

## New species and additional records of *Coenogonium* (*Ostropales*: *Coenogoniaceae*) from southern South America

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**Abstract:** Four new species of lichenized fungi from northern Argentina are described and illustrated: *Coenogonium albomarginatum* Michlig & L. I. Ferraro, *C. brasiliense* L. I. Ferraro & Michlig, *C. flavovirens* L. I. Ferraro & Michlig, and *C. verrucosum* Michlig & L. I. Ferraro. In addition, *C. isidiatum* (G. Thor & Vězda) Lücking *et al.*, *C. magdalenae* Rivas Plata, Lücking & Lizano, *C. persistens* (Malme) Lücking *et al.*, *C. pusillum* (Mont.) Lücking *et al.*, and *C. weberi* (Vězda) Lücking *et al.* are recorded for the first time from South America. The known distribution of 24 species of this lichen genus is extended. A revision of the genus in Argentina and Paraguay is also presented.

**Key words:** Argentina, lichenized fungi, Paraguay, taxonomy

*Accepted for publication 21 February 2013*

### Introduction

*Coenogonium* Ehrenb. is characterized by the formation of biatorine apothecia with a yellow to orange or brown disc, a paraplectenchymatous excipulum, unitunicate asci with entirely thin walls, uniseptate (rarely simple), colourless ascospores, and a trentepohlioid photobiont (Rivas Plata *et al.* 2006; Lücking 2008). According to its current circumscription, it comprises *c.* 130 species of mainly tropical to subtropical lichens, with a filamentous or crustose thallus, previously divided into the genera *Coenogonium* s. str. and *Dimerella* (Lücking & Kalb 2000; Rivas Plata *et al.* 2006; Lücking 2008). This transfer has not been accepted by all workers (Vězda 2004; Lackovičová & Guttová 2005). Molecular studies, however, based on DNA sequences from the nuclear small and large subunit ribosomal RNA genes, support the synonymy of *Coenogonium* and *Dimerella* (Kauff & Lutzoni 2002). Recent evidence based on ontogenetic, anatomical and morphological

studies also shows that the genus belongs in its own family *Coenogoniaceae* (Kauff & Büdel 2005; Baloch *et al.* 2010).

In South America, *c.* 55 species of *Coenogonium* have been recorded so far (Lücking 2008; Feuerer 2011), but there are some countries where the genus is still poorly known. In Argentina, 14 species of this genus have been recorded, and in Paraguay, only eight (Ferraro 1978; Calvelo & Liberatore 2002; Lücking 2008; Feuerer 2011; Lumbsch *et al.* 2011).

As a result of the study of collections from Argentina and Paraguay 27 species of *Coenogonium* (six filamentous and 21 crustose) have been studied; four new species are described and illustrated, five species are recorded for the first time for South America, and the distribution of the existing 24 species is extended, substantially increasing the knowledge of this genus in southern South America. A revision of the species of this genus from both countries is also presented.

### Material and Methods

Most of the specimens studied were collected by the authors in Argentina and Paraguay. They are deposited in the herbaria CTES, FCQ, LG, PY, and Czezugabialistok. The morphological characters were examined

