	HAI	WIN	CLM	VEN		BZL	ECU	
<i>Didymium dubium</i> Rostf.	MEX		COS						CLM	VEN			AGA
<i>Didymium eremophilum</i> M. Blackw. & Gib.	MEX												
<i>Didymium flexosum</i> Yamash.											BZL		
<i>Didymium floccosum</i> G.W. Martin, K.S. Thind & Renill?									VEN			ECU	
<i>Didymium intermedium</i> J. Schröter = <i>D. excelsum</i> Lister				NIC	PAN	JAM	WIN	CLM		BZL		AGA	
													7

**Table 1.** (Continuation).

<i>Didymium infus</i> (Ditm.) Fr. = <i>D. proximum</i> Berk. & M.A. Curtis = <i>D. nigripes</i> var. <i>xanthopus</i> (Ditm.) Lister	MEX	HON	NIC	COS	PAN	CUB	JAM	HAI	DOM	PUE	LEE	WIN	TRT	CLM	VEN	FRG	BZL	ECU	BOL	URU	CLI	AGA	22							
<i>Didymium karstenii</i> Nann.-Bremek.																							1							
<i>Didymium laxiflum</i> G. Lister & J. Ross	MEX																						1							
<i>Didymium leoninum</i> Berk. & Broome	MEX						JAM							CLM									4							
<i>Didymium listeri</i> Massee	MEX																						2							
<i>Didymium megalosporum</i> Berk. & M.A. Curtis	MEX																BZL						2							
<i>Didymium minus</i> (Pers.) T. Macbr. = <i>D. fairmaireum</i> Schrad.	MEX	HON					CUB	JAM	DOM		LEE	WIN		VEN			BZL	ECU		BOL		CLI	AGA	13						
<i>Didymium melanospermum</i> G. Moreno, Lizárraga & Illana	MEX																						1							
<i>Didymium minus</i> (Lister) Morgan	MEX					COS		JAM			LEE	WIN		CLM			BZL	ECU												
<i>Didymium nigripes</i> (Link) Fr. = <i>D. tenue</i> Pat. & Gaill.	MEX	GUA	HON		COS	PAN		JAM	HAI	DOM	PUE	LEE	WIN	TRT	CLM	VEN	GUY	BZL	ECU	BOL	URU	CLI	AGA	21						
<i>Didymium ochroideum</i> G. Lister	MEX					COS								?				BZL	ECU					4						
<i>Didymium orthoneurata</i> H.W. Keller & T.E. Brooks	MEX																						1							
<i>Didymium ovoideum</i> Nann.-Bremek.	MEX						COS																2							
<i>Didymium perforatum</i> Yamash.																						AGA	1							
<i>Didymium quitense</i> (Pat.) Torrend																		ECU					1							
<i>Didymium rubeopus</i> G. Moreno, A. Castillo & Illana = <i>D. rubeopus</i> var. <i>albocapillatum</i> G. Moreno, A. Castillo, Illana & Lizárraga	MEX																						1							
<i>Didymium serpula</i> Fr.	MEX	BZL																					2							
<i>Didymium squamulosum</i> (Alb. & Schwein.) Fr. = <i>D. costatum</i> Fr. = <i>D. herbarum</i> Fr. = <i>D. effusum</i> Link	MEX							NIC	COS	PAN	BAH	CUB	JAM	HAI	DOM	PUE	LEE	WIN	TRT	CLM	VEN	BZL	ECU	PER	BOL	PAR	URU	CLI	AGA	23
<i>Didymium sturgisii</i> Hgeist.	MEX																							1						
<i>Didymium subreticulosporum</i> Oltra, G. Moreno & Illana	MEX																							1						
<i>Didymium synsporion</i> T.E. Brooks & H.W. Keller																							CLI	1						

