

Stemonitaceae (Myxomycetes) in Brazilian mangroves

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Stemonitaceae (Stemonitales, Stemonitomycetidae) is represented by seven of its 197 species in mangroves of different countries. Aiming to contribute to amplify this limited knowledge, the myxobiota occurring in Brazilian mangroves situated on the southern coast of the state of Pernambuco was investigated. Samples were collected of aerial litter, small woody twigs, soil litter, the bark of living trees and the fruit of *Conocarpus erectus*, *Rhizophora mangle*, *Laguncularia racemosa* and *Avicennia nitida* at the beginning of the rainy season (April), during the dry season (October) and at the end of the dry season (March). The material collected was used to mount 1008 moist-chamber cultures, observed weekly for three consecutive months in order to record the presence of plasmodia and/or sporocarps. The following species were recorded: *Collaria arcyryonema*, *Comatricha pulchella**, *Macbrideola scintillans**, *Stemonaria fuscoidea*, *S. irregularis**, *Stemonitis flavogenita**, *S. fusca*, *S. herbatica**, *S. splendens*, *S. virginienensis** and *Stemonitopsis reticulata** (species marked with an asterisk are new records for this type of environment). The worldwide distribution of these species in mangroves and different regions in Brazil is discussed.

Keywords: Stemonitomycetidae, taxonomy, myxobiota, *Rhizophora*, *Conocarpus*.

Novozhilov *et al.* (2001) first reported occurrence of Stemonitales in neotropical mangroves in a study carried out in Porto Rico, and reported the occurrence of *Comatricha typhoides* (Bull.) Rostaf. [= *Stemonitopsis typhina* (F.H. Wigg.) Nann.-Bremek.]. In studies carried out in Puerto Rico, Nieves-Rivera & Stephenson (2004) recorded *Stemonitis splendens* Rostaf. on fallen *Rhizophora mangle* L. trunks in the Cabo Rojo mangrove.

Studies on myxomycetes in Brazilian mangroves started in the 1990s but reports are limited to two papers that recorded the presence of *Comatricha* sp. on *R. mangle* and *Collaria arcyryonema* (Rostaf.) Nann.-Bremek. on *Laguncularia racemosa* (L.) C.F. Gaertn. (Damasceno *et al.* 2009). In mangroves in southern region of the country (state of Santa Catarina), there are records of *Stemonitis fusca* Roth and *S. splendens* on *Avicennia schaueriana* Stapf & Leechman (Trierveiler-Pereira *et al.* 2008).

From mangroves of the Formoso River estuary on the southern coast of the state of Pernambuco (northeastern Brazil) *Stemonaria fuscoidea* Nann.-Bremek. & Y.Yamam was recorded, a species formerly unknown to occur in the Neotropics (Damasceno *et al.* 2009). In this paper we discuss 11 species of Stemonitales occurring in mangroves of the Formoso River estuary.

Materials and Methods

For analysis of the myxobiota occurring in the mangroves of the Formoso and Passos Rivers (8° 37' to 8° 41' S and 35° 04' to 35° 08' W), on the southern coast of the state of Pernambuco, northeastern Brazil, samples were collected of aerial litter, small woody twigs, soil litter, bark of living trees and fruit of *Conocarpus erectus* L., *R. mangle*, *L. racemosa* and *Avicennia nitida* Jacq. at the beginning of the rainy season (April), during the dry season (October) and at the end of the dry season (March). The material collected was used to mount 1008 moist-chamber cultures with disposable Petri dishes (9 cm in diameter) lined with paper filter. The substrate was moistened with buffered distilled water. After 24 hours, the pH was determined and excess of water was removed. The cultures were kept at room temperature under diffuse lighting conditions and observed weekly for three consecutive months in order to record the presence of plasmodia and/or sporocarps of myxomycetes.

Identification of species was based on morphologic characters according to Martin & Alexopoulos (1969), Farr (1976) and Nannenga-Bremekamp *et al.* (1984). Classification was done according to Martin *et al.* (1983), generic names, epithets and authorities followed Lado (2001). Collections were deposited in the UFP herbarium (Universidade Federal de Pernambuco, Recife-PE, Brazil).

The geographical distribution of the species in Brazil is based on Cavalcanti (2002), Maimoni-Rodella (2002), Putzke (2002), Cavalcanti (2005), Cavalcanti *et al.* (2006), Bezerra *et al.* (2007).

Results and Discussion

Forty-two out 104 specimens of myxomycetes recorded within this study belonged the order Stemonitales. They could be assigned to 11 species. Seven of them had not been reported for the mangrove environment previously.

Collaria arcyrionema (Rostaf.) Nann.-Bremek. ex Lado, Ruizia 9:26 (1991)
Lamproderma arcyrionema Rostaf., Sluzowce Monogr.: 208 (1874)

Description – Sporangia globose, stipitate, iridescent bronze, total height 1.1 mm; hypothallus membranous, dark brown; peridium

membranous, silvery, persisting in the base as a collar, dehiscence irregular; stalk subcylindrical, 0.84 mm in height, base 52.5 µm in breadth, apex 13.1 µm in breadth, dark brown; columella dark brown, cylindrical, short, attaining one-half the height of the sporangium and there dividing into branches; capillitium brown, anastomosed, dichotomic, extremity sinuous; spores black in mass, globose, punctate, 8.5–9.18 µm in diameter, violaceous under transmitted light.

