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DIVERSITY OF SAPROTROPHIC ANAMORPHIC ASCOMYCETES FROM NATIVE FORESTS IN ARGENTINA: AN UPDATED REVIEW

Natalia Allegrucci, Marta N. Cabello & Angélica M. Arambarri

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Abstract. Allegrucci, N.; M. N. Cabello & A. M. Arambarri. 2009. Diversity of Saprotrophic Anamorphic Ascomycetes from native forests in Argentina: an updated review. *Darwiniana* 47(1): 108-124.

Eight regions of native forests have been recognized in Argentina: Chaco forest, Misiones rain forest, Tucumán-Bolivia forest (Yunga), Andean-Patagonian forest, "Monte", "Espinal", fluvial forests of the Paraguay, Paraná and Uruguay rivers, and "Talaes" in the Pampean region. We reviewed the available data concerning biodiversity of saprotrophic micro-fungi (anamorphic Ascomycota) in those native forests from Argentina, from the earliest collections, done by Spegazzini, to present. Among the above mentioned regions most studies on saprotrophic micro-fungi concentrates on the Andean-Patagonian forest, the fluvial forests of the Paraguay, Paraná and Uruguay rivers and the "Talaes", in the Pampean region. There are only a few records of fungal species in other native forests. No record of anamorphic species of Ascomycota was previously available for "Monte" forests. From a comprehensive bibliographic review, a total of 344 species were registered, of which 81 (23,5%) are new species. This work manifests the lack of explorations in important areas of the country, and demonstrates the need to increase those studies.

Keywords. Anamorphic Ascomycota, Argentina, biodiversity, forests.

Resumen. Allegrucci, N.; M. N. Cabello & A. M. Arambarri. 2009. Diversidad de Ascomycetes Anamórficos Saprótrofos de los bosques nativos de Argentina: una revisión actual. *Darwiniana* 47(1):108-124.

En Argentina se reconocen ocho regiones de bosques nativos: bosque Andino-Patagónico, Talaes de la Región Pampeana, Parque Chaqueño, Selva Misionera, Selva Tucumano-Boliviana, Monte, Espinal y Bosques Pluviales de los ríos Paraguay, Paraná y Uruguay. El objetivo de este trabajo ha sido reunir y revisar la información sobre la biodiversidad de microhongos saprótrofos (Ascomycetes anamórficos) citados en los bosques nativos de Argentina, desde las primeras colecciones de Spegazzini hasta el presente. De las regiones anteriormente mencionadas los bosques Andino-Patagónicos, Bosques Pluviales de los ríos Paraguay, Paraná y Uruguay y recientemente los Talaes de la provincia de Buenos Aires son aquellos donde se han realizado más exploraciones de microhongos saprótrofos. Por otro lado se obtuvieron muy pocos registros de especies fúngicas del resto de los bosques; para la región de Monte en particular no se han realizado hasta el presente estudios de hongos anamórficos, por lo cual no se cuenta con registros de especies anamórficas de Ascomycetes. Como resultado de una revisión bibliográfica exhaustiva, se registraron 344 especies, de las cuales 81 (23,5%) son nuevas especies. Este trabajo pone de manifiesto la falta de exploraciones de áreas de importancia en nuestro país, y muestra la necesidad de incrementar estos estudios.

Palabras clave. Argentina, Ascomycetes anamórficos, biodiversidad, bosques.

INTRODUCTION

Fungi represent some of the most vital organisms on the planet, not only due to the role they perform in ecosystems, but also due to their influence on man and related activities (Mueller & Bills, 2004). However, scarce information on most species is available, and estimations about their number are likely to be significantly different. This need to obtain further data on the taxonomic biodiversity has greatly influenced evolutionary biology. An estimate of 1.5 million fungal species is currently used, though it has been severely criticized. Data about geographical distributions, levels of endemism and host specificity must be taken into account when the whole fungal diversity is evaluated (Muller & Schmit, 2007).

Functional properties of the ecosystem are stabilized by fungal species diversity (Kennedy & Gewin, 1997). In consequence, the response of microbial biodiversity to certain environmental conditions is essential to understand the impact of anthropogenic action on its sustainability (Turco et al., 1994).

Despite the importance of fungi in the above mentioned processes, little attention has been paid to their role in ecosystems and conservation of biodiversity (Hawksworth, 2001). Unlike agricultural crops, native forests as well as soil and water are vital systems with autoconservation and autoregulation capacity. They present maximal complexity, covering a wide range of tangible and intangible benefits that are indispensable for life on this planet. According to the Forest Department, Ministry of Social Development, Argentina in 2002 (modified by Frangi et al., 2004), eight major forest areas can be characterized in Argentina: 1) Chaco forest, 2) Misiones rain forest, 3) Tucumán-Bolivia forest (Yunga), 4) Andean-Patagonian forest, 5) "Monte", 6) "Espinal", 7) fluvial forests that are near the Paraguay, Paraná and Uruguay rivers, and 8) "Talaes" in the Pampean region. The aim of this work was to review the available information concerning biodiversity of micro-fungi (anamorphic Ascomycota) that live in native forests of Argentina, starting from the early collections of Spegazzini to present.

CURRENT DATA ON ANAMORPHIC ASCOMYCOTA IN NATIVE FORESTS

Table 1 shows the list of anamorphic Ascomycota species identified in each area of native forests from Argentina.

1. Chaco forest

No systematic study on these fungi has been carried out. For this reason, knowledge about mycobiota in this area is poor; only 4 micromycete species were identified.

2. Misiones rain forest

Lignolytic and cellulolytic Basidiomycota species could be found in this forest, though a few anamorphic species were identified. These studies were done by Spegazzini (1898, 1908, 1919) who described 26 micro fungal species, of which 23 were found to be new species.

3. Tucumán-Bolivia forest (Yunga)

Despite the vast diversity of vascular plants in this region, as well as in the Misiones rain forest, anamorphic Ascomycota have not been studied yet. The early collections were performed by Spegazzini (1919) who described 4 species (3 then described as new species). Catania & Romero (2006) described Hyphomycetes and Coelomyces species, associated with the bark and wood of *Podocarpus paltatorei* Pilg.

4. Andean Patagonian forest

In these forests, 107 species have been identified in soil, dead leaves, ligneous remains, and water courses. Identification revealed that 27 had been described as new species (Gamundí et al., 1977; Godeas et al., 1977; Gamundí et al., 1979; Arambarri, 1981; Arambarri et al., 1981; Gamundí et al., 1983; Arambarri & Spinedi, 1984; Godeas et al., 1985; Gamundí et al., 1987; Gamundí et al., 1988; Arambarri & Godeas, 1994a and b;

Godeas & Arambarri, 1993; Godeas & Arambarri, 1996).

5. "Monte"

No anamorphic species have been identified in these forests which represent one of the most arid regions in Argentina.

6. "Espinal"

Mycobiota of this region is poorly known, though several studies concerning anamorphic fungi in *Geoffroea decorticans* (Gill. ex Hook. et Arn.) Burkart were carried out; 22 species were identified, 3 of them were discovered to be new species (Bianchinotti, 1992, 1993, 1997, 1998).