**Table 1.** (Continuation).

<i>Didymium tehuacanense</i> Estrada, D. Wrigley & Lado	MEX												1
<i>Didymium trachysporum</i> G. Lister	MEX												1
<i>Didymium umbilicatum</i> D. Wrigley, Lado & Estrada	MEX												1
<i>Didymium vaccinum</i> (Durieu & Mont.) Buchet	MEX												4
<i>Didymium verrucosporum</i> A.L. Welden	MEX	PAN											4
<i>Didymium wildpretii</i> Moesquera, Estrada, Beltrán-Tej., D. Wrigley & Lado	MEX												1
<i>Echinostelium apifectum</i> K.D. Whitney	MEX												2
<i>Echinostelium arboreum</i> H.W. Keller & T.E. Brooks	MEX												3
<i>Echinostelium bisporum</i> (L.S. Olive & Stoian.) K.D. Whitney & L.S. Olive		COS	CUB										2
<i>Echinostelium brooksi</i> K. D. Whitney	MEX												1
<i>Echinostelium coeloccephalum</i> T.E. Brooks & H.W. Keller	BZL												1
<i>Echinostelium colliculosum</i> K.D. Whitney & H.W. Keller	MEX	BZL											3
<i>Echinostelium conyphorum</i> K.D. Whitney	MEX												1
<i>Echinostelium cribarioides</i> Alexop.								WIN					1
<i>Echinostelium elachiston</i> Alexop.	MEX					JAM		WIN					3
<i>Echinostelium fragile</i> Nann.-Bremek.	MEX											CLI	2
<i>Echinostelium minutum</i> de Bary	MEX	BZL	COS	PAN	CUB	JAM	PUE	LEE	WIN	TRT	CLM	BZL	14
<i>Elaeomyxa cerifera</i> (G. Lister) Hagelst.	MEX	GUА											2
<i>Enertherema papillatum</i> (Pers.) Rostaf.	MEX											BZL	ECU
<i>Fuligo cinerea</i> (Schwein.) Morgan	MEX	COS		CUB	JAM	LEE	WIN					BZL	AGA
<i>Fuligo intermedia</i> T. Macbr.	MEX												8
<i>Fuligo megalospora</i> Sturgis	MEX	GUА	COS		CUB							BZL	AGA
<i>Fuligo muscorum</i> Alb. & Schwein.													5
<i>Fuligo septica</i> (L.) F.H. Wigg. = <i>F. varians</i> Sommerf. = <i>Aethalium septicum</i> (L.) Fr. = <i>F. septica</i> var. <i>flava</i> (Pers.) Lázaro Ibiza	MEX	NIC	COS	PAN	CUB	JAM	DOM	PUE	LEE	WIN	TRT	VEN	20



**Table 1.** (Continuation).

<i>Lamproderma columbinum</i> (Pers.) Rostaf.	MEX		COS								2
<i>Lamproderma cribarioides</i> (Fr.) R.E. Fr.			COS								1
<i>Lamproderma echinulatum</i> (Berk.) Rostaf.	MEX		COS								2
<i>Lamproderma gullormae</i> Meyl.	MEX										1
<i>Lamproderma muscorum</i> (Lev.) Hagelst. = <i>Eriethnema muscorum</i> Lev.	MEX	COS									5
<i>Lamproderma sauteri</i> Rostaf.		COS									1
<i>Lamproderma scintillans</i> (Berk. & Broome) Morgan	MEX	COS PAN	CUB JAM HAI	PUE	LEE WIN	CLM VEN	BZL	ECU	BOL		14
<i>Lamproderma tuberculosporum</i> M.L. Farr						CLM					1
<i>Leocarpus fragilis</i> (Dicks.) Rostaf. = <i>L. venicosus</i> S.F. Gray	MEX	COS				CLM	BZL				
<i>Lepidoderrna granuliferum</i> (W. Phillips) R.E. Fr. = <i>Diderma treveyanii</i> (Grev.) Poulaen & Mar. Mey.										AGA	1
<i>Lepidoderrna treveyanii</i> (Grev.) Rostaf. = <i>Diderma treveyanii</i> (Grev.) Fr.										CLJ	AGA 2
<i>Lepidoderrna tigrinum</i> (Schrad.) Rostaf.	MEX										1
<i>Leptoderma megaspora</i> Aramb. & Spindl.											AGA 1
<i>Licea bellmontiana</i> Nann.-Bremek.	MEX										1
<i>Licea biforis</i> Morgan	MEX	BZL	COS	CUB JAM	CUB	CLM	BZL	ECU		CLJ	9
<i>Licea bulbosa</i> Nann.-Bremek. & Y. Yamam.											1
<i>Licea castanea</i> G. Lister	MEX									BZL	2
<i>Licea dendroscens</i> H.W. Keller & T.E. Brooks	MEX	BZL								BZL	3
<i>Licea erecta</i> K.S. Thind & Dhillon = <i>L. erectoides</i> Nann.-Bremek. & Y. Yamam.		BZL			CUB			BZL			3
<i>Licea floriformis</i> T.N. Lakh. & Chopra = <i>L. floriformis</i> var. <i>aureospora</i> M.T.M. Willemse & Nann.-Bremek..	MEX										1
<i>Licea heterostobolus</i> G.W. Martin	MEX	BZL						BZL			3
<i>Licea marginata</i> Nann.-Bremek.		BZL									1
<i>Licea minima</i> Fr.	MEX				PAN					URU	3