Distribution in Brazil – There are records for the regions North (state of Amazonas), Northeast (states of Alagoas, Paraíba, Pernambuco, Rio Grande do Norte and Sergipe), Southeast (state of São Paulo) and South (states of Paraná, Rio Grande do Sul, Santa Catarina).

Distribution in mangrove: *C. arcyronema* was observed for the first time in mangroves along the coast of Pernambuco state, on *Laguncularia racemosa* (Tab. 1) (Damasceno *et al.* 2009).

Material examined. – *Collaria arcyronema* (Rostaf.) Nann.-Bremek. ex Lado: BRAZIL, municipality of Rio Formoso, mangrove of Formoso River, on bark of living *C. erectus* L., m.c 23 Apr 2007, sporulation 07 Aug 2007, *leg.* G. Damasceno *et al.*, *det.* G. Damasceno and L. H. Cavalcanti (51.683).

Comatricha pulchella (C. Bab.) Rostaf., Sluzowce Monogr. Suppl.: 27(1876)

Stemonitis pulchella C. Bab, Proc. Linn. Soc. London 1:32 (1839)

Description – Sporangia subcylindrical, stipitate, brown, total height 0.99–1.1 mm, clustered; hypothallus membranous, irregular, brown, common to the group; stalk subcylindrical, dark brown, shiny, 446–657 µm in height, base 26.28–52.5 µm in breadth, apex 26.28 µm in breadth; columella subcylindrical, dark brown, with ramifications throughout the length, reaching nearly to the apex; capillitium brown, flexuous, with few free ends; spores brown in mass; spore globose, minutely punctate, 7.14–9.18 µm in diameter, pale lilac-brown under transmitted light.

Distribution in Brazil – There are records for the regions South (state of Santa Catarina), Southeast (state of São Paulo) and Northeast (Bahia, Paraíba, Pernambuco, Piauí and Sergipe states).

Distribution in mangrove – This is the first record of *C. pulchella* for the mangrove ecosystem (Tab. 1).

Material examined. – *Comatricha pulchella* (C. Bab.) Rostaf.: BRAZIL, municipality of Rio Formoso, mangrove of Formoso River, on bark of living *C. erectus* L., m.c 25 Mar 2008, sporulation 10 Jun 2008, *leg.* G. Damasceno *et al.*, *det.* G. Damasceno and L. H. Cavalcanti (54.065); on aerial litter of *C. erectus* L., m.c 26 Apr 2007, sporulation 18 May 2007, *leg.* G. Damasceno *et al.*, *det.* G. Damasceno and L. H. Cavalcanti (46.538).

Macbrideola scintillans H. C. Gilbert, Stud. Nat. Hist. Iowa Univ. 16:156 (1934)

Description – Sporangia globose, stipitate, brown, total height 132 µm; hypothallus membranous, brown, shiny; stalk subcylindrical, translucent, 90 µm in height, yellow at the base, 39.48–52.56 µm in breadth, brown above, 26.28 µm in breadth; peridium thin, shiny, persistent; columella cylindrical, dark brown, forking into three branches; capillitium smooth, dark brown, but pale at the ends, with dichotomic ramifications; spores in mass brown; spore globose, warty, 8.16–9.18 µm in diameter, pale brown under transmitted light.

Distribution in Brazil – With registers only for the region Northeast (Pernambuco, and Paraíba states).

Distribution in mangrove – First record for the mangrove ecosystem (Tab. 1).

Material examined. – ***Macbrideola scintillans*** H. C. Gilbert: BRAZIL, municipality of Rio Formoso, mangrove of Formoso River, on bark of living *C. erectus* L., m.c 23 Apr 2007, sporulation 07 Aug 2007, leg. G. Damasceno *et al.*, det. G. Damasceno and L. H. Cavalcanti (51.672).

Stemonaria fuscoidea Nann.-Brem. & Y. Yamam., Proc. Koninkl. Ned.-erl. Akademie van Wetenschappen 87 (4): 449–469. (1984)

Description – Sporangia cylindrical, stipitate, brown, total height 4.4 mm; hypothallus membranous, round, brown; peridium evanescent; dehiscence irregular; stalk subcylindrical, 2.1 mm in height, base 56.52 µm in breadth, apex 26.28 µm in breadth, blackish brown, hollow; columella dark brown, subcylindrical, becoming narrower as it approaches the apex, close to which it splits into two branches; capillitium brown and its filaments anastomosing, but do not form a net and have several dark brown expansions characterized by the presence of bulbs or nodules; spores in mass brown; spore globose, 8.16–10.2 µm in diameter, spinulose-reticulate, pale brown under transmitted light.