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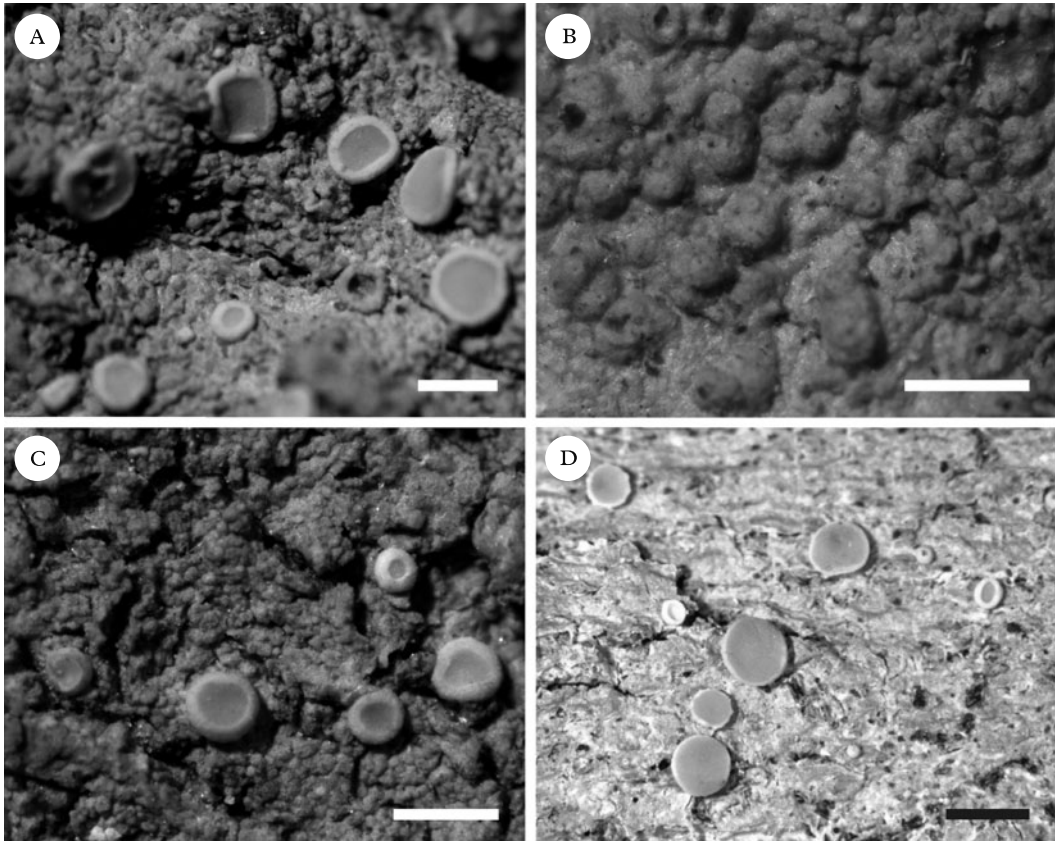


FIG. 1. New species of *Coenogonium* from southern South America. A & B, *C. verrucosum* (type); A, thallus with apothecia; B, wart-shaped pycnidia. C, *C. albomarginatum* (type), thallus with apothecia. D, *C. flavovirens* (type), thallus with apothecia. Scale = 0.5 mm.

using stereoscopic and light microscopes (Leica MZ6 and Leica CME respectively). Apothecia and pycnidia, when present, were sectioned by hand with a razor blade and then mounted in 5% KOH and Lugol's solution for examination.

### The New Species

#### *Coenogonium albomarginatum* Michlig & L. I. Ferraro sp. nov.

MycoBank No.: MB563945

Differing from *Coenogonium pyrophthalmum* by its smaller apothecia.

Type: Argentina, Prov. Corrientes, Dept. San Cosme, 3 km from crossing to Paso de la Patria, on the way to

Puerto González, 21 May 1979, L. I. Ferraro *et al.* 1928 (CTES—holotype).

(Fig. 1A)

*Thallus* crustose, corticolous, verrucose, yellowish greyish green, 25–45 mm diam.; prothallus white, shiny, conspicuous.

*Apothecia* sessile, rounded, rarely slightly irregular in outline, 0.2–0.6 mm diam., 200–215 µm high; *disc* flat to rarely convex; *margin* thick, prominent, cream-coloured, paler than the disc. *Excipulum* paraplectenchymatous with radiating cell rows, I–. *Hypothecium* 26 µm high, colourless, I+ yellow. *Hymenium*

65  $\mu\text{m}$  high, colourless, I+ blue turning greenish. *Ascospores* uniseriate, oblong-elongated, 1-septate, 8–11  $\times$  2.5–3.0  $\mu\text{m}$ .

*Pycnidia* absent.

*Notes.* The specific epithet of this new species refers to the whitish and shiny prothallus. It is close to *Coenogonium pyrophthalmum* (Mont.) Lücking *et al.*, but differs in having smaller apothecia (0.2–0.6 mm diameter).