**Table 1.** (Continuation).

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

Table 1. (Continuation).

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

Table 1. (Continuation).

<i>Paradiachaeopsis rigidula</i> (Bridasz.) Nam.-Bremek.	BZ																					1
<i>Perichaena chrysosperma</i> (Carr.) G. Lister = <i>Hemitrichia melanopeziza</i> Speg. = <i>Hemicytria melanopeziza</i> (Speg.) Berk. = <i>Ophiotheca wrighii</i> Berk. & M.A. Curtis = <i>Connvia wrighii</i> (Berk. & M.A. Curtis) Rostaf. = <i>O. chrysosperma</i> Carr.	MEX	BLZ	NIC	COS	PAN	CUB	JAM	DOM	PUE	LEE	WIN	TRT	CLM	VEN	GUY	BZL	ECU	URU	CLI	AGA	20	
<i>Perichaena corticalis</i> (Batsch) Rostaf. = <i>P. corticalis</i> var. <i>liceoides</i> (Rostaf.) G. Lister	MEX			COS	PAN	CUB		DOM								BZL	ECU			CLI	AGA	9
<i>Perichaena depressa</i> Lib.	MEX		NIC	COS	PAN	CUB	JAM	PUE	LEE	WIN	TRT	CLM	VEN		BZL	ECU	BOL	URU	CLI	AGA	18	
<i>Perichaena dictyonema</i> Rammeloo				?			PUE									ECU					2	
<i>Perichaena luteola</i> (Kowalski) Gilert = <i>Calorema luteola</i> Kowalski	MEX					CUB									BZL						1	
<i>Perichaena microspora</i> Penz & Lister															ECU						2	
<i>Perichaena pedata</i> (Lister & G. Lister) G. Lister ex E. Jahn	MEX			COS																		3
<i>Perichaena quadrata</i> T. Macbr.	MEX																					1
<i>Perichaena stipitaria</i> Lado, Estrada & D. Wrigley	MEX																					1
<i>Perichaena syncarpion</i> T.E. Brooks	MEX		COS	PAN	CUB			LEE	WIN						BZL	ECU	PER	BOL		CLI	AGA	12
<i>Perichaena vermicularis</i> (Schwein.) Rostaf.	MEX																					1
<i>Physarella oblonga</i> (Berk. & M.A. Curtis) Morgan = <i>Tilmadoche oblonga</i> (Berk. & M.A. Curtis) Rostaf. = <i>Ph. oblonga</i> f. <i>alba</i> Alexop. = <i>Ph. mirabilis</i> (Peck) Peck = <i>Perichaena pseudoeididium</i> Speg.	MEX		NIC	COS	PAN	CUB	JAM	PUE	LEE	WIN	TRT	CLM	VEN	GUY	FRG	BZL	ECU		PAR		AGA	18
<i>Physarina echinospora</i> K.S. Thind & Manocha	MEX																					1
<i>Physarum aeneum</i> (Lister) R.E. Fr.	MEX							PUE	LEE	WIN					BZL	ECU	BOL					7
<i>Physarum album</i> (Bull.) Chevall. = <i>Ph. nutans</i> Pers. = <i>Tilmadoche nutans</i> (Pers.) Rostaf. = <i>Didymium furfuraceum</i> (Schummach.) Fr.	MEX	BLZ	GUА	COS	PAN	CUB	JAM	DOM	PUE	WIN	TRT	CLM	VEN		FRG	BZL	ECU	BOL	URU	CLI	AGA	20
<i>Physarum alpinum</i> (Lister & G. Lister) G. Lister														VEN								1

Table 1. (Continuation).