Distribution in Brazil – With registers only for the region Northeast (Pernambuco state).

Distribution in mangrove – Damasceno *et al.* (2009) first recorded the genus *Stemonaria* for the mangrove environment, represented by this species, which was also recorded for the first time for Neotropics (Tab. 1). The specimens were obtained in moist chamber cultures with soil litter from *C. erectus* collected in the Formoso river mangrove. The authors state that one of the specimens obtained exhibited sporocarps with typical characteristics of *var. longipes* described by Yamamoto & Nannenga-Bremekamp (1995).

Material examined. – *Stemonaria fuscoides* Nann.-Brem. & Y. Yamam.: BRAZIL, municipality of Rio Formoso, mangrove of Formoso River, on soil litter of *C. erectus* L., m.c 23 Apr 2007, sporulation 11 Jul 2007, leg. G. Damasceno *et al.*, det. G. Damasceno, A. A. A. Costa and L. H. Cavalcanti (50.563).

Stemonaria irregularis (Rex) Nann.-Bremek., R.Sharma & Y.Yamam., Proc. Kon. Ned. Akad. Wetensch, C. 87(4):456(1984)
Comatricha irregularis Rex, Proc. Acad. Nat. Sci. Philadelphia 43:393 (1891)

Description – Sporangia cylindrical, stipitate, brown, total height 2.4–3.8 mm; hypothallus membranous, irregular, common to the group, brown; peridium evanescent; dehiscence irregular; stalk subcylindrical, 1.0–1.4 mm in height, base 20.4–52.5 µm in breadth, apex 26.28 µm in breadth, dark brown; columella sinuous, dark brown, subcylindrical, reaching the apex; capillitium brown, with expansion, mesh delicate, tips free; spores in mass dark brown; spore globose, verrucose, 8.16–10.2 (12) µm in diameter, brown violaceous under transmitted light.

Distribution in Brazil – With registers only for the region Northeast (Ceará and Pernambuco states).

Distribution in mangrove – First record for the mangrove ecosystem (Tab. 1).

Material examined. – *Stemonaria irregularis* (Rex) Nann.-Bremek., R. Sharma & Y.Yamam.: BRAZIL, municipality of Rio Formoso, mangrove of Passos River, on aerial litter of *A. nitida* L., m.c 08 Oct 2007, sporulation 11 Dec 2007, leg. G. Damasceno *et al.*, det. G. Damasceno and L. H. Cavalcanti (50.345); municipality of Rio Formoso, mangrove of Formoso River, on bark of living *C. erectus* L., m.c 17 Apr 2007, sporulation 31 Jun 2007, leg. G. Damasceno *et al.*, det. G. Damasceno and L. H. Cavalcanti (51.678); on bark of living *C. erectus* L., m.c 10 Oct 2007, sporulation 20 Dec 2007, leg. G. Damasceno *et al.*, det. G. Damasceno and L. H. Cavalcanti (50.328); on bark of living *C. erectus* L., m.c 10 Oct 2007, sporulation 09 Jan 2008, leg. G. Damasceno *et al.*, det. G. Damasceno and L. H. Cavalcanti (51.782); on small twigs of *C. erectus* L., m.c 02 Apr 2008, sporulation 12 Jun 2008, leg. G. Damasceno *et al.*, det. G. Damasceno and L. H. Cavalcanti (54.244).

Stemonitis flavogenita Jahn, Verh. Bot. Ver. Brandenburg 45: 165. (1904)

Description – Sporangia cylindrical, stipitate, clustered in little tufts, brown, total height 3.5 mm; hypothallus membranous, brown, irregular, common to the group; peridium evanescent; dehiscence irregular; stalk subcylindrical, reddish brown, 2.1 mm in height, base 52.56 µm in breadth, apex 26.28 µm in breadth; columella subcylindrical, reddish brown, with ramifications along the entire length to the top of the sporangium, often with cupulate expansions; capillitium a network with many membranous expansions, surface network deli-

cate, with delicate mesh < 30 µm, pale brown; spores in mass pale brown; spore globose, verruculose, 8.16 µm in diameter, lilaceous brown under transmitted light.

Distribution in Brazil – There are records for the regions North (Roraima state), Southeast (São Paulo state), and Northeast (Ceará, Paraíba, Pernambuco, Piauí and Sergipe states).

Distribution in mangrove – This is the first record of this specie for the mangrove environment (Tab. 1).

Material examined. – *Stemonitis flavogenita* Jahn: BRAZIL, municipality of Rio Formoso, mangrove of Formoso River, on aerial litter of *C. erectus* L., m.c 10 Oct 2007, sporulation 26 Jan 2008, *leg.* G. Damasceno *et al.*, *det.* G. Damasceno and L. H. Cavalcanti (50.346).