### ***Coenogonium brasiliense* L. I. Ferraro & Michlig sp. nov.**

MycoBank No.: MB803411

Differing from *Coenogonium dilucidum* by the paler thallus and the larger and oblong ascospores.

*Type:* Argentina, Prov. Corrientes, Dept. Santo Tomé, Ea. Timbó, coast of Uruguay River, 26 km SE of Garabí colony, in lowland, on *Styrax leprosum* leaves, 18 November 1980, A. Schimini 20984 (CTES—holotype).

*Thallus* crustose, foliicolous, smooth, greyish to whitish green, extended, 3–13 mm, distributed into confluent patches, generally with a sinuous margin, somewhat raised above the substratum in some regions.

*Apothecia* with a constricted base, rounded, 1.0–1.5 mm diam.; *disc* pale brown to reddish yellow, flat, transparent; *margin* inconspicuous. *Excipulum* paraplectenchymatous, irregular cells, colourless, *c.* 3–5  $\mu\text{m}$  diam. *Hypothecium* 24  $\mu\text{m}$  high. *Hymenium* 42–50  $\mu\text{m}$  high, I+ yellow, paraphysis with widened apices. *Asci* clavate, 45–50  $\mu\text{m}$  long, 3–4  $\mu\text{m}$  wide. *Ascospores* uniseriate, oblong, slightly wider in the central region, 1-septate, 9–11  $\times$  2–3  $\mu\text{m}$ .

*Notes.* *Coenogonium brasiliense* is based on *Dimerella brasiliensis* Vězda & Kalb, *nomen nudum*. This name, used for a long time, was never formerly described. It was mentioned in a checklist of lichens from Paraguay (Ferraro 1990). This species is close to *Coenogonium dilucidum* (Kremp.) Kalb & Lücking in the colour and transparent aspect of the apothecia, especially the younger ones which are also shiny. Both species differ in the shape and size of the ascospores and the colour of the thallus. The ascospores in *C.*

*brasiliense* are larger, oblong, and widened in the central region.

*Additional material examined.* **Argentina:** Corrientes: Ituzaingó, mouth of Garapé stream on Paraná River, 45 km E of Ituzaingó, on orange leaves, on a grown wild orange, inside forest, 1975, Ferraro *et al.* 710 (CTES).—**Paraguay:** Amambay: Cerro Guazú, 26°5'S; 56°W, over *Thelypteris* sp. leaves (Pteridophyta), 1980, Schimini *et al.* 20730 (CTES). Guairá: Ybituruzú mountain range, over ferns, 1979, Schimini & Bordas 19798 (CTES).

### ***Coenogonium flavovirens* L. I. Ferraro & Michlig sp. nov.**

MycoBank No.: MB563946

Differing from *Coenogonium aciculatum* by the yellowish green thallus and smaller ascospores.

*Type:* Argentina, Prov. Salta, Dept. Santa Victoria, Los Toldos, El Nogalar de Los Toldos Reserve, 24 April 2009, L. I. Ferraro *et al.* 9079 (CTES—holotype).

(Fig. 1B)

*Thallus* crustose, corticolous, continuous, thin, smooth, yellowish green, 30 mm diam; prothallus absent. *Photobiont* *Trentepohlia*, cells angular to rounded, densely grouped in some areas of the thallus.

*Apothecia* sessile, rounded, 1.5–3.0 mm diam., 100–220  $\mu\text{m}$  high; *disc* plane, intense yellow to yellow-orange; *margin* thin, not prominent, cream-coloured, paler than the disc. *Excipulum* paraplectenchymatous with radiating cell rows. *Hypothecium* 20–30  $\mu\text{m}$  high, pale yellow, I+ yellow. *Hymenium* 50–60  $\mu\text{m}$  high, colourless, I+ pale blue then red. *Ascospores* biseriate, oblong, 1-septate, 15–17  $\times$  2.0–2.5  $\mu\text{m}$ .