7. Fluvial forests close to Paraguay, Paraná and Uruguay rivers

Several systematic studies on Hyphomycetes were carried out in Río Santiago, province of Buenos Aires. In this area, 71 species isolated from floating decaying material were identified; 23 of them were then described as new species (Arambarri et al., 1987a, 1987b, 1987c, 1987d, 1989; Arambarri & Cabello, 1990; Cabello, et al., 1990; Cazau, et al., 1990; Arambarri et al., 1991; Arambarri et al., 1992; Cazau et al., 1993; Cabello et al., 1993; Cabello et al., 1998).

8. "Talares" in the Pampean region

In this area, 110 species present in soil and dead leaves were identified (Cabello & Arambarri, 2002; Eliades et al., 2004; Allegrucci et al., 2005). Also, *Dematiocladium celtidis* (Crous et al., 2005)

Table 1. List of anamorphic Ascomycota species identified in each area of native forests of Argentina. Abbreviations: 1, Chaco forest; 2, Misiones rain forest; 3, Tucumán-Bolivia forest (Yunga); 4, Andean-Patagonean forest; 5, "Monte"; 6, "Espinal"; 7, Fluvial forests close to Paraguay, Paraná and Uruguay rivers; 8, "Talares" in the Pampean region; *, new species.

Fungal species (anamorphic Ascomycota)	1	2	3	4	5	6	7	8
<i>Acremonium butyri</i> (Beyma) Gams (1971) (= <i>Cosmospora vilior</i>); Nectriaceae, Hypocreales, Sordariomycetidae				4				8
<i>Acremonium cereale</i> (Karst.) Gams (1971) (= <i>Gliomastix cerealis</i>); Anamorphic Ascomycetes, Hypocreales, Sordariomycetidae								8
<i>Acremonium furcatum</i> Moreau & Moreau ex Gams (1969); Anamorphic Hypocreales								8
<i>Acremonium fusidioides</i> (Nicot) Gams (1971); Anamorphic Hypocreales								8
<i>Acremonium griseoviride</i> (Onions & Barron) Gams (1971) (= <i>Sagenomella griseoviridis</i>); Anamorphic Sagenoma Trichocomaceae, Eurotiales				4				
<i>Acremonium kiliense</i> Grütz (1925); Anamorphic Hypocreales								8
<i>Acremonium rutilum</i> Gams (1971); Anamorphic Hypocreales								8
<i>Acrogenospora sphaerocephala</i> (Berk. & Broome) Ellis (1971); Anamorphic Farlowiella, Pleosporales, pleosporomycetidae							7	
* <i>Acrophragmis laevispora</i> Gamundí & Aramb. (1979); Anamorphic Ascomycetes				4				
<i>Acrostalagmus luteoalbus</i> (Link) Zare, Gams & Schroers (2004); Anamorphic Hypomyces, Hypocreaceae, Hypocreales, Sordariomycetidae								8
<i>Alternaria alternata</i> (Fr.) Keissl. (1912); Anamorphic Lewia, Pleosporaceae, Pleosporales, Pleosporomycetidae				4		6		8
<i>Alternaria tenuissima</i> (Kunze) Wiltshire (1933); Anamorphic Lewia, Pleosporaceae, Pleosporales, Pleosporomycetidae								8

Table 1. (Continued).

Fungal species (anamorphic Ascomycota)	1	2	3	4	5	6	7	8
<i>Anungitea fragilis</i> Sutton (1973); Anamorphic Ascomycetes				4				
<i>Aphanocladium album</i> (Preuss) Gams (1971); Anamorphic Ascomycetes				4				
* <i>Aphanocladium tomentosum</i> Aramb. (1981); Anamorphic Ascomycetes				4				
<i>Arthrobotrys cladodes</i> Drechsler (1937); Anamorphic Orbilia, Orbiliaceae, Orbiliales, Obilliomycetidae				4				
<i>Arthrobotrys oligosporas</i> ; Anamorphic Orbilia , Orbiliaceae, Orbiliales, Obilliomycetidae								8
<i>Arxiella terrestris</i> Papendorf (1967); Anamorphic Ascomycetes							7	
<i>Aspergillus niger</i> Tiegh. (1867) (= <i>Aspergillus niger</i> var. <i>niger</i>); Anamorphic Emericella , Trichocomaceae, Eurotiales, Eurotiomycetidae				4				8
<i>Aspergillus fischeri</i> Wehmer (1907); Anamorphic Emericella, Trichocomaceae, Eurotiales, Eurotiomycetidae	1							
<i>Aspergillus flavus</i> Link (1809); Anamorphic Emericella, Trichocomaceae, Eurotiales, Eurotiomycetidae				4				8
<i>Aspergillus phaeocephalus</i> Durieu & Mont.; Anamorphic Emericella, Trichocomaceae, Eurotiales, Eurotiomycetidae		2						
<i>Aspergillus sidowii</i> (Bain. & Start.) Thom & Church (1926); Anamorphic Emericella, Trichocomaceae, Eurotiales, Eurotiomycetidae								8
<i>Aspergillus terreus</i> Thom (1918); Anamorphic Emericella, Trichocomaceae, Eurotiales, Eurotiomycetidae								8
<i>Aspergillus ustus</i> (Bainier) Thom & Church (1926); Anamorphic Emericella, Trichocomaceae, Eurotiales, Eurotiomycetidae				4				8
<i>Aspergillus versicolor</i> (Vuill.) Tirab. (1908); Anamorphic Emericella, Trichocomaceae, Eurotiales, Eurotiomycetidae				4				
<i>Avetiaea salvadorae</i> (Petr.) Abbas & Sutton (1988); Anamorphic Ascomycetes						6		
<i>Bactrodesmium traversianum</i> (Peyronel) Ellis (1959); Anamorphic Stuartella , Dotidiomycetes				4				
<i>Beauveria bassiana</i> (Bals. Criv.) Vuill. (1912), [RSD]; Anamorphic Clavicipitaceae, Hypocreales, Sordariomycetidae								8
<i>Beltrania rhombica</i> Penz. (1882); Anamorphic Ascomycetes							7	8
<i>Beverlykella pulmonaria</i> (Beverw.) Tubaki (1975); Anamorphic Ascomycetes							7	
<i>Bipolaris spicifera</i> (Bainier) Subram. (1971) (= <i>Cochliobolus spicifer</i>); Pleosporaceae								8
* <i>Bloxamia cremea</i> Aramb., Cabello & Cazau (1992); Anamorphic Bisporella, Elotiales, Leotiomycetidae							7	
<i>Botrytis cinerea</i> Pers. (1794); Anamorphic Botryotinia, Sclerotiniaceae, Helotiales, Leotiomycetidae				4				
<i>Camposporium antennatum</i> Harkn. (1884); Anamorphic Ascomycetes							7	
<i>Camposporium antillanum</i> Castañeda (1985); Anamorphic Ascomycetes							7	

Table 1. (Continued).