***Stemonitis fusca* Roth, Mag. Bot. Römer & Usteri 1(2): 26. (1787)**

Description – Sporangia cylindrical, stipitate, deep fuscous, total height 2.8–7.3 mm; hypothallus membranous, brown; stalk subcylindrical or cylindrical, dark brown, 0.6–2.4 mm in height, base 26.28–105 µm in breadth, apex 26.28–105 µm in breadth; columella subcylindrical or cylindrical, dark brown, reaching nearly to the apex; capillitium smooth, arising from all parts of the columella, forming a surface network, with mesh < 30 µm; spores in mass dark brown; spore globose, spinulose-reticulate, 7.14–10.2 µm in diameter, violet-brown under transmitted light.

Distribution in Brazil – There are records for the regions North (Amazonas, Pará and Roraima states), Northeast (Alagoas, Bahia, Paraíba, Pernambuco, Piauí and Sergipe states), Southeast (Rio de Janeiro and São Paulo states), South (Paraná, Santa Catarina and Rio Grande do Sul states).

Distribution in mangrove – Although *S. fusca* is a very common species in different ecosystems around of world, it has only recently been recorded in a mangrove environment in Santa Catarina (southern Brazil) in bark of *A. schaueriana* (Trierveiler-Pereira *et al.*, 2008) (Tab. 1).

Material examined. – *Stemonitis fusca* Roth: BRAZIL, municipality of Rio Formoso, mangrove of Formoso River, on soil litter of *C. erectus* L., m.c 23 Apr 2007, sporulation 07 Aug 2007, *leg.* G. Damasceno *et al.*, *det.* G. Damasceno and L. H. Cavalcanti (46.344); on soil litter of *C. erectus* L., m.c 23 Apr 2007, sporulation 31 Jul 2007, *leg.* G. Damasceno *et al.*, *det.* G. Damasceno and L. H. Cavalcanti (46.526); on soil litter of *C. erectus* L., m.c 23 Apr 2007, sporulation 07 Aug 2007, *leg.* G. Damasceno *et al.*, *det.* G. Damasceno and L. H. Cavalcanti (46.843); on bark of living *C. erectus* L., m.c 23 Apr 2007, sporulation 31 Jul 2007, *leg.* G. Damasceno *et al.*, *det.* G. Damasceno and L. H. Cavalcanti (46.521); on aerial litter of *C. erectus* L., m.c 23 Apr 2007, sporulation 12 May 2007, *leg.* G. Damasceno *et al.*, *det.* G. Damasceno and L. H. Cavalcanti (54.057); on aerial litter of *C. erectus* L., m.c 26 Apr 2007, sporulation 17 Jul 2007, *leg.* G. Damasceno *et al.*, *det.* G. Damasceno and L. H. Cav-

alcanti (46.531); on aerial litter of *C. erectus* L., m.c 26 Apr 2007, sporulation 01 May 2007, *leg.* G. Damasceno *et al.*, *det.* G. Damasceno and L. H. Cavalcanti (46.535); on aerial litter of *C. erectus* L., m.c 26 Apr 2007, sporulation 16 Oct 2007, *leg.* G. Damasceno *et al.*, *det.* G. Damasceno and L. H. Cavalcanti (46.316); on aerial litter of *C. erectus* L., m.c 26 Apr 2007, sporulation 31 Jul 2007, *leg.* G. Damasceno *et al.*, *det.* G. Damasceno and L. H. Cavalcanti (46.522); on aerial litter of *C. erectus* L., m.c 26 Apr 2007, sporulation 23 Jul 2007, *leg.* G. Damasceno *et al.*, *det.* G. Damasceno and L. H. Cavalcanti (46.539); on aerial litter of *C. erectus* L., m.c 26 Apr 2007, sporulation 13 Aug 2007, *leg.* G. Damasceno *et al.*, *det.* G. Damasceno and L. H. Cavalcanti (46.848); on aerial litter of *C. erectus* L., m.c 26 Apr 2007, sporulation 01 Jun 2007, *leg.* G. Damasceno *et al.*, *det.* G. Damasceno and L. H. Cavalcanti (46.536); on aerial litter of *C. erectus* L., m.c 26 Apr 2007, sporulation 26 Jun 2007, *leg.* G. Damasceno *et al.*, *det.* G. Damasceno and L. H. Cavalcanti (51.675); on aerial litter of *C. erectus* L., m.c 26 Apr 2007, sporulation 31 Jul 2007, *leg.* G. Damasceno *et al.*, *det.* G. Damasceno and L. H. Cavalcanti (46.520); on aerial litter (small twigs) of *C. erectus* L., m.c 26 Apr 2007, sporulation 26 Jun 2007, *leg.* G. Damasceno *et al.*, *det.* G. Damasceno and L. H. Cavalcanti (51.677); on aerial litter (small twigs) of *C. erectus* L., m.c 26 Apr 2007, sporulation 13 Aug 2007, *leg.* G. Damasceno *et al.*, *det.* G. Damasceno and L. H. Cavalcanti (46.846); on aerial litter (small twigs) of *C. erectus* L., m.c 26 Apr 2007, sporulation 01 May 2007, *leg.* G. Damasceno *et al.*, *det.* G. Damasceno and L. H. Cavalcanti (46.532); on aerial litter of *C. erectus* L., m.c 26 Apr 2007, sporulation 06 Jul 2007, *leg.* G. Damasceno *et al.*, *det.* G. Damasceno and L. H. Cavalcanti (46.339); on aerial litter of *C. erectus* L., m.c 26 Apr 2007, sporulation 06 Jul 2007, *leg.* G. Damasceno *et al.*, *det.* G. Damasceno and L. H. Cavalcanti (46.340); on aerial litter of *C. erectus* L., m.c 26 Apr 2007, sporulation 16 Aug 2007, *leg.* G. Damasceno *et al.*, *det.* G. Damasceno and L. H. Cavalcanti (46.842); on aerial litter of *C. erectus* L., m.c 26 Apr 2007, sporulation 31 Jul 2007, *leg.* G. Damasceno *et al.*, *det.* G. Damasceno and L. H. Cavalcanti (46.525); on aerial litter of *C. erectus* L., m.c 02 Apr 2008, sporulation 28 Jun 2008, *leg.* G. Damasceno *et al.*, *det.* G. Damasceno and L. H. Cavalcanti (54.063); on aerial litter (small twigs) of *C. erectus* L., m.c 02 Apr 2008, sporulation 12 Jun 2008, *leg.* G. Damasceno *et al.*, *det.* G. Damasceno and L. H. Cavalcanti (54.057); on aerial litter (small twigs) of *C. erectus* L., m.c 10 Oct 2007, sporulation 20 Aug 2007, *leg.* G. Damasceno *et al.*, *det.* G. Damasceno and L. H. Cavalcanti (50.343); on aerial litter (small twigs) of *C. erectus* L., m.c 10 Oct 2007, sporulation 09 Jan 2008, *leg.* G. Damasceno *et al.*, *det.* G. Damasceno and L. H. Cavalcanti (50.333); on aerial litter (small twigs) of *L. racemosa*. (L.) C.F. Gaertn., m.c 10 Oct 2007, sporulation 04 Dec 2007, *leg.* G. Damasceno *et al.*, *det.* G. Damasceno and L. H. Cavalcanti (50.341).