*Pycnidia* absent.

*Notes.* The specific epithet of this new species refers to the yellow greenish colour of its thallus. Most species of *Coenogonium* are characterized by the presence of a green to greyish green or brownish thallus. The species is otherwise characterized by its large, bright yellow apothecia and long, narrow ascospores, which resemble *C. aciculatum* Lücking & Aptroot. The latter differs in its greenish grey thallus and narrower ascospores (1.5–2.0  $\mu\text{m}$  wide). Most similar are *C. subsquamosum* (Aptroot & Seaward) Lücking *et al.* from the Seychelles and

*C. pertenuae* (Stirt.) Kalb & Lücking from Australia, but both have broader ascospores (c. 3–4 µm broad).

**Coenogonium verrucosum Michlig & L. I. Ferraro sp. nov.**

MycoBank No.: MB563947

Differing from other species of *Coenogonium* by the verrucose thallus, yellow prothallus, medium sized apothecia, wart-shaped pycnidia, and non-septate, ellipsoid-bacillar conidia.

Type: Argentina, Prov. Corrientes, Dept. Ituzzaingó, Apipé Grande island, Punta Arazá, in marginal forest, on bark of *Ocotea* sp., 26 November 1988, Ferraro *et al.* 3606 (CTES—holotype).

(Fig. 1C & D)

*Thallus* crustose, corticolous, verrucose, thin, brownish green; prothallus yellow.

*Apothecia* sessile, rounded to slightly irregular in outline, (0.2)0.3–0.8(1.0) mm diam., 40–50 µm high; *disc* slightly concave first then flat, orange; *margin* thick and prominent first, then thin and not prominent, cream-coloured to pale orange. *Excipulum* paraplectenchymatous with radiating cell rows, 40–50 µm high, colourless, I+ pale yellow. *Hypothecium* 25 µm high, colourless, I+ pale yellow. *Hymenium* 40–50 µm high, colourless, I+ blue then quickly sordid green. *Ascospores* irregularly biserial, ellipsoid, 1-septate, 8–9 × 2.5–3.0 µm.

*Pycnidia* present, wart-shaped; *conidia* broadly ellipsoid-bacillar, non-septate, 3–5 × 1–2 µm.

*Notes.* This new species is characterized by the presence of a yellow prothallus, medium-sized apothecia, wart-shaped pycnidia, non-septate ellipsoid-bacillar conidia, and a verrucose thallus. These verrucae are formed by calcium oxalate crystals. Other species with a verrucose thallus are *Coenogonium degeneri* (Kalb & Vězda) Kalb & Lücking and *C. tavaresianum* (Vězda) Lücking *et al.* & Sipman, but these differ in the lack of a prothallus and larger ascospores. A yellow prothallus is also found in *C. atroluteum* (Vain.) Lücking *et al.*, but it differs in its pale yellow-brown apothecia with dark margin and a smooth thallus. Other similar

species are *C. zonatum* (Müll. Arg.) Kalb & Lücking and *C. subluteum* (Rehm) Kalb & Lücking, but both differ in the presence of uniseptate conidia. The former is also distinguished by its white prothallus. *Coenogonium roumeguerianum* (Müll. Arg.) Kalb also has apothecia with a concave orange disc but differs in the presence of a white prothallus and broader ascospores (4–6 µm broad).

**New records for Argentina and Paraguay**

The species listed below represent 14 species recorded here for the first time from Argentina, and five from Paraguay. The new records for Argentina and Paraguay are indicated with a circle (●) and a square (■), respectively. The known species of *Coenogonium* in both countries are shown in Table 1.

**Coenogonium atroluteum (Vain.) Lücking *et al.***

*Fungal Diversity* 23: 312 (2006).

This species has been previously recorded from Argentina (Calvelo & Liberatore 2002) and Paraguay (Feuerer 2011).

*Selected specimens examined. Paraguay:* Misiones: West of Yacyretá island, in forest, 1988, Ferraro 3576 (CTES).