Fungal species (anamorphic Ascomycota)	1	2	3	4	5	6	7	8
<i>Camposporium pellucidum</i> (Grove) Hughes (1951); Anamorphic Ascomycetes							7	
<i>Campylospora chaetocladia</i> Ranzoni (1953); Anamorphic Ascomycetes				4				
<i>Candelabrum spinulosum</i> Beverw. (1951); Anamorphic Ascomycetes				4				
* <i>Capsicumyces delicatus</i> Gamundi, Aramb. & Giaiotti (1979); Anamorphic Ascomycetes				4				
<i>Cephalosporium acremonium</i> Corda (1839) (= <i>Acremonium strictum</i>); Anamorphic Hypocreales		2						
* <i>Cercospora balansae</i> Speg.; Anamorphic Mycosphaerella, Mycosphaerelaceae, Capnodiales, Dothideomycetidae		2						
* <i>Cercospora bignoniicola</i> Speg.; Anamorphic Mycosphaerella, Mycosphaerelaceae, Capnodiales, Dothideomycetidae		2						
* <i>Cercospora curcubitina</i> Speg. (1886); Anamorphic Mycosphaerella, Mycosphaerelaceae, Capnodiales, Dothideomycetidae		2						
* <i>Cercospora leprosa</i> Speg. (1883); Anamorphic Mycosphaerella, Mycosphaerelaceae, Capnodiales, Dothideomycetidae		2						
* <i>Cercospora myrticola</i> Speg. (1886) (= <i>Pseudocercospora myrticola</i>); Anamorphic Mycosphaerella, Mycosphaerelaceae, Capnodiales, Dothideomycetidae		2						
* <i>Cercospora solimani</i> Speg. (1886) (= <i>Phaeoisariopsis griseola</i>); Anamorphic Mycosphaerella, Mycosphaerelaceae, Capnodiales, Dothideomycetidae		2						
* <i>Cercospora stylosanthis</i> Speg. (1883) Anamorphic Mycosphaerella, Mycosphaerelaceae, Capnodiales, Dothideomycetidae		2						
* <i>Cercospora vasconcelliae</i> Speg. (1886) Anamorphic Mycosphaerella, Mycosphaerelaceae, Capnodiales, Dothideomycetidae		2						
<i>Chaetodiplodia hirta</i> Sacc (1884); Anamorphic Ascomycetes						6		
<i>Chaetopsina ramifera</i> Matsush. (1971) (= <i>Kionochaeta ramifera</i>); Anamorphic Ascomycetes								8
* <i>Chaetostroma migricans</i> Speg. (1886); Anamorphic Ascomycetes		2						
* <i>Chaetostroma subantarcticum</i> Speg. (1923); Anamorphic Ascomycetes				4				
<i>Chalara aurea</i> (Corda) Hughes (1958); Anamorphic Ascomycetes				4				
* <i>Chalara brevicaulis</i> Aramb. & Gamundi (1981); Anamorphic Ascomycetes				4				
<i>Chalara brevipes</i> Nag Raj & Kendr. (1975); Anamorphic Ascomycetes				4				
* <i>Chalara dualis</i> Aramb. & Gamundi (1981); Anamorphic Ascomycetes				4				
<i>Chalara fusidioides</i> (Corda) Rabenh. (1844); Anamorphic Ascomycetes				4				
<i>Chalara hughesii</i> Nag Raj & Kendr. (1974); Anamorphic Ascomycetes				4				8
<i>Chalara microspora</i> (Corda) Hughes (1958); Anamorphic Ascomycetes				4				
<i>Chalara minima</i> Höhn. (1904); Anamorphic Ascomycetes								8

Table 1. (Continued).

Fungal species (anamorphic Ascomycota)	1	2	3	4	5	6	7	8
<i>Chalara nothofagi</i> Nag Raj & Kendr. (1975); Anamorphic Ascomycetes				4				
<i>Chalara nova-zelandiae</i> Nag Raj & Kendr. (1975); Anamorphic Ascomycetes				4				
* <i>Cheiromyces wrightii</i> Mengasc., Cabello & Aramb. (1987); Anamorphic Ascomycetes							7	
<i>Chloridium lignicola</i> (Mangenot) Gams & Hol.-Jech. (1976); Anamorphic Chaetosphaeria, Chaetosphaeriaceae, Chaetosphaeriales, Sordariomycetidae				4				
<i>Chrysosporium xerophilum</i> Pitt (1966); Anamorphic Onygenaceae								8
<i>Chrysosporium pannorum</i> (Link) Hughes (1958) (= <i>Geomyces pannorum</i>); Anamorphic Pseudogymnoascus, Pseudoeurotiaceae, Dotidiomycetes				4				
<i>Chrysosporium queenslandicum</i> Apinis & Rees (1976); Anamorphic Onygenaceae								8
<i>Circinotrichum chathamense</i> McKenzie (1993); Anamorphic Ascomycetes								8
<i>Circinotrichum maculiforme</i> Nees (1817); Anamorphic Ascomycetes							7	8
<i>Circinotrichum papakurae</i> Hughes & Piroz. (1971); Anamorphic Ascomycetes								8
* <i>Circinotrichum olivaceum</i> (Speg.) Piroz. (1962); Anamorphic Ascomycetes								8
<i>Cladosporium cladosporioides</i> (Fresen.) Vries (1952); Anamorphic Mycosphaerella, Mycosphaerelaceae, Capnodiales, Dothideomycetidae				4				8
* <i>Cladosporium cyttariicola</i> Speg. (1923); Anamorphic Mycosphaerella, Mycosphaerelaceae, Capnodiales, Dothideomycetidae				4				
<i>Cladosporium herbarum</i> (Pers.) Link (1816); Anamorphic Mycosphaerella, Mycosphaerelaceae, Capnodiales, Dothideomycetidae				4		6		8
* <i>Cladosporium ushuwaiense</i> Speg. (1924); Anamorphic Mycosphaerella, Mycosphaerelaceae, Capnodiales, Dothideomycetidae				4				
<i>Clathrosphaerina zalewskii</i> Beverw. (1951); Anamorphic Hyaloscypha, Hyaloscyphaceae, Helotiales, Leotiomyetidae				4				
<i>Clonostachys compactiuscula</i> (Sacc.) Hawksw. & Gams (1975); Anamorphic Bionectriaceae							7	8
<i>Clonostachys cylindrospora</i> Höhn. (1952); Anamorphic Bionectriaceae								8
<i>Clonostachys rogersoniana</i> Schroers (2001); Anamorphic Bionectriaceae								8
<i>Clonostachys rosea</i> (Preuss) Mussat (1901); Anamorphic Bionectriaceae								8
<i>Clonostachys setosa</i> (Vittal) Schroers (2001); Anamorphic Bionectriaceae								8
* <i>Coniothecium antarcticum</i> Speg. (1888); Anamorphic Ascomycetes				4				
* <i>Cordana andinopatagonica</i> Gamundi & Aramb. (1979); Anamorphic Ascomycetes				4				
<i>Cordana pauciseptata</i> Preuss (1851); Anamorphic Ascomycetes				4				
* <i>Cordella coniosporioides</i> Speg. (1886); Anamorphic Apiospora, Apiosporaceae, Sordariomycetidae		2						

Table 1. (Continued).