***Stemonitis herbatica* Peck, Ann. Rep. N. Y. State Mus. 26:75. (1874)**

Description – Sporangia cylindrical to subcylindrical, stipitate, brown, total height 2.5–7.5 mm, hypothallus membranous, irregular and continuous; stalk subcylindrical or cylindrical, dark brown, 0.6–0.9 mm in height, base 26.28–51 µm in breadth, apex 26.28–525 µm in breadth; columella subcylindrical, reddish brown, attenuated upward; capillitium smooth, brown, lighter at the extremity, forming a network with small, delicate mesh < 30 µm in diameter; spores in mass brown; spore globose, warted, 7.14–9.18 µm in diameter, pale brown under transmitted light.

Distribution in Brazil – There are records for the regions Northeast (Ceará, Paraíba, Pernambuco and Sergipe states), Southeast

(Espírito Santo and São Paulo states) and South (Santa Catarina state).

Distribution in mangrove – This is the first record of the species for a mangrove environment (Tab. 1).

Material examined. – *Stemonitis herbatica* Peck: BRAZIL, municipality of Rio Formoso, mangrove of Formoso River, on aerial litter of *R. mangle* L., m.c 04 Oct 2007, sporulation 13 Dec 2007, leg. G. Damasceno *et al.*, det. G. Damasceno and L. H. Cavalcanti (51.783); on aerial litter of *C. erectus* L., m.c 26 Apr 2007, sporulation 26 Jun 2007, leg. G. Damasceno *et al.*, det. G. Damasceno and L. H. Cavalcanti (46.341).

***Stemonitis splendens* Rostaf., Sluzowce Monogr.: 195 (1874)**

Description – Sporangia cylindrical, long, stipitate, purplish brown, total height 10.8–12.8 mm; hypothallus membranous, brown; stalk subcylindrical or cylindrical, dark brown, polished, 2.5–3.1 mm in height, base 26.28–31.53 μm in breadth, apex 26.28 μm in breadth; columella cylindrical to subcylindrical, dark brown, with ramifications reaching the apex; capillitium smooth, brown, with membranous expansion, forming a network surface with mesh > 30 μm in diameter; spores in mass purplish black; spore globose, warty, 7.14–10.02 μm in diameter, yellowish brown under transmitted light.

Distribution in Brazil – There are records for the regions North (Amazonas and Pará states), Northeast (Alagoas, Bahia, Ceará, Pernambuco, Piauí and Sergipe states), Southeast (São Paulo state), South (Paraná, Rio Grande do Sul and Santa Catarina states).

Distribution in mangrove – There are records for mangroves in Central and South America (Tab. 1). Nieves-Rivera & Stephenson (2004) recorded *S. splendens* on bark of living *R. mangle*. The species has also been observed as corticolous on *A. schaueriana* in the state of Santa Catarina (Trierweiler-Pereira *et al.*, 2008).