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

**Table 1.** (Continuation).

<i>Physarum gyrosum</i> Rostaf. = <i>Fuligo gyrosa</i> (Rostaf.) E. Jahn	MEX								CLM				BZL												URU							4
<i>Physarum hongkongense</i> Chao H. Chung	MEX																														1	
<i>Physarum javanicum</i> Rab.	MEX	COS	CUB	JAM	PUE				TRT	CLM	VEN		FRG	BZL	ECU														11			
<i>Physarum lakhanpalii</i> Nann.-Bremek. & Y. Yamam.													ECU																	1		
<i>Physarum lateritium</i> (Berk. & Ravenel) Morgan = <i>Ph. inaequale</i> Peck	MEX								LEE	WIN			BZL													CLI			5			
<i>Physarum leucophaeum</i> Fr. = <i>Ph. nutans</i> var. <i>leucophaeum</i> (Fr.) Lister	MEX								CUB	JAM	DOM	LEE	WIN	?					BZL	ECU						CLI	AGA	10				
<i>Physarum leucopus</i> Link = <i>Didymium squamulosum</i> var. <i>leucopus</i> (Link) Rostaf.	MEX	GUÀ	COS	PAN	JAM					WIN			CLM													PAR			AGA	10		
= <i>Didymium leucopus</i> (Link) Fr.																																
<i>Physarum licheniforme</i> (Schwein.) Lado = <i>Ph. lividum</i> Rostaf. = <i>Ph. didemoides</i> var. <i>lividum</i> (Rostaf.) Lister	MEX								CUB																						2	
<i>Physarum luteolum</i> Peck	MEX																														1	
<i>Physarum megalosporum</i> T. Macbr.	MEX																														3	
<i>Physarum melleum</i> (Berk. & Broome) Mässe = <i>Ph. rubropunctatum</i> Pat.	MEX	GUÀ	COS	PAN	CUB	JAM	DOM	PUE	LEE	WIN	TRT	CLM	VEN	BZL	ECU	BOL												AGA	17			
<i>Physarum mennegeae</i> Nann.-Bremek.																			SUR												2	
<i>Physarum murinum</i> Lister	MEX								COS																						2	
<i>Physarum mutable</i> (Rostaf.) G. Lister	MEX																		VEN												AGA	4
<i>Physarum newtonii</i> T. Macbr.	MEX																														1	
<i>Physarum nicaraguense</i> T. Macbr.	MEX	BLZ	NIC	COS		JAM	HAI	PUE				TRT																	9			
<i>Physarum nitens</i> (Lister) Ing = <i>Ph. virescens</i> var. <i>nitens</i> Lister																															1	
<i>Physarum notabile</i> T. Macbr. = <i>Ph. connatum</i> Peck	MEX								COS	JAM			WIN																	7		
<i>Physarum nucleatum</i> Rex	MEX	NIC	COS		CUB	JAM	PUE	LEE	WIN	TRT		VEN		FRG	BZL	ECU												14				
<i>Physarum nudum</i> T. Macbr.																															1	
<i>Physarum obtatum</i> T. Macbr.	MEX	BLZ							PAN	JAM			WIN	CLM	VEN	BZL	ECU											9				
<i>Physarum ovispernum</i> G. Lister		?																	CLM											4		