Fungal species (anamorphic Ascomycota)	1	2	3	4	5	6	7	8
* <i>Cordella spinulosa</i> Speg. (1886); Anamorphic Apiospora, Apiosporaceae, Sordariomycetidae		2						
<i>Curvularia lunata</i> (Wakker) Boedijn (1933) (= <i>Cochliobolus lunatus</i>); Pleosporaceae								8
<i>Cylindrocarpon didymum</i> (Harting) Wollenw. (1926); Anamorphic Nectria, Nectriaceae, Hypocreales, Sordariomycetidae				4				8
<i>Cylindrocarpon lucidum</i> Booth (1966) (= <i>Neonectria lucida</i>); Nectriaceae, Hypocreales, Sordariomycetidae								8
<i>Cylindrocarpon olidum</i> (Wollenw.) Wollenw. (1916); Anamorphic Nectria, Nectriaceae, Hypocreales, Sordariomycetidae								8
<i>Cylindrocarpon orthosporum</i> (Sacc.) Wollenw. (1926); Anamorphic Nectria, Nectriaceae, Hypocreales, Sordariomycetidae								8
<i>Cylindrocarpon tenue</i> Bugnic. (1939) (= <i>Gliocladiopsis tenuis</i>); Anamorphic Calonectria, Nectriaceae, Hypocreales, Sordariomycetidae				4				
<i>Cylindrocladium colhounii</i> Peeraly (1973) (= <i>Calonectria colhounii</i>); Nectriaceae, Hypocreales, Sordariomycetidae								8
* <i>Cylindrocolla macrospora</i> Aramb. & Gamundí (1981); Anamorphic Calloria, Helotiales, Leotiomycetidae				4				
<i>Cylindrocolla urticae</i> (Pers.) Bonord. (1851) (= <i>Crocicreas cyathoideum</i> var. <i>cyathoideum</i>), Helotiaceae				4				
<i>Cylindrotrichum clavatum</i> Gams (1976); Anamorphic Chaetosphaeria, Chaetosphaeriaceae, Chaetophariales, Sordariomycetidae								7
<i>Cylindrotrichum ellisii</i> Morgan-Jones (1977); Anamorphic Chaetosphaeria, Chaetosphaeriaceae, Chaetophariales, Sordariomycetidae								7
* <i>Cylindrotrichum menisporioides</i> Cabello & Aramb. (1991); Anamorphic Chaetosphaeria, Chaetosphaeriaceae, Chaetophariales, Sordariomycetidae								7
* <i>Dactylaria appendiculata</i> Cazau, Aramb. & Cabello (1990); Anamorphic Ascomycetes								7
* <i>Dactylaria argentina</i> (Aramb. & Mengasc.) Cabello & Cazau (1990); Anamorphic Ascomycetes								7
<i>Dactylaria fusiformis</i> Shearer & J.L. Crane (1971); Anamorphic Ascomycetes								8
* <i>Dactylaria isthmospora</i> Cabello, Mengasc. & Aramb. (1987); Anamorphic Ascomycetes								7
* <i>Dactylaria longidentata</i> Cazau, Aramb. & Cabello (1990); Anamorphic Ascomycetes								7
<i>Dactylaria obtriangularia</i> Matsush. (1975); Anamorphic Ascomycetes								7 8
<i>Dactylaria parvispora</i> (Preuss) de Hoog & Arx (1973); Anamorphic Ascomycetes				4				7
<i>Dactylella brochopaga</i> Drechsler (1937) (= <i>Arthrobotrys brochopaga</i>); Anamorphic Orbilia, Orbiliaceae, Orbiliales, Orbiliomycetidae				4				
<i>Dactylella parvicollis</i> Drechsler (1962) (= <i>Gamsylella parvicollis</i>); Anamorphic Ascomycetes				4				
* <i>Dematiocladium celtidis</i> Allegr., Aramb., Cazau & Crous (2005); Nectriaceae, Hypocreales, Sordariomycetidae								8
<i>Dendrosporium lobatum</i> Plakidas & Edgerton ex Crane (1972); Anamorphic Ascomycetes								7

Table 1. (Continued).

Fungal species (anamorphic Ascomycota)	1	2	3	4	5	6	7	8
* <i>Dictyochoaeta assamica</i> (Agnihothr.) Aramb., Cabello & Mengasc. (1988); Anamorphic Chaetosphaeria, Chaetosphaeriaceae, Chaetophariales							7	
* <i>Dictyochoaeta gamundiae</i> Aramb. & Cabello (1987); Anamorphic Chaetosphaeria, Chaetosphaeriaceae, Chaetophariales, Sordariomycetidae							7	
<i>Dictyochoaeta tripeptata</i> (Matsush.) Castañeda (1986); Anamorphic Chaetosphaeria, Chaetosphaeriaceae, Chaetophariales, Sordariomycetidae							7	
* <i>Dictyochoaeta fuegiana</i> Speg. (1923); Anamorphic Chaetosphaeria Chaetosphaeriaceae, Chaetophariales, Sordariomycetidae				4				
<i>Dictyosporium elegans</i> Corda (1838); Anamorphic Ascomycetes							7	
* <i>Dictyosporium triramosum</i> Aramb., Cabello & Cazau (2001); Anamorphic Ascomycetes							7	
<i>Dinemasporium canadense</i> Morgan-Jones (1971); Anamorphic Phomatosporea, Xilariales, Xilariomycetidae						6		
* <i>Diplocladiella taurina</i> Cazau, Aramb. & Cabello (1993); Anamorphic Ascomycetes							7	
<i>Doratomyces microsporus</i> (Sacc.) Morton & Sm. (1963) (= <i>Cephalotrichum microsporum</i>); Anamorphic Microascaceae								8
<i>Doratomyces stemonitis</i> (Pers.) Morton & Sm. (1963) (= <i>Cephalotrichum stemonitis</i>); Anamorphic Ascomycetes								8
* <i>Dwayaangam gamundia</i> Cazau, Aramb. & Cabello (1993); Anamorphic Orbilia, Orbiliaceae, Orbiliales, Orbiliomycetidae							7	
* <i>Edmundmasonia gamundiae</i> Aramb. & Godeas (1994); Anamorphic Ascotaiwania, Sordariales, Sordariomycetidae				4				
<i>Ellisiopsis galesiae</i> Bat. & Nascim. (1956) (= <i>Beltraniella portoricensis</i>); Anamorphic Leiosphaerella, Xilariales, Xilariomycetidae								8
<i>Endophragmiella boewe</i> (Crane) Hughes (1979); Anamorphic Lasiosphaeriaceae							7	
<i>Endophragmiella oblonga</i> (Matsush.) Hughes (1979); Anamorphic Lasiosphaeriaceae							7	
<i>Endophragmiella socia</i> (Ellis) Hughes (1979) (= <i>Sporidesmium socium</i>); Anamorphic Ascomycetes							7	
<i>Epicoccum nigrum</i> Link (1815); Anamorphic Ascomycetes				4		6		8
* <i>Erysiphopsis myrothecioides</i> Speg. (1910); Anamorphic Ascomycetes			3					
<i>Fusariella atrovirens</i> (Berk.) Sacc. (1884); Anamorphic Ascomycetes								8
<i>Fusarium moniliforme</i> Sheld. (1904) (= <i>Gibberella moniliformis</i>); Nectriaceae, Nectriaceae, Hypocreales, Sordariomycetidae								8
<i>Fusarium lateritium</i> Nees (1817) (= <i>Gibberella baccata</i>); Nectriaceae, Nectriaceae, Hypocreales, Sordariomycetidae						6		
<i>Fusarium oxysporum</i> Schltdl. (1824); Anamorphic Gibberella, Nectriaceae, Hypocreales, Sordariomycetidae								8
<i>Fusarium semitectum</i> Berk. & Ravenel (1875) (= <i>Fusarium incarnatum</i>); Anamorphic Gibberella, Nectriaceae, Hypocreales, Sordariomycetidae								8

Table 1. (Continued).