**Coenogonium confervoides Nyl. (●)**

*Flora* 41: 380 (1858).

In South America, this species has previously been reported only from Colombia (Sipman *et al.* 2008).

*Selected specimen examined. Argentina:* Misiones: San Pedro, Yaboty Biosphere Reserve, Moconá Provincial Park, Chachi trail, over a fallen branch on the side of the trail, 2009, Michlig & Niveiro 1886 (CTES).

**Coenogonium eximium (Nyl.) Kalb & Lücking (●)**

*Fungal Diversity* 23: 297 (2006).

In South America, this species has previously been reported only from Colombia (Sipman *et al.* 2008).

TABLE 1. List of reported *Coenogonium* species from Argentina (ARG) and Paraguay (PAR). The contributions of this paper are in bold.

Species	ARG	PAR
<i>C. albomarginatum</i>	+	–
<i>C. atroluteum</i>	+	+
<i>C. bacilliferum</i>	+	–
<b><i>C. brasiliense</i></b>	+	–
<b><i>C. confervoides</i></b>	+	–
<i>C. epiphyllum</i>	+	+
<b><i>C. eximium</i></b>	+	–
<i>C. flammeum</i>	+	–
<b><i>C. flavovirens</i></b>	+	–
<b><i>C. implexum</i></b>	+	–
<b><i>C. interplexum</i></b>	+	+
<i>C. interpositum</i>	+	+
<b><i>C. isidiatum</i></b>	+	–
<i>C. isidiiferum</i>	+	–
<b><i>C. isidiigerum</i></b>	+	–
<b><i>C. linkii</i></b>	+	+
<i>C. luteocitrinum</i>	+	–
<b><i>C. luteum</i></b>	+	+
<b><i>C. magdalenae</i></b>	+	–
<i>C. minimum</i>	+	–
<b><i>C. moniliforme</i></b>	+	+
<b><i>C. nepalense</i></b>	+	–
<i>C. patagonicum</i>	+	–
<b><i>C. persistens</i></b>	+	–
<i>C. pineti</i>	–	+
<b><i>C. pusillum</i></b>	–	+
<i>C. pyrophthalmum</i>	+	–
<i>C. roumeguerianum</i>	+	+
<b><i>C. siquirrense</i></b>	+	–
<b><i>C. strigosum</i></b>	+	+
<b><i>C. subdentatum</i></b>	+	–
<i>C. subdilutum</i>	–	+
<i>C. subluteum</i>	+	+
<b><i>C. verrucosum</i></b>	+	–
<b><i>C. weberi</i></b>	+	–
<b><i>C. zonatum</i></b>	+	+
Total	33	14

*Selected specimen examined. Argentina:* Corrientes: San Cosme, Paso de la Patria, San Juan stream and Paraná River, in marginal forest, 1979, Ferraro 1688 (CTES).

### ***Coenogonium implexum* Nyl. (●)**

*Ann. Sci. Nat. Bot. Ser. 4, 16:* 92 (1862).

In South America, this species has been reported only from Colombia (Sipman *et al.* 2008).

*Selected specimen examined. Argentina:* Corrientes: Mburucuyá, Potrero 1 grande, over a fallen tree on the edge of the swamp, 2006, Ferraro *et al.* 8126 (CTES).

### ***Coenogonium interplexum* Nyl. (■)**

*Ann. Sci. Nat. Bot. Ser. 4, 16:* 92 (1862).

This is the first record of this species for north-western Argentina; it was previously recorded from Buenos Aires, Corrientes, and Misiones Provinces (Calvelo & Liberatore 2002).

*Selected specimens examined. Argentina:* Salta: Santa Victoria, Los Toldos, El Nogalar de Los Toldos Reserve, 2009, Ferraro 9076 (CTES).—**Paraguay:** *Paraguay:* Ybicuí National Park, 1990, Pérez 841 (CTES, PY).

### ***Coenogonium interpositum* Nyl.**

*Ann. Sci. Nat. Bot. Ser. 4, 16:* 91 (1862).