Material examined. – *Stemonitis splendens* Rostaf.: BRAZIL, municipality of Rio Formoso, mangrove of Formoso River, on aerial litter of *R. mangle* L., m.c 26 Apr 2007, sporulation 23 Jul 2007, leg. G. Damasceno *et al.*, det. G. Damasceno and L. H. Cavalcanti (46.308); on aerial litter of *C. erectus* L., m.c 26 Apr 2007, sporulation 13 Aug 2007, leg. G. Damasceno *et al.*, det. G. Damasceno and L. H. Cavalcanti (46.849).

***Stemonitis virginiensis* Rex, Proc. Acad. Phila. 43: 391. (1891)**

Description – Sporangia cylindrical, stipitate, light brown, total height 3.7–5.3 mm; hypothallus membranous, round, brown; stalk subcylindrical or cylindrical, reddish brown, 1.3–1.4 mm in height, base 51–61.2 μm in breadth, apex 20.4–61.2 μm in breadth; columella subcylindrical, dark brown, reaching the apex; capillitium with anastomosing filaments, few free tips, forming a network surface, meshes

< 30 µm in diameter, brown; spores in mass pale brown; spore globose, marked with warts and reticulation, 5.1–7.14 µm in diameter, reddish brown under transmitted light.

Distribution in Brazil – With registers only for the northeast region (Pernambuco, Piauí and Sergipe states).

Distribution in mangrove – First record for the mangrove ecosystem (Tab. 1).

Material examined. – *Stemonitis virginiensis* Rex: BRAZIL, municipality of Rio Formoso, mangrove of Formoso River, on aerial litter (small twigs) of *R. mangle* L., m.c 04 Oct 2007, sporulation 19 Nov 2007, leg. G. Damasceno *et al.*, det. G. Damasceno and L. H. Cavalcanti (51.742).

Stemonitopsis reticulata (H. C. Gilbert) Nann.-Bremek. & Y. Yamam. Proc. Koninkl. Nederl. Akademie van Wetenschappen 98 (3): 325. (1995).

Comatricha reticulata H.C.Gilbert, in Peck & Gilbert, Amer. J. Bot. 19(2):140 (1932).

Description – Sporangia cylindrical, stipitate, brown, total height 3.1 mm; hypothallus membranous, common to the group; peridium membranous; stalk subcylindrical, 0.78 mm in height, base 78.8 µm in breadth, apex 52.5 µm in breadth, brown, shiny; columella brown, cylindrical, nearly reaching the apex; capillitium brown, tips free; spores in mass dark brown; spore globose, spinulose-reticulate, 8.16 µm in diameter, violaceous under transmitted light.

Distribution in Brazil – With registers only for the northeast region (Piauí state).

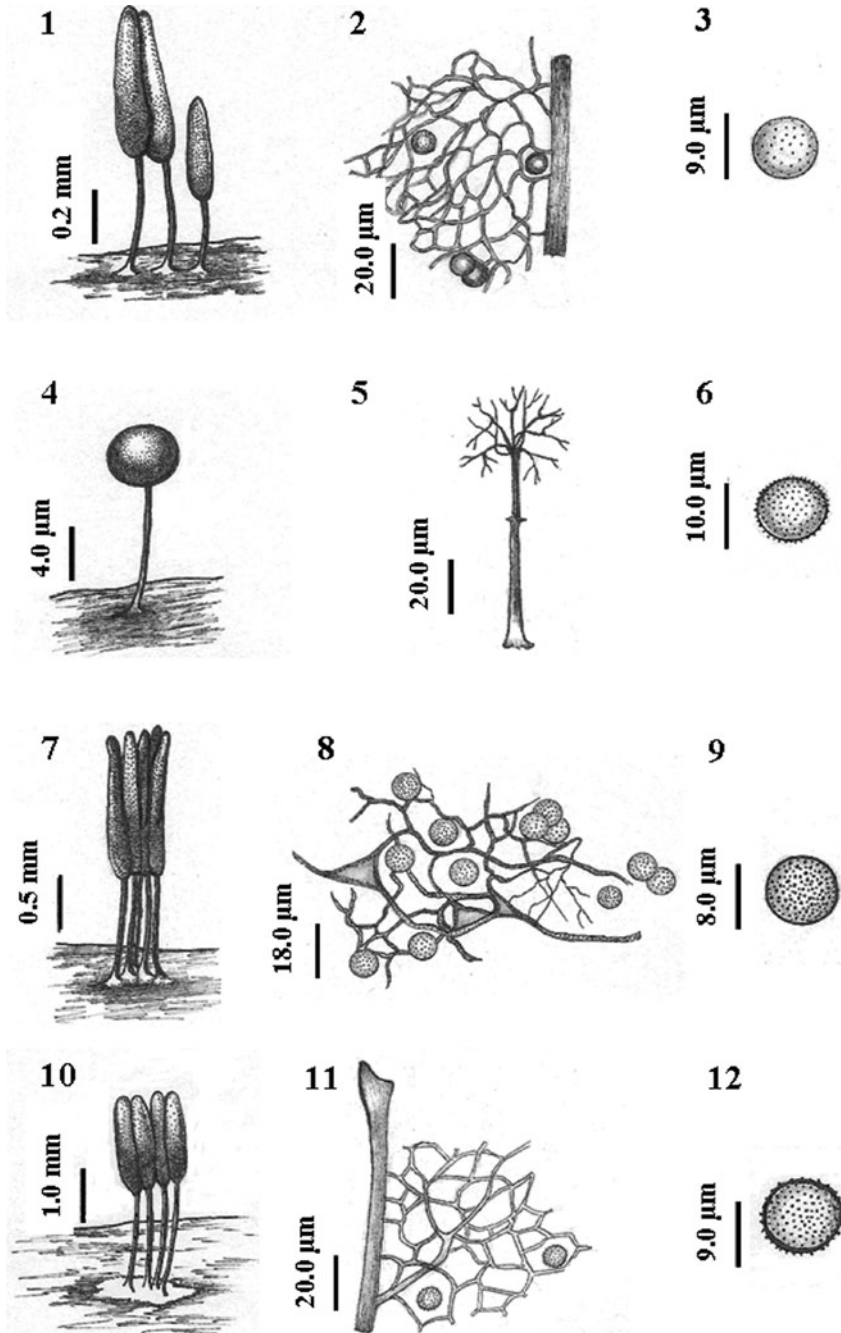
Distribution in mangrove – The material obtained in the present study has similar characteristics to those described for *Comatricha dyctiospora* L.F.Celak, recorded for the first time for Brazil by Mobin & Cavalcanti (1999) for Sete Cidades National Park in the state of Piauí. Considered *nomen dubio* by Martin & Alexopoulos (1969), this specie is thought to be synonymous with *Stemonitopsis reticulata*. Using the identification key proposed by Mitchell (2004), all the characteristics described for *S. reticulata* are similar to those observed in the specimen. This species is recorded for the first time for a mangrove environment and for the second time for Brazil (Tab. 1).