**Table 1.** (Continuation).

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

**Table 1.** (Continuation).

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

**Table 1.** (Continuation).

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

**Table 1.** (Continuation).

<i>Stemonitopsis subcaespitosa</i> (Peck) Nam.-Bremek. = <i>Comatricha subcaespitosa</i> Peck	MEX	COS			WIN	VEN	BZI	AGA	6
<i>Stemonitopsis typhina</i> (F.H. Wigg.) Nam.-Bremek. = <i>Comatricha typhoides</i> (Bull.) Rostaf. = <i>C. typhina</i> (F.H. Wigg.) Rostaf. = <i>Stemonitis platensis</i> Speg. = <i>C. typhoides</i> var. <i>longipes</i> E. Jahn = <i>C. typhoides</i> var. <i>similis</i> G. Lister	MEX	GUA	NIC COS PAN	CUB JAM	DOM PUE LEE	WIN TRT CLM VEN GUY	FRG BZI ECU PER	URU CLU AGA	22
<i>Symphytocarpus amaurochaeoetoides</i> Nam.-Bremek.	MEX								1
<i>Symphytocarpus confluens</i> (Cooke & Ellis) Ing & Namn.-Bremek. = <i>Stemonitis confluens</i> Cooke & Ellis	MEX						BZI		
<i>Symphytocarpus flaccidus</i> (Lister) Ing & Namn.-Bremek.						VEN	BZI		
<i>Symphytocarpus trechisporus</i> (Berk. ex Torrend) Namn.-Bremek. = <i>Stemonitis trechispora</i> (Berk. ex Torrend) T. Macbr.	MEX						?		1
<i>Trabrooksiæ appланata</i> H.W. Keller							ECU		
<i>Trichia affinis</i> de Bay	MEX		PAN	CUB		TRT		ECU	1
<i>Trichia agaves</i> (G. Moreno, Lizárraga & Illana) Mosquera, Lado, Estrada & Beltrán-Tej. = <i>T. perichaenooides</i> Mosquera, Lado, Estrada & Beltrán-Tej.	MEX								1
<i>Trichia antarctica</i> Aramb. & Spinedi					JAM		BZI		AGA 1
<i>Trichia botrytis</i> (J.F. Gmel.) Pers. = <i>T. botrytis</i> var. <i>centifolia</i> G. Lister = <i>T. lorisceriana</i> Corda = <i>T. fragilis</i> (Sowerby) Rostaf.	MEX		COS					CLU AGA	7
<i>Trichia conglobata</i> M.L. Farr						VEN			1
<i>Trichia contorta</i> (Ditmars) Rostaf. = <i>Hemitrichia karstenii</i> (Rostaf.), Lister	MEX					BZI		CLU	3
<i>Trichia crateriformis</i> G.W. Martin									AGA 1
<i>Trichia decipiens</i> (Pers.) T. Macbr. = <i>Aegia decipiens</i> Pers. = <i>T. fallax</i> Pers. = <i>T. pusilla</i> (Hedw.) G.W. Martin = <i>T. decipiens</i> var. <i>olivacea</i> (Meyl.) Meyl.	MEX	GUA	COS	CUB JAM	PUE	VEN	BZI ECU	CLU AGA	11

Table 1. (Continuation).