This is the first record of this species for northern Argentina; it was previously recorded from Buenos Aires province (Calvelo & Liberatore 2002). In Paraguay, it has been recorded by Malme (1937).

*Selected specimens examined. Argentina:* Misiones: San Pedro, Yaboty Biosphere Reserve, Moconá Provincial Park, Piedra Bugre wharf, 2008, Michlig *et al.* 897 (CTES).—**Paraguay:** Misiones: West of Yacyretá island, in scrubland, near a sandy area, 1988, Ferraro & Popoff 3575 (CTES, FCQ, LG).

### ***Coenogonium isidiatum* (G. Thor & Vězda) Lücking *et al.* (●)**

*Fungal Diversity 23:* 297 (2006).

This species is recorded here for the first time from South America.

*Selected specimen examined. Argentina:* Corrientes: Empedrado, 12 road and Pehuajó stream, in an islet of scrubland degraded by grazing, 2007, Michlig *et al.* 265 (CTES).

### ***Coenogonium isidiigerum* (Vězda & Osorio) Lücking *et al.***

*Fungal Diversity 23:* 297 (2006).

This is the first record of this species for northern Argentina; it has been previously reported from Buenos Aires province (Vězda 1989).

*Selected specimen examined. Argentina:* Misiones: San Ignacio, 1 km from Quiroga's home, on way to the river, 1981, Ferraro *et al.* 2240 (CTES).

**Coenogonium linkii Ehrenb. (■)**

*Horae Phys. Berol.*: 120 (1820).

This is the first record of this species for north-western Argentina; it was previously recorded from Misiones province (Calvelo & Liberatore 2002).

*Selected specimens examined. Argentina: Salta:* entrance to the El Rey National Park, over branches with moss, 2007, *Ferraro* 8317 (CTES).—*Paraguay: Guairá:* Independencia Colony, alt. 250 m, on bark of *Sebastiania* sp., 1986, *Schinini* 25356 (CTES, LG). *Caazapa:* Yute District, 15 km S of Capitindí, clearing in the forest, edge of the stream, flooded grassland, 1987, *Arbo* 2920 (CTES, LG). *Alto Paraná:* Ytabó Biological Reserve, Tangará trail, *Krapovickas* 43411 (CTES, hb. Czezugabialistok, LG). *Amambay:* 7 km N of 5 road, western boundary of Cerro Corá National Park, 1988, *Ferraro et al.* 3480 (CTES, LG).

**Coenogonium luteocitrinum Rivas Plata et al. (●)**

*Fungal Diversity* 23: 283 (2006).

In South America, this species has previously been recorded only from Bolivia (Flakus 2008).

*Selected specimens examined. Argentina: Corrientes:* Mburucuyá, Mburucuyá National Park, Maizal paddock, in the palm grove of *Buitia yatay*, 2006, *Ferraro & Popoff* 8183 (CTES). *Salta:* El Rey National Park, at the entrance of the trail to the cascade 'Los Lobitos', 2005, *Ferraro et al.* 7934 (CTES).

**Coenogonium luteum (Dicks.) Kalb & Lücking (■)**

*Bot. Jahrb. Syst.* 122: 32 (2000).

This is the first record of this species for north-western Argentina; it was previously recorded from the Corrientes, Misiones, and Río Negro provinces (Calvelo & Liberatore 2002).

*Selected specimens examined. Argentina: Jujuy:* Calilegua National Park, Aguas negras Camping, over bark, 2005, *Ferraro et al.* 7584 (CTES). *Salta:* Santa Victoria, Los Toldos, El Nogalar Reserve, 2009, *Ferraro* 9074 (CTES). *Neuquén:* Nahuel Huapi National Park, trail from de Blest to Los Cántaros, 2001, *Ferraro & Gaiotti* 6510 (CTES).—*Paraguay: Guairá:* Independencia Colony, 250 m, over leaves of *Trichilia catigua*, in forest, 1986, *Schinini* 25324 (CTES). *Itapúa:* Yacretá Island, over leaves of *Chrisophyllum gonocarpum*, 1988, *Ferraro* 3654 (CTES).