Material examined. – ***Stemonitopsis reticulata*** (H. C. Gilbert) Nann.-Bremek. & Y. Yamam.: BRAZIL, municipality of Rio Formoso, mangrove of Formoso River, on aerial litter (small twigs) of *C. erectus* L., m.c 25 Mar 2008, sporulation 04 Jun 2008, leg. G. Damasceno *et al.*, det. G. Damasceno and L. H. Cavalcanti (54.068).

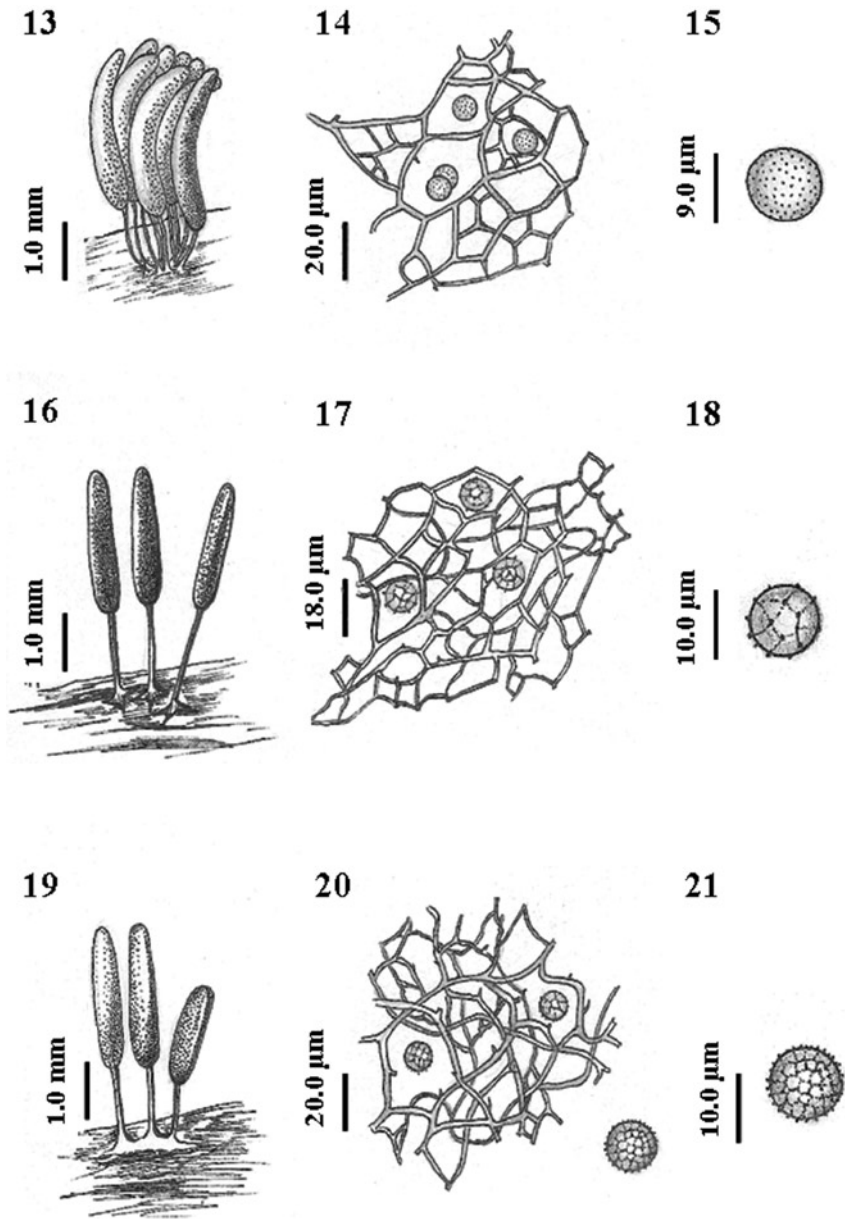
Tab. 1. – Distribution of Stemonitaceae on mangroves.