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

**Table 2.** Doubtful and Excluded species.

Doubtful species
<i>Arcyodes incarnata</i> (Alb. & Schwein.) O.F. Cook [= <i>Lachnobolus incarnatus</i> 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.
<i>Arcyria carletae</i> Hertel — described from Brazil (Hertel, 1954). No material available for examination (Farr, 1976: 80).
<i>Arcyria fonsecae</i> Hertel — described by Hertel (1954) from Brazil. No material available for examination (Farr, 1976: 81).
<i>Arcyria occidentalis</i> (T. Macbr.) G. Lister — reported from Brazil by Teixeira (1971), probably based on the uncertain listing by Martin & Alexopoulos (1969), fide Farr (1976: 82).
<i>Arcyria ramulosa</i> (F. Rudolphi) Wigand [= <i>Trichia ramulosa</i> F. Rudolphi] — described by Rudolphi (1829) from Peru. According to Martin & Alexopoulos (1969) could represent a new genus.
<i>Arcyria stellfeldii</i> Hertel — described by Hertel (1954) from Brazil. No material available for examination (Farr, 1974: 82).
<i>Arcyria versicolor</i> W. Phillips — cited by Torrend (1915) from Brazil and Spegazzini (1909) and Digilio (1946) from Argentina. Highly improbable, fide Farr (1976: 83).
<i>Chondrioderma frustulosum</i> Pat. & Lagerh. — cited by Patouillard & Lagerheim (1895a) from Ecuador, probably a synonym of <i>Diderma globosum</i> , fide Farr (1976: 205).
<i>Comatricha fluminensis</i> (Speg.) & Torrend [= <i>Stemonitis fluminensis</i> Speg.] — described by Spegazzini (1881) from Brazil. Identity uncertain, fide Farr (1976: 279).
<i>Comatricha suksdorfii</i> Ellis & Everh. — cited by Torrend (1915) from Brazil. Identity uncertain, fide Farr (1976: 266).
<i>Comatricha typhoides</i> var. <i>cineraria</i> Hertel — described by Hertel (1955) from Brazil. No material available for examination (Farr, 1976: 267).
<i>Cibraria colossea</i> Speg. — described by Spegazzini (1909) from Argentina, probably a synonym of <i>C. tenella</i> Schrad., fide Farr (1976: 54).
<i>Cibraria staminiformis</i> Speg. — described by Spegazzini (1880) from Argentina. Identity uncertain, fide Farr (1976: 56).
<i>Didymium discoideum</i> Torrend — described from Brazil by Torrend (1915). No material available for study, fide Farr (1976: 235).
<i>Didymium ossicola</i> Pat. & Gaillard — described by Patouillard & Gaillard (1888) from Venezuela. Identity uncertain, fide Farr (1976: 236).
<i>Didymium platense</i> Speg. — described by Spegazzini (1899) from Argentina. Identity uncertain.
<i>Didymium pruinatum</i> Berk. & M.A. Curtis — described in Berkeley (1868) from Cuba. Identity uncertain, fide Farr (1976: 236).
<i>Enteridium antarcticum</i> Speg. — described from Chile by Spegazzini (1887b) and cited from Argentina (Spegazzini, 1912), probably a synonym of <i>Reticularia olivacea</i> , fide Farr (1976: 40).
<i>Hemitrichia insignis</i> Torrend — described by Torrend (1916) from Brazil. Identity uncertain.
<i>Hemitrichia pusilla</i> Speg. [= <i>Hemicarycia pusilla</i> (Speg.) Berl. = <i>Arcyria pusilla</i> (Speg.) Massee] — described by Spegazzini (1881a) from Argentina. Identity uncertain, fide Farr (1976: 101).
<i>Lamproderma inconspicuum</i> J. Schröt. — reported from Brazil by Hennings (1896). Identity uncertain, fide Farr (1976: 253).
<i>Lamproderma sauteri</i> Rostaf. — reported from Brazil by Farr (1960, 1968). Identity uncertain, moldy material, fide Farr (1976: 253).