Fungal species (anamorphic Ascomycota)	1	2	3	4	5	6	7	8
<i>Fusarium solani</i> (Mart.) Sacc. (1881) (= <i>Haematonectria haematococca</i>); Nectriaceae, Nectriaceae, Hypocreales, Sordariomycetidae								8
<i>Fusarium sulphureum</i> Schldl. (1824); Anamorphic Gibberella, Nectriaceae, Hypocreales, Sordariomycetidae				4				8
<i>Geotrichum candidum</i> Link (1809); Anamorphic Dipodascus, Dipodascaceae, Saccharomycetales, Sccharomycetidae								8
<i>Gliocephalotrichum bulbilium</i> Ellis & Hesselt. (1962); Anamorphic Leuconectria, Nectriaceae, Hypocreales, Sordariomycetidae							7	
<i>Gliocladium penicillioides</i> Corda (1840) (= <i>Sphaerostilbella aureonitens</i>); Hypocreaceae								8
<i>Gliomastix cerealis</i> (Karst.) Dickinson (1968); Anamorphic Ascomycetes				4				
<i>Gliomastix murorum</i> (Corda) Hughes (1958) (= <i>Gliomastix murorum</i> var. <i>murorum</i>); Anamorphic Ascomycetes				4				8
<i>Gonatobotrys simplex</i> Corda (1839) (= <i>Melanospora damnosa</i>); Ceratostomataceae						6		
<i>Gonatobotryum apiculatum</i> (Peck) Hughes (1953); Anamorphic Ascomycetes						6		
<i>Gonytrichum macrocladum</i> (Sacc.) Hughes (1951); Anamorphic Chaetosphaeria, Chaetosphaeriaceae, Chaetosphaeriales, Sordariomycetidae								8
* <i>Graphium giganteum</i> Speg. (1886); Anamorphic Microascaceae, Microascales, Hypocreomycetidae		2						
* <i>Graphium verticillioide</i> Speg. (1886); Anamorphic Microascaceae, Microascales, Hypocreomycetidae		2						
<i>Gyoeffyyella gemellipara</i> Marvanová (1975); Anamorphic Ascomycetes				4				
<i>Gyothrix circinata</i> (Berk. & Curtis) Hughes (1958); Anamorphic Ascomycetes							7	
<i>Gyothrix citricola</i> Piroz. (1962); Anamorphic Ascomycetes								8
<i>Gyothrix flagella</i> (Cooke & Ellis) Piroz. (1962); Anamorphic Ascomycetes								8
<i>Gyothrix grisea</i> Piroz. (1962); Anamorphic Ascomycetes							7	8
<i>Gyothrix pediculata</i> Cunn. (1974); Anamorphic Ascomycetes				4				
<i>Gyothrix podosperma</i> (Corda) Rabenh. (1844); Anamorphic Ascomycetes						6		8
<i>Gyothrix verticiclada</i> (Goid.) Hughes & Piroz. (1971); Anamorphic Ascomycetes								8
<i>Gyothrix verticillata</i> Piroz. (1962); Anamorphic Ascomycetes							7	8
* <i>Harknessia antarctica</i> Speg. (1881); Anamorphic Wuestneia, Diaporthales, Sordariomycetidae				4				
<i>Helicodendron paradoxum</i> Peyr. (1918); Anamorphic Hymenoscyphus, Helotiaceae, Helotiales, Leotiomycetidae							7	
<i>Helicoma monilipes</i> Ellis & Johnson (1894); Anamorphic Tubeufia, Tubeufiaceae, Pleosporales, Pleosporomycetidae							7	
* <i>Helicomycetes larviformis</i> Speg. (1886); Anamorphic Tubeufiaceae, Pleosporales, Pleosporomycetidae		2						

Table 1. (Continued).

Fungal species (anamorphic Ascomycota)	1	2	3	4	5	6	7	8
<i>Helicoon pluriseptatum</i> Beverw. (1954); Anamorphic Ascomycetes				4				
* <i>Helicoon septatissimum</i> Godeas & Aramb. (1996); Anamorphic Ascomycetes				4				
<i>Helicosporium griseum</i> (Bonord.) Sacc. (1886); Anamorphic Tubeufia, Tubeufiaceae, Pleosporales, Pleosporomycetidae							7	8
<i>Helicosporium lumbricoides</i> Sacc. (1877); Anamorphic Tubeufia, Tubeufiaceae, Pleosporales, Pleosporomycetidae							7	
* <i>Helminthosporium paraguayense</i> Speg. (1886); Anamorphic Splanchnonema, Pleomassariceae, Pleosporales, Pleosporomycetidae		2						
* <i>Helminthosporium guaraniticum</i> Speg. (1886); Anamorphic Splanchnonema, Pleomassariceae, Pleosporales, Pleosporomycetidae		2						
<i>Humicola fuscoatra</i> Traaen (1914); Anamorphic Ascomycetes								8
<i>Humicola grisea</i> Traaen (1914); Anamorphic Ascomycetes								8
* <i>Humicolopsis cephalosporioides</i> Cabral & Marchand (1976); Anamorphic Ascomycetes				4				
* <i>Hymenopsis argentinensis</i> (Speg.) Sutton (1980); Anamorphic Ascomycetes						6		
<i>Hyphodiscosia jaipurensis</i> Lodha & Reddy (1974); Anamorphic Ascomycetes							7	
<i>Idriella lunata</i> Nelson & Wilh. (1956); Anamorphic Hymenoscyphus, Helotiaceae, Helotiales, Leotiomycetidae				4				8
<i>Idriella tropicalis</i> Lunghini & Rambelli (1978); Anamorphic Hymenoscyphus, Helotiaceae, Helotiales, Leotiomycetidae								8
<i>Idriella variabilis</i> Matsush. (1971); Anamorphic Hymenoscyphus, Helotiaceae, Helotiales, Leotiomycetidae								8
* <i>Isaria citrinula</i> Speg.			3					
* <i>Isaria edessicola</i> Speg. (1910); Anamorphic Ascomycetes			3					
* <i>Isthmologispora asymmetrica</i> Aramb. & Cabello (1987); Anamorphic Ascomycetes							7	
* <i>Janetia bacilliformis</i> Gamundí, Aramb. & Giaiotti (1979); Anamorphic Ascomycetes				4				
* <i>Kostermansinda minima</i> Cabello & Aramb. (1987); Anamorphic Ascomycetes							7	
<i>Lateriramulosa bi-inflata</i> Matsush. (1975); Anamorphic Ascomycetes							7	
<i>Melanographium cookei</i> Ellis (1963); Anamorphic Ascomycetes		2						
* <i>Menispora fuegiana</i> Aramb. & Godeas (1994); Anamorphic Chaetosphaeria, Chaetosphaeriaceae, Chaetosphaeriales, Sordariomycetidae				4				
<i>Menisporopsis pirozynskii</i> Varghese & Rao (1978); Anamorphic Ascomycetes							7	
<i>Metarhizium anisopliae</i> (Metschn.) Sorok?n (1883); Anamorphic Nectriaceae								8
<i>Microsphaeropsis concentrica</i> (Desm.) Morgan-Jones (1975) (= <i>Coniothyrium concentricum</i>); Anamorphic Leptosphaeria, Leptosphaeriaceae						6		
* <i>Microsphaeropsis diffusa</i> Bianchin. (2001); Anamorphic Paraphaeosphaeria, Montagnulaceae, Pleosporales, Pleosporomycetidae						6		

Table 1. (Continued).