**Coenogonium magdalenae Rivas Plata et al. (●)**

*Fungal Diversity* 23: 286 (2006).

This species is recorded here for the first time from South America.

*Selected specimens examined. Argentina: Corrientes:* Santo Tomé, Santo Tomé, first section of chakras, in shrubland, 1978, *Ferraro* 1368 (CTES).

**Coenogonium moniliforme Tuck. (●)**

*Proc. Amer. Acad. Sci.* 5: 416 (1862).

This species has been recently recorded from Paraguay (Lücking 2008).

*Selected specimens examined. Argentina: Misiones:* General Manuel Belgrano, San Antonio Strict Nature Reserve, trail that marks the beginning of the protected area, over a tree in the forest, 2009, *Michlig & Niveiro* 1955 (CTES).

**Coenogonium nepalense (G. Thor & Vězda) Lücking et al. (●)**

*Fungal Diversity* 23: 297 (2006).

In South America, this species has previously been recorded only from Brazil (Cáceres 2007).

*Selected specimens examined. Argentina: Corrientes:* Mburucuyá, Mburucuyá National Park, Tung paddock, 2006, *Ferraro* 8166 (CTES). *Misiones:* San Pedro, Yaboty Biosphere Reserve, Esmeralda Provincial Park, on the way to pine forest, over a tree on the side of the trail, 2008, *Michlig et al.* 757 (CTES).

**Coenogonium persistens (Malme) Lücking et al. (●)**

*Fungal Diversity* 23: 297 (2006).

This species is here recorded for the first time from South America.

*Selected specimens examined. Argentina: Corrientes:* Mburucuyá, Mburucuyá National Park, Yatay trail, 2006, *Ferraro* 8042 (CTES); Concepción, 118 route, 13 km from Florida, Paraje PUCE, 2008, *Ferraro* 8492 (CTES). *Misiones:* Iguazú, Iguazú National Park, Macuco trail from the CIES to the Arrechea Falls, over bark, 2003, *Ferraro & Popoff* 6901 (CTES).

**Coenogonium pusillum (Mont.) Lücking et al. (■)**

*Fungal Diversity* 23: 298 (2006).

This species is recorded here for the first time from South America. It has been previously reported from Costa Rica (Rivas Plata *et al.* 2006) and Cuba (Montagne 1842).

*Selected specimen examined.* **Paraguay:** Misiones: W of the Yacyretá island, in the forest, 1988, Ferraro 3567 (CTES).

### **Coenogonium pyrophthalmum (Mont.) Lücking et al.**

*Fungal Diversity* 23: 314 (2006).

This species has been previously recorded in Argentina from the Corrientes and Buenos Aires provinces (Calvelo & Liberatore 2002).

*Selected specimen examined.* **Argentina:** Misiones: Iguazú, Apepú Reserve, 15 km from the entrance, 1982, Ferraro 2497 (CTES).

### **Coenogonium roumeguerianum (Müll. Arg.) Kalb**

*Sched. Lich. Neotrop.* 13: 3 (2001).

This species has been previously recorded in Argentina from Misiones province (Calvelo & Liberatore 2002), and Paraguay (Feuerer 2011).

*Selected specimens examined.* **Argentina:** Corrientes: Empedrado, Las Tres Marias Ranch, in marginal forest of the Paraná River, 1979, Ferraro 1742b (CTES); San Martín, Drews rice paddy, Cambá Trapo swamp, in scrubland over *Scutia* sp. (Mirtaceae), 1976, Ferraro & Tressens 947 (CTES).

### **Coenogonium siquirrense (Lücking) Lücking (●)**

*Flora Neotropica* 103: 580 (2008).

In South America, this species has been recorded from Ecuador, Peru (Lücking 2008), and Venezuela (Feuerer 2011).

*Selected specimens examined.* **Argentina:** Misiones: Iguazú, Iguazú National Park, Nandú Camping, over mosses, 2004, Ferraro & Popoff 7401 (CTES).