<i>Licea floriformis</i> T.N. Lakh. & R.K. Chopra [= <i>Licea floriformis</i> var. <i>aureospora</i> M.T.M. Willemse & Nann.-Bremek. = <i>L. longa</i> Flatau] — reported from Ecuador by McHugh (2005). Identity uncertain.
<i>Licea schoenleinii</i> Johow — described by Johow (1896) from Chile. Identity uncertain, fide Farr (1976: 28).
<i>Lycogala platense</i> Speg. — described from Argentina by Spegazzini (1899a) but identity uncertain, fide Farr (1976: 36).
<i>Paradiacheopsis erythropodia</i> Ing; reported from Mexico by Estrada-Torres & al., (in press). Identity uncertain.
<i>Physarum albescens</i> Ellis ex T. Macbr. — reported from Brazil by Cavalcanti (2002). Identity uncertain.
<i>Physarum chlorinum</i> Cooke — cited by Cooke (1877) from Guyana. Identity uncertain, fide Farr (1976: 173).
<i>Physarum conglomeratum</i> (Fr.) Rostaf. — cited by Lister (1898a) from Antigua and Torrend (1908) from "Antilles". Identity uncertain, fide Farr (1976: 173).
<i>Physarum anomalum</i> (Massee) Torrend [= <i>Tilmadoche anomala</i> Massee] — cited by Massee (1889) from Venezuela. Identity uncertain.
<i>Physarum crustiforme</i> Speg. — described by Spegazzini (1899b) from Argentina. Identity uncertain, fide Farr (1976: 281).
<i>Stemonitis confluens</i> var. "minuta?" Batista — described by Batista (1949) from Brazil. Identity uncertain, fide Farr (1976: 279).
<i>Stemonitis curitibensis</i> Hertel — described by Hertel (1955) from Brazil. Identity uncertain, fide Farr (1976: 279).
<i>Stemonitis fluminensis</i> Speg. — described by Spegazzini (1881a) from Brazil. Identity uncertain fide Farr (1976: 279).
<i>Trichia turbinata</i> (Bolton) Whit. [= <i>T. chrysosperma</i> var. <i>turbinata</i> "Hds."] — cited by Berkeley (1868) from Cuba, by Spegazzini (1886) from Paraguay and by Montagne (1852a, 1852b) from Chile. Identity uncertain.
Excluded species
<i>Chondrioderma andinum</i> Speg. — an unpublished species, fide Farr (1976: 280), cited from Argentina.
<i>Colloderma pustulatum</i> G.W. Martin — the name apparently has remained unpublished, fide Farr (1976: 246), cited from Mexico.
<i>Comatricha platensis</i> Speg. — apparently an unpublished name, fide Farr (1976: 266), cited from Argentina.
<i>Cornuvia minutula</i> Speg. — described from Brazil. Identity uncertain fide Farr (1976: 280).
<i>Licea berteroana</i> Mont. — described from Chile. Not a myxomycete, fide Martin & Alexopoulos (1969).
<i>Licea guaranitica</i> Speg. — described from Paraguay. Not a myxomycete, fide Farr (1976: 28).
<i>Tubulina guaranitica</i> (Speg.) Speg. — based on <i>Licea guaranitica</i> Speg. See comments under this species
<i>Reticularia affinis</i> Berk. & M.A. Curtis — described from Cuba. Not a myxomycete, fide Martin & Alexopoulos (1969).
<i>Reticularia atrorufa</i> Berk. & M.A. Curtis — described from Cuba. Not a myxomycete, fide Farr (1976: 41).
<i>Reticularia pyrrhospora</i> Berk. — described from Cuba, not a myxomycete, fide Farr (1976: 41).
<i>Reticularia venulosa</i> Berk. & M.A. Curtis — described from Cuba. Not a myxomycete, fide Martin & Alexopoulos (1969).
<i>Rostafinska australis</i> Speg. — described from Argentina. Not a myxomycete, fide Farr (1976: 281).
<i>Physarum areolatum</i> Bertero — apparently an unpublished name, fide Farr (1976: 173), cited from Chile.
<i>Physarum argentinense</i> Speg. — apparently and unpublished name, fide Farr (1976: 173), cited from Argentina.