Fungal species (anamorphic Ascomycota)	1	2	3	4	5	6	7	8
* <i>Minimidochium parvum</i> Cabello, Aramb. & Cazau (1998); Anamorphic Ascomycetes							7	
<i>Mirandina brevisphora</i> Matsush. (1971); Anamorphic Ascomycetes							7	
<i>Mirandina corticola</i> Arnaud ex Matsush. (1975); Anamorphic Ascomycetes							7	8
<i>Mirandina tipica</i> Matsush. (1971); Anamorphic Ascomycetes				4				
<i>Monacrosporium gephyropagum</i> (Drechsler) Subram. (1964) (= <i>Gamsylella gephyropaga</i>); Anamorphic Ascomycetes				4				
* <i>Monochaetina geoffroana</i> Bianchin. (1990); Anamorphic Ascomycetes						6		
<i>Mycleptodiscus terrestris</i> (Gerd.) Ostaz. (1968); Anamorphic Omnidemptus, Magnaporthaceae, Sordariomycetidae								8
<i>Myrothecium cinctum</i> (Corda) Sacc. (1886); Anamorphic Hypocreales								8
* <i>Myrothecium pulchellum</i> Speg. (1886); Anamorphic Hypocreales		2						
<i>Myrothecium lachastrae</i> Sacc. (1882); Anamorphic Hypocreales								8
<i>Myrothecium verrucaria</i> (Alb. & Schwein.) Ditmar (1813); Anamorphic Hypocreales				4				
<i>Nakataea sigmoidea</i> (Cavara) Hara (1939) (= <i>Magnaporthe salvinii</i>); Magnaporthaceae, Sordariomycetidae							7	
<i>Nigrospora sphaerica</i> (Sacc.) Mason (1927) (= <i>Khuskia oryzae</i>); Trichosphaeriales								8
<i>Oidiodendron tenuissimum</i> (Peck) Hughes (1958); Anamorphic Byssosascus, Myxotrichaceae, Dotiriomycetidae					4			
<i>Olpitrichum patulum</i> (Sacc. & Berl.) Hol.-Jech. (1974); Anamorphic Ascomycetes								8
<i>Paecilomyces lilacinus</i> (Thom) Samson (1974); Anamorphic Byssochlamys, Trichocomaceae, Eurotiales, Eurotiomycetidae								8
<i>Papulaspora sepedonioides</i> Preuss (1851); Anamorphic Chaetomium, Chaetomiaceae, Sordariales, Sordariomycetidae				4				
<i>Papulaspora viridis</i> Matsush. (1975) (= <i>Pseudaegerita matsushimae</i>); Anamorphic Hyaloscypha, Hyaloscyphaceae, Helotiales, Leotiomycetidae							7	
<i>Penicillium anaticum</i> Stolk (1968); Anamorphic Eupenicillium, Trichocomaceae, Eurotiales, Eurotiomycetidae		1						
<i>Penicillium brevicompactum</i> Dierckx (1901); Anamorphic Eupenicillium, Trichocomaceae, Eurotiales, Eurotiomycetidae				4				
<i>Penicillium canescens</i> Sopp (1912); Anamorphic Eupenicillium, Trichocomaceae, Eurotiales, Eurotiomycetidae				4				
<i>Penicillium chrysogenum</i> Thom (1910) (= <i>Penicillium chrysogenum</i> var. <i>chrysogenum</i>); Anamorphic Eupenicillium, Trichocomaceae, Eurotiales				4				8
<i>Penicillium frequentans</i> Westling (1912) (= <i>Penicillium glabrum</i>); Anamorphic Eupenicillium, Trichocomaceae, Eurotiales, Eurotiomycetidae				4				8
<i>Penicillium funiculosum</i> Thom (1910); Anamorphic Eupenicillium, Trichocomaceae, Eurotiales, Eurotiomycetidae				4				
<i>Penicillium implicatum</i> Biourge (1923); Anamorphic Eupenicillium, Trichocomaceae, Eurotiales, Eurotiomycetidae				4				

Table 1. (Continued).

Fungal species (anamorphic Ascomycota)	1	2	3	4	5	6	7	8
<i>Penicillium megasporum</i> Orpurt & Fennell (1955); Anamorphic Eupenicillium, Trichocomaceae, Eurotiales, Eurotiomycetidae								8
<i>Penicillium nigricans</i> Bainier ex Thom (1930) (= <i>Penicillium janczewskii</i>); Anamorphic Eupenicillium, Trichocomaceae, Eurotiales, Eurotiomycetidae				4				
<i>Penicillium odoratum</i> Chr. & Backus (1962) (= <i>Penicillium indonesiae</i>); Anamorphic Eupenicillium, Trichocomaceae, Eurotiales, Eurotiomycetidae				4				
<i>Penicillium palitans</i> Westling (1911); Anamorphic Eupenicillium, Trichocomaceae, Eurotiales, Eurotiomycetidae				4				
<i>Penicillium purpurascens</i> (Sopp) Biourge (1923) (= <i>Penicillium purpurescens</i>); Anamorphic Eupenicillium, Trichocomaceae, Eurotiales, Eurotiomycetidae				4				
<i>Penicillium restrictum</i> Gilman & Abbott (1927); Anamorphic Eupenicillium, Trichocomaceae, Eurotiales, Eurotiomycetidae								8
<i>Penicillium rubrum</i> Sopp (1904); Anamorphic Eupenicillium, Trichocomaceae, Eurotiales, Eurotiomycetidae								8
<i>Penicillium stipitatum</i> Thom ex Emmons (1935) (= <i>Penicillium emmonsii</i>); Anamorphic Eupenicillium, Trichocomaceae, Eurotiales, Eurotiomycetidae	1							
<i>Penicillium thomii</i> Zalesky (1927); Anamorphic Eupenicillium, Trichocomaceae, Eurotiales, Eurotiomycetidae				4				8
<i>Penicillium vermiculatum</i> Dang. (1907) (= <i>Talaromyces flavus</i> var. <i>flavus</i>); Trichocomaceae	1							
<i>Periconia byssoides</i> Pers. (1801); Anamorphic Ascomycetes						6		8
<i>Pestalotiopsis guepinii</i> (Desm.) Steyaert (1949); Anamorphic Pestalosphaeria, Amphisphaeriaceae, Xylariales, Xylariomycetidae								8
<i>Phaeotalagus tenuissimus</i> (Corda) Gams & Hol.-Jech. (1976); Anamorphic Ascomycetes				4				
* <i>Phaeotrichoconis aquatica</i> Mengasc. & Aramb. (1987); Anamorphic Ascomycetes								7
<i>Phaeotrichoconis minigelatinosa</i> Roldán, Descals & Honrubia (1987); Anamorphic Ascomycetes								7
<i>Phaeotrichoconis foveolata</i> (Pat.) Aramb. & Cabello (1989), Anamorphic Ascomycetes								7
<i>Phialophora fastigiata</i> (Lagerb. & Melin) Conant (1937); Anamorphic Ascomycetes								8
<i>Phoma herbarum</i> Sacc. (1852) (= <i>Phoma exigua</i> var. <i>exigua</i>); Anamorphic Leptosphaeria, Leptosphaeriaceae, Pleosporales, Pleosporomycetidae								8
<i>Phomopsis abdita</i> (Sacc.) Traverso (1906); Anamorphic Diaporthe, Diaportaceae, Diaportales, Sordariomycetidae						6		
* <i>Placodiplodia hilata</i> Bianchin. (2001); Anamorphic Ascomycetes						6		
* <i>Pleurocatena foliicola</i> Aramb. & Gamundí (1981); Anamorphic Ascomycetes				4				
* <i>Polyscytium fuegianum</i> (Speg.) Gamundí, Aramb. & Giaiotti (1977); Anamorphic Ascomycetes				4				
<i>Polyschema olivaceum</i> (Ellis & Everh.) Ellis (1976); Anamorphic Ascomycetes								7
* <i>Pseudorobillarda magna</i> Bianchin. (1997); Anamorphic Ascomycetes						6		
* <i>Pulvinotrichum album</i> Gamundí, Aramb. & Giaiotti (1981); Anamorphic Ascomycetes				4				

Table 1. (Continued).