Taxon	Substrate	Country / Locality
<i>Collaria arcyrionema</i> (Rostaf.) Nann.-Bremek. ex Lado	<i>Laguncularia racemosa</i> ^a <i>Conocarpus erectus</i> ^a	Brasil: Pernambuco, Ipojuca ² (as <i>Lamproderma arcyrionema</i> Rostaf.); Rio Formoso ⁴
<i>Comatricha</i> sp.1	<i>Rhizophora mangle</i> ^a	Brasil: Sergipe, Pacatuba ¹
<i>Comatricha pulchella</i> (C.Bab.) Rostaf.	<i>Conocarpus erectus</i> ^{ac}	Brasil: Pernambuco, Rio Formoso ⁴
<i>Macbrideola scintillans</i> H. C. Gilbert	<i>Conocarpus erectus</i> ^a	Brasil: Pernambuco, Rio Formoso ⁴
<i>Stemonaria fuscoides</i> Nann.-Brem. & Y. Yamam.	<i>Conocarpus erectus</i> ^d	Brasil: Pernambuco, Rio Formoso ⁴
<i>Stemonaria irregularis</i> (Rex) Nann.-Bremek.	<i>Conocarpus erectus</i> ^{abc} <i>Avicennia nitida</i> ^c	Brasil: Pernambuco, Rio Formoso ⁴
<i>Stemonitis flavogenita</i> Jahn	<i>Conocarpus erectus</i> ^c	Brasil: Pernambuco, Rio Formoso ⁴
<i>Stemonitis fusca</i> Roth	<i>Avicennia shaueriana</i> ^a <i>Laguncularia racemosa</i> ^b <i>Conocarpus erectus</i> ^{acbd}	Brasil: Santa Catarina, Ilha Santa Catarina ³ ; Pernambuco, Rio Formoso ⁴
<i>Stemonitis herbatica</i> Peck	<i>Rizophora mangle</i> ^c <i>Conocarpus erectus</i> ^c	Brasil: Pernambuco, Rio Formoso ⁴
<i>Stemonitis splendens</i> Rostaf.	<i>Avicennia shaueriana</i> ^a <i>Conocarpus erectus</i> ^c <i>Rhizophora mangle</i> ^e	Brasil: Santa Catarina, Ilha Santa Catarina ³ ; Pernambuco, Rio Formoso ⁴ Porto Rico ⁶
<i>Stemonitis virginiensis</i> Rex	<i>Rhizophora mangle</i> ^b	Brasil: Pernambuco, Rio Formoso ⁴
<i>Stemonitopsis reticulata</i> (H. C. Gilbert) Nann.-Bremek. & Y. Yamam.	<i>Conocarpus erectus</i> ^b	Brasil: Pernambuco, Rio Formoso ⁴
<i>Stemonitopsis typhina</i> (F.H.Wigg.) Nann.-Bremek. <i>Agave</i> sp. ^d		Porto Rico ⁷ As <i>Comatricha typhoides</i> (Bull.) Rostaf.

a-Bark of living tree; b- small twigs of the aerial litter; c-aerial litter; d-soil litter; e-dead wood. 1. Bezerra *et al.* (1999) (apud Damasceno *et al.* 2009). 2. Cavalcanti *et al.* (2000) (apud Damasceno *et al.* 2009). 3. Trierveiler-Pereira *et al.* (2008). 4. This paper. 5. Damasceno *et al.* (2009). 6. Nieves-Rivera & Stephenson (2004). 7. Novozhilov *et al.* (2001)



Figs. 1–12. Sporangium, capillitium and spore of *Comatricha pulchella*: 1–3; *Macbrideola scintillans*: 4–6; *Stemonaria irregularis*: 7–9; *Stemonitis flavogenita*: 10–12.



Figs. 13–21. Sporangium, capillitium and spore of *Stemonitis herbatica*: 13–15; *Stemonitis virginiensis*: 16–18; *Stemonitopsis reticulata*: 19–21.

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