## Discussion

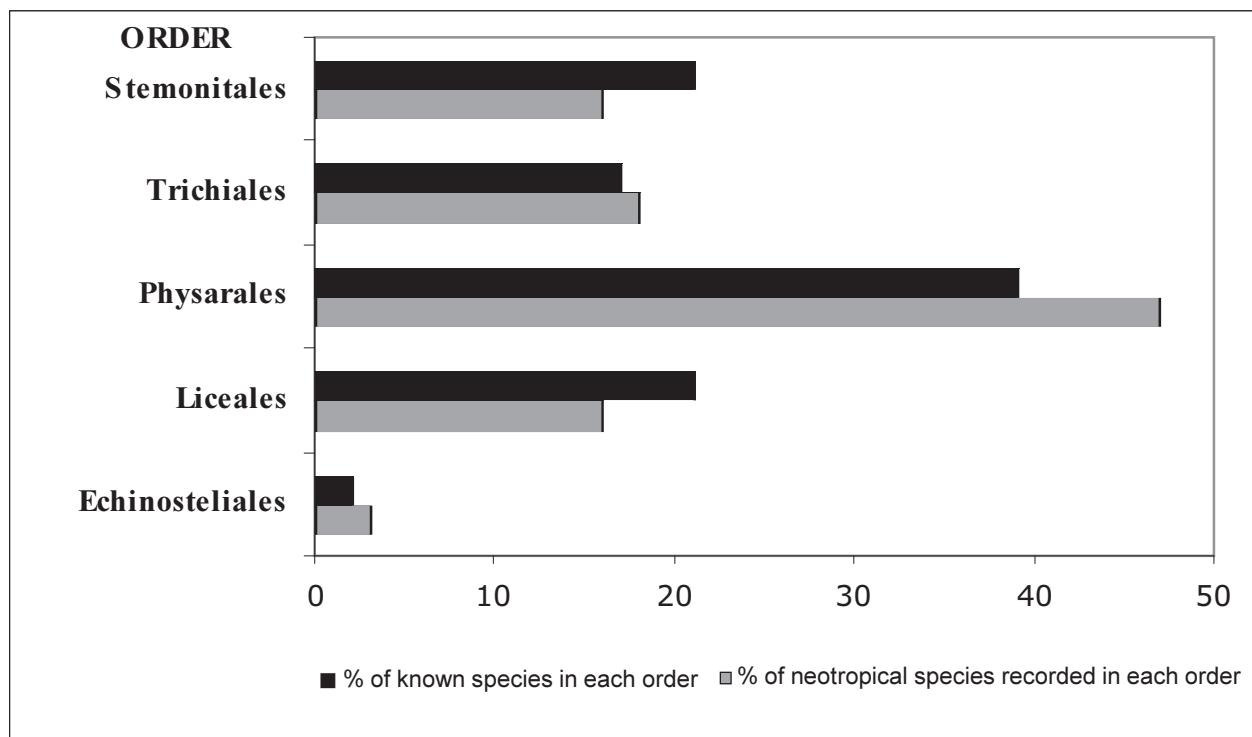
This review includes 431 myxomycete taxa from 51 genera reported from countries of the Neotropics. This is almost half of the total number of species known in the world (Lado, 2008), and in four decades of research, nearly double the number previously published from the region by Farr (1976). It includes 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*, *Cibraria 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*, *Cibraria 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 herbarica*, *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, *Cibraria 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 Lacandonia 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 (km <sup>2</sup> )	Vascular plants (approx.)	Myxomycete species	Publications
Mexico	1,972,546	30,000	323	138
<b>Central America</b>				
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
<b>Caribbean</b>				
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
<b>South America</b>				
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 for-

est apportioned 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.

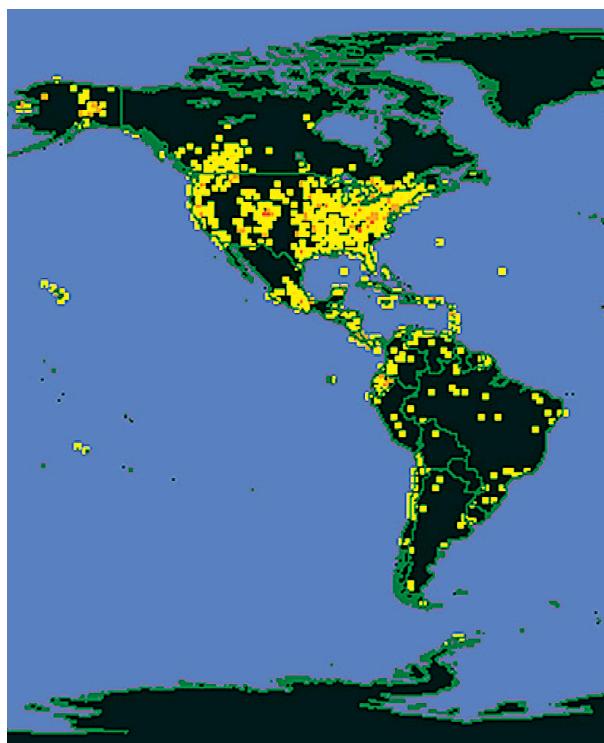
Argentina has the second largest land mass and the third number of myxomycete species of the region to date. It was initially studied for these organisms over a hundred years ago, but until recently little intensive work has been done since (only 46 publications). A recent research project, Myxotropic, was undertaken to study the Myxomycetes that develop on endemic succulent plants (Cactaceae 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-Cahuinári 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 & Stempf, 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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