Fungal species (anamorphic Ascomycota)	1	2	3	4	5	6	7	8
<i>Pyriculariopsis parasitica</i> (Sacc. & Berl.) Ellis (1971); Anamorphic Ascomycetes								8
<i>Ramichloridium schulzeri</i> (Sacc.) de Hoog (1977); Anamorphic Ascomycetes							7	8
<i>Rhinochloidiella mansonii</i> (Castell.) Schol-Schwarz (1968) (= <i>Exophiala mansonii</i>); Anamorphic Capronia, Herpotrichiellaceae, Chaetothyriale				4				
* <i>Rhinotrichum canescens</i> (Speg.) Speg. (1886); Anamorphic Ascomycetes		2						
* <i>Rosulomyces arthrosporioides</i> Marchand & Cabral (1976); Anamorphic Ascomycetes				4				
<i>Scolecobasidium dendroides</i> Piroz. & Hodges (1973); Anamorphic Ascomycetes				4				
<i>Scolicosporium fusarioides</i> (Sacc.) Sutton (1975); Anamorphic Asteromassaria, Pleomssariaceae, Pleosporales, Pleosporomycetidae						6		
<i>Scopulariopsis brevicaulis</i> (Sacc.) Bainier (1907) (= <i>Microascus brevicaulis</i>); Microascaceae								8
<i>Septoria nothofagi</i> Jauch & Valla (1967); Anamorphic Mycosphaerella, Mycisphaereleceae, Capnodiales, Dothidiomycetidae				4				
<i>Solosympodiella rigidentata</i> Matsush. (1975); Anamorphic Ascomycetes								8
* <i>Speiropsis aquatica</i> Aramb., Cabello & Mengasc. (1987); Anamorphic Ascomycetes							7	
<i>Spiropes harunganae</i> (Hansf.) M.B. Ellis (1968); Anamorphic Ascomycetes								8
<i>Sporidesmium adscendens</i> Berk. (1840); Anamorphic Ascomycetes							7	8
* <i>Sporidesmium aquaticum</i> Cabello, Mengasc. & Aramb. (1989); Anamorphic Ascomycetes							7	
<i>Sporidesmium aturbinatum</i> (Hughes) Ellis (1958); Anamorphic Ascomycetes							7	
* <i>Sporidesmium calyptratum</i> Cabello, Cazau & Aramb. (1990); Anamorphic Ascomycetes							7	
* <i>Sporidesmium filiostratum</i> Cabello, Cazau & Aramb. (1990); Anamorphic Ascomycetes							7	
<i>Sporidesmium hyalospermum</i> (Corda) Hughes (1978), (= <i>Sporidesmiella hyalosperma</i> var. <i>hyalosperma</i>); Anamorphic Ascomycetes							7	
* <i>Sporidesmium longisporum</i> Cabello, Cazau & Aramb. (1990); Anamorphic Ascomycetes							7	
* <i>Sporidesmium maxigelatinosum</i> Cabello, Cazau & Aramb. (1993); Anamorphic Ascomycetes							7	
<i>Sporidesmium minigelatinosum</i> Matsush. (1971); Anamorphic Ascomycetes							7	
<i>Sporidesmium pedunculatum</i> (Peck) Ellis (1958); Anamorphic Ascomycetes							7	
* <i>Sporidesmium spegazzinii</i> Cabello, Cazau & Aramb. (1990); Anamorphic Ascomycetes							7	
<i>Sporidesmium rubi</i> Ellis (1958); Anamorphic Ascomycetes				4				
<i>Sporocybe antarctica</i> Speg.; (Anamorphic Ascomycetes)				4				
* <i>Sporotrichum peribebuyense</i> Speg. (1886), (= <i>Beniowskia sphaeroidea</i>); Anamorphic Ascomycetes		2						

Table 1. (Continued).

Fungal species (anamorphic Ascomycota)	1	2	3	4	5	6	7	8
<i>Stachybotrys chartarum</i> (Ehrenb.) Hughes (1958); Anamorphic Ascomycetes								8
<i>Stagonospora vitensis</i> Unamuno (1929); Anamorphic Didymella, Pleosporales, Pleosporomycetidae						6		
<i>Stemphylium vesicarium</i> (Wallr.) Simmons (1969); Anamorphic Pleospora, Pleosporaceae, Pleosporales, Pleosporomycetidae								8
* <i>Stilbum aurantiocinnabarinum</i> (Speg.) Sacc. (1886); Chionosphaeraceae, Agaricostilbales, Agaricostilbomycetes		2	3					
<i>Symptodiella gracilispora</i> Matsush. (1975) (= <i>Polyscytalum gracilisporum</i>); Anamorphic Ascomycetes				4				
<i>Tetracoccusporium aerium</i> Misra & Srivast. (1976); Anamorphic Ascomycetes								7
* <i>Tetraploa abortiva</i> Aramb. & Cabello (1987); Anamorphic Massarina, Massarinaceae, Pleosporales, Pleosporomycetidae								7
<i>Tetraploa aristata</i> Berk. & Broome (1850); Anamorphic Massarina, Massarinaceae, Pleosporales, Pleosporomycetidae								7
* <i>Thozetella buxifolia</i> Allegr., Cazau, Cabello & Aramb. (2004); Anamorphic Chaetosphaeria, Chaetosphaeriaceae, Chaetosphaeriales, Sordariomycetidae								8
<i>Tolyocladium cylindrosporum</i> Gams (1971); Anamorphic Hypocreales				4				
<i>Torula herbarum</i> (Pers.) Link (1809); Anamorphic Ascomycetes				4				8
<i>Trichocladium asperum</i> Harz (1871); Anamorphic Ascomycetes				4				
* <i>Trichocladium diversicoloratum</i> Gamundi & Aramb. (1979); Anamorphic Ascomycetes				4				
<i>Trichocladium opacum</i> (Corda) Hughes (1952); Anamorphic Ascomycetes				4				
<i>Trichoderma hamatum</i> (Bonord.) Bainier (1906); Anamorphic Hypocrea, Hypocreaceae, Hypocreales, Sordariomycetidae				4				8
<i>Trichoderma harzianum</i> Rifai (1969); Anamorphic Hypocrea, Hypocreaceae, Hypocreales, Sordariomycetidae								8
<i>Trichoderma koningii</i> Oudem. (1902); Anamorphic Hypocrea, Hypocreaceae, Hypocreales, Sordariomycetidae				4				8
<i>Trichoderma polysporum</i> (Link) Rifai (1969); Anamorphic Hypocrea, Hypocreaceae, Hypocreales, Sordariomycetidae				4				
<i>Trichoderma saturnisporum</i> Hammill (1970); Anamorphic Hypocrea, Hypocreaceae, Hypocreales, Sordariomycetidae								8
<i>Trichoderma viride</i> Pers. (1794); Anamorphic Hypocrea, Hypocreaceae, Hypocreales, Sordariomycetidae				4				
<i>Trichothecium roseum</i> (Pers.) Link (1809); Anamorphic Ascomycetes				4				8
<i>Trinacrium robustum</i> Tzean & Chen (1989); Anamorphic Orbilia, Orbiliaceae, Orbiliales, Orbiliomycetidae						6		
<i>Trinacrium subtile</i> Riess (1850); Anamorphic Orbilia, Orbiliaceae, Orbiliales, Orbiliomycetidae						6		
* <i>Tripodium foliicola</i> Gamundi, Aramb. & Giaiotti (1978); Anamorphic Batistinula, Asterinaceae, Capnodiales, Dothideomycetidae				4				
<i>Truncatella truncata</i> (Lév.) Steyaert (1949); Anamorphic Broomella, Anphisphaericeae, Xylariales, Xylariomycetidae				4				