### **Coenogonium strigosum Rivas Plata et al. (●) (■)**

*Fungal Diversity* 23: 290 (2006).

In South America, this species has previously been recorded from Brazil (Cáceres 2007).

*Selected specimens examined.* **Argentina:** Corrientes: General Paz, 26 km W of Caá Catí, over *Celtis* sp., 1978, Ahumada 2483 (CTES); Capital, Molina Punta, in scrubland on bank of the river, 1978, Ferraro 1327 (CTES); Santo Tomé, Bertrán (Infrán Cué) Ranch, 23 km SW of Virasoro, in an islet of forest, 1992, Tressens *et al.* 4155 (CTES). **Misiones:** Iguazú, Iguazú National Park, 101 road, near Garganta del Diablo, over bark, 2003, Ferraro & Popoff 7083 (CTES); San Ignacio, Teyú Cuaré, 1981, Ferraro 2362 (CTES). **Salta:** Santa Victoria, Los Toldos, El Nogalar Reserve, 2009, Ferraro *et al.* 9075 (CTES).—**Paraguay:** Misiones: W of Yacyretá island, in open path in forest, 1988, Ferraro 3568 (CTES).

### **Coenogonium subdentatum (Vězda & G. Thor) Rivas Plata et al. (●)**

*Fungal Diversity* 23: 298 (2006).

*Selected specimen examined.* **Argentina:** Misiones: General Manuel Belgrano, San Antonio Strict Nature Reserve, trail that marks the beginning of the protected area, over a tree in the forest, 2009, Michlig & Niveiro 1947 (CTES).

### **Coenogonium subluteum (Rehm) Kalb & Lücking**

*Bot. Jahrb. Syst.* 122: 34 (2000).

This is the first record of this species for north-western Argentina; it was previously recorded from the Corrientes and Misiones provinces (Calvelo & Liberatore 2002). In Paraguay, it has been previously recorded by Ferraro (1997) and Lücking (2008).

*Selected specimens examined.* **Argentina:** Jujuy: Ledesma, Calilegua National Park, La Lagunita Trail, 2005, Ferraro *et al.* 7820 (CTES).—**Paraguay:** Cordillera: Valenzuela, Yhacá stream, in marginal forest, foliicolous, over *Myrtaceae*, 1989, Ferraro *et al.* 3917 (CTES).

### **Coenogonium weberi (Vězda) Lücking et al. (●)**

*Fungal Diversity* 23: 298 (2006).

This species is recorded here for the first time from South America.

*Selected specimens examined.* **Argentina:** Corrientes: Mburucuyá, Mburucuyá National Park, Santa Teresa Ranch, 2006, Ferraro 8093 (CTES). **Jujuy:** Ledesma, Calilegua National Park, Tataupa trail, over bark in forest, 2005, Ferraro *et al.* 7747 (CTES).

### **Coenogonium zonatum (Müll. Arg.) Kalb & Lücking (●)**

*Bot. Jahrb. Syst.* 122: 34 (2000).

In South America, this species has been recorded from Paraguay (Lücking 2008; Feuerer 2011) and Colombia (Sipman *et al.* 2008).

*Selected specimens examined.* **Argentina:** Corrientes: Mburucuyá, Mburucuyá National Park, Potrero 17, at the edge of Santa Lucia swamp, 2006, Ferraro 8215 (CTES).—**Paraguay:** Itapúa: Tirol Hotel, foliicolous, over leaves of *Monstera*, 1985, Krapovickas & Cristóbal 40084a (CTES).

The authors specially wish to thank Dr Robert Lücking for critically reading this manuscript, and for discussing the identification of some species during the GLAL IX. We are also grateful to the Myndel Botanica Foundation, the Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), the Secretaría General de Ciencia y Técnica (SGCyT-UNNE), and the Área de Manejo Integral Reserva de Biosfera Yaboty (AMIRBY) for financial support of our fieldwork. We also wish to thank the authorities of the National Parks of Argentina for providing collection permits.

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