Table 1. (Continued).

Fungal species (anamorphic Ascomycota)	1	2	3	4	5	6	7	8
* <i>Tubercularia antarctica</i> Speg.; Anamorphic Nectria, Nectriaceae, Hypocreales, Sordariomycetidae				4				
* <i>Tubercularia guaranítica</i> Speg.; Anamorphic Nectria, Nectriaceae, Hypocreales, Sordariomycetidae		2						
* <i>Tubercularia paraguayana</i> Speg.; Anamorphic Nectria, Nectriaceae, Hypocreales, Sordariomycetidae		2						
<i>Ulocladium atrum</i> Preuss (1852); Anamorphic Pleosporaceae				4				8
<i>Ulocladium botrytis</i> Preuss (1851); Anamorphic Pleosporaceae				4				8
<i>Verticillium albo-atrum</i> Reinke & Berthold (1879); Anamorphic Hypomyces, Hypocreaceae, Hypocreales, Sordariomycetidae								8
<i>Verticillium bulbillosum</i> Gams & Malla (1971) (= <i>Pochonia bulbillosa</i>); Anamorphic Ascomycetes				4				
<i>Verticillium cephalosporum</i> Gams (1971) (= <i>Pochonia bulbillosa</i>); Anamorphic Ascomycetes				4				
<i>Verticillium nigrescens</i> Pethybr. (1919) (= <i>Gibellulopsis nigrescens</i>); Anamorphic Hypomyces, Hypocreaceae, Hypocreales, Sordariomycetidae								8
<i>Verticillium psalliotae</i> Treschow (1941) (= <i>Lecanicillium psalliotae</i>); Anamorphic Ascomycetes				4				
<i>Volutella ciliata</i> (Alb. & Schwein.) Fr. (1832); Anamorphic Pseudonectria, Nectriaceae, Hypocreales, Sordariomycetidae				4				8
* <i>Volutella paraguayensis</i> Speg.; Anamorphic Pseudonectria, Nectriaceae, Hypocreales, Sordariomycetidae		2						
<i>Wardomyces inflatus</i> (Marchal) Hennebert (1968); Anamorphic Microascus, Microasceae, Microascales, Hypocreomycetidae								8
<i>Wiesneriomyces javanicus</i> Koord. (1907) (= <i>Wiesneriomyces laurinus</i>); Anamorphic Ascomycetes							7	
<i>Xylohypha curta</i> (Corda) Hughes (1960); Anamorphic Ascomycetes				4				
<i>Xylohypha nigrescens</i> (Pers.) Mason (1960); Anamorphic Ascomycetes				4				
<i>Zygosporium echinosporum</i> Bunting & Mason (1941); Anamorphic Ascomycetes								8
<i>Zygosporium gibbum</i> (Sacc., Rousseau & Bommer) Hughes (1958); Anamorphic Ascomycetes							7	
<i>Zygosporium oscheoides</i> Mont. (1842); Anamorphic Ascomycetes								8

was determined to be a new genus and species, and *Thozetella buxifolia* (Allegrucci et al., 2004) described as a new species.

CONCLUSIONS

Based on the available bibliography dealing with diversity of anamorphic Ascomycota species in different regions of native forests in Argentina,

and beginning with the early collections done by Spegazzini to date, 344 fungal species have been identified, 81 of them (23,5 %) were found to be new to science.

A total of 31 families were recorded, 30 belonging to Ascomycota and only one to Basidiomycota. Trichocomaceae and Nectriaceae were the most abundant families, while the remaining recorded families were: Amphispheeriaceae, Apiosporaceae, Asterinaceae, Bionectriaceae, Ceratostomataceae,

Chaetomiaceae, Chatosphaeriaceae, Chionosphaeraceae, Diaportaceae, Dipodascaceae, Helotiaceae, Herpotrichiellaceae, Hyaloscyphaceae, Hypocreaceae, Lasiosphaeriaceae, Leptosphaeriaceae, Magnaporthaceae, Massariaceae, Microascaceae, Montagnulaceae, Mycisphaeraleaceae, Mycosphaerelaceae, Myxotrichaceae, Onygenaceae, Orbiliaceae, Pleomassariceae, Pleosporaceae, Pseudoeuromyces, Sclerotiniaceae, and Tubeufiaceae.

Of the native forests here reported, the “Talarés” in the Pampean region, followed by the Andean-Patagonian forests and fluvial forests of Paraguay, Paraná and Uruguay rivers, were the most studied areas, with the greatest record of species: 110, 107 and 71, respectively. The “Talarés” exhibited the largest number of these fungal species, though only 1.8 % were identified as new ones.

The Andean-Patagonian forest has been extensively investigated from the mycological point of view, concerning not only anamorphic Ascomycota but also other taxonomical groups of fungi. In these forests newly described anamorphic Ascomycota species accounted for 25 % of the total. On the other hand, there are few records of fungal species in Chaco forest, Misiones rain forest, Tucumán-Bolivia forest (Yunga) and “Espinal”. The only studies about this group of fungi in Misiones rain forest were done by Spazzolini (1898, 1908, 1919). Since then, no new collection has been carried out in spite of its being one of the richest areas in vascular plant diversity. A few records of saprotrophic micro fungi (26 species) are available, presenting a very large percentage of first described species (88%). On the other hand, no record about the occurrence of anamorphic fungi in “Monte” region is available.

The Andean Patagonian forest and the “Talarés” do not have a vast diversity of vascular plant species concerning arboreal and understory components in comparison with other timberlands of Argentina such as Misiones jungle or the “Yungas”. As diversity of the vascular plant community correlates to the soil microbiota (Bills et al., 2004), those highly diverse forest communities from Argentina are promising areas for mycological research, also considering the high rate of new species resultant from earlier studies done in those areas. In addition, forest communities from Argentina are very diverse not only in terms of biological

composition and evolutionary origin, but also in abiotic factors, being interesting case studies for the mycological microbiota.

Rapidly developing regions like the Misiones rain forest which is one of the most valuable sites of wet subtropical ecosystems deserve immediate investigation to overcome the challenge of biodiversity loss.

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