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Original Article

Myxobiota of the Silvânia National Forest: list of species with additions to Cerrado and Brazil

Mixobiota da Floresta Nacional de Silvânia: lista de espécies e adições ao Cerrado e Brasil

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Abstract

Aiming to contribute information on the diversity of Myxomycetes in Brazilian Savanna (Cerrado biome) areas, the species of myxomycetes present in Silvânia National Forest, in the state of Goiás were inventoried. This inventory is made up of collections carried out 17 ago in the area, including collections by active search and moist chamber sampling. Samples of fruiting bodies were deposited in the HUEG Fungarium. Were recorded 55 species, 27 genera, 11 families and 8 orders. The most represented orders were Trichiales and Stemonitales, each representing 28% of the species, followed by Physarales with 23%, Cribrariales with 7%, Ceratiomyxales, Liceales and Reticulariales with 4% and finally, Echinosteliales with 2%. Three species (*Colloderma oculatum, Polyschismium chailletii* and *Trichia flavicoma*) are being reported for the first time for Brazil and eight (*Ceratiomyxa morchella, Licea castanea, Licea minima, Lycogala conicum, Paradiacheopsis longipes, Stemonitopsis gracilis, Stemonitopsis hyperopta* and *Stemonitis virginiensis*) for Cerrado biome. Therefore, this study adds important data for the knowledge of the myxobiota, not only for the biome, but also for Brazil.

Keywords: Brazilian Savanna, midwest, myxomycetes, new records.

Resumo

Visando contribuir para o conhecimento da Myxobiota da Savana brasileira (bioma Cerrado), foi realizado o inventário das espécies de mixomicetos que ocorrem na Floresta Nacional de Silvânia, no estado de Goiás. A amostragem foi composta por coletas realizadas ao longo de 17 anos na área, incluindo tanto espécimes de esporóforos coletados em campo, quanto aqueles desenvolvidos através da incubação do substrato em câmaras úmidas. Vouchers do material estudado foram depositados no Herbário HUEG. Foram registradas 55 espécies, 27 gêneros, 11 famílias e 8 ordens. As ordens com maior representatividade foram Trichiales e Stemonitales, cada uma representando 28% das espécies, seguida por Physarales com 23%, Cribrariales com 7%, Ceratiomyxales, Liceales e Reticulariales com 4% cada e por fim, Echinosteliales com 2%. Três espécies (*Colloderma oculatum, Polyschismium chailletii* e *Trichia flavicoma*) estão sendo referidas pela primeira vez para o Brasil e oito espécies (*Ceratiomyxa morchella, Licea castanea, Licea minima, Lycogala conicum, Paradiacheopsis longipes, Stemonitopsis gracilis, Stemonitopsis hyperopta* e *Stemonitis virginiensis*) para o bioma Cerrado. Com isso, esse estudo acrescenta dados importantes para o conhecimento da mixobiota, não só para o bioma, mas também para o Brasil.

Palavras-chave: Savana brasileira, Centro-Oeste, mixomicetos, novos registros.

1. Introduction

Myxomycetes are amoeboid organisms found worldwide, typically in association with decayed plant part, encompassing about 1,000 species (Keller et al., 2022; Lado, 2005-2024). In Brazil, myxodiversity studies resulted in the recognition of 263 species. Among these, 85.5% have been recorded in Atlantic Forest areas, mainly in the Northeast and Southeast regions. The Cerrado, on the other hand, has 39% of the species recorded in the country, with collections distributed in the Northeast, Midwest and Southeast regions (Flora e Funga do Brasil, 2024).

The Cerrado, also known as the Brazilian Savanna, covers around 25% of the national territory. This biome, due to its heterogeneity in vegetative composition, presents potential for biodiversity (Ribeiro and Walter, 1998), providing habitats and microclimates for different organisms (Sawyer et al., 2018). Given the rich biodiversity of the Cerrado biome (Colli et al., 2020), it is crucial to understand the diversity of organisms in preservation areas for conservation purposes. However, the Cerrado is under substantial anthropic pressure, leading to the depletion of natural resources and subsequent biodiversity loss

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(Lahsen et al., 2016). In this sense, the Silvânia National Forest (Flona-Silvânia), an environmental preservation area designated for research, ecotourism, and environmental education, faces severe external pressure from agribusiness activities within its boundaries.

Despite this, Flona-Silvânia area has a rich biodiversity (Cardoso and Ribeiro, 2023), comprising approximately 65 species of herpetofauna, 14 fish, 137 birds, 17 mammals, 158 plant (Pereira, 2011; Morais et al., 2012; Lima et al., 2017), 186 insect (Bergamini et al., 2017), and 30 species of corticioid and poroid fungi (Leonardo-Silva et al., 2020, 2022). Although the biodiversity of this Conservation Unit is well studied, little is known about its Myxobiota (Xavier-Santos et al., 2019; Toschi et al., 2023). In addition to allowing knowledge of this diversity in Flona-Silvania, this inventory aims to contribute to expanding the sampling of myxomycetes in the Cerrado biome and in Brazil.

2. Material and Methods

2.1. Study area

Flona-Silvânia was created on July 18, 2001, by the Ministério do Meio Ambiente through ordinance 247, under the management of the Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis (Brasil, 2023). It emerged with the objective of promoting the appropriate management of natural resources, ensuring the protection of water resources and scenic beauty, fostering the development of basic and applied scientific research, environmental education and recreation, leisure and ecotourism activities (ICMBio, 2015). The park is located in the rural area of the municipality of Silvânia, in the southwest region of the state of Goiás, and has an average area of 486 ha, completely covered by typical vegetation of the Cerrado biome. This area contains a large mosaic of heterogeneous vegetation (cerrado *stricto sensu*, gallery forest, mesophilic forest, vereda, and campo limpo), conferring great potential for maintaining a wide biodiversity (ICMBio, 2020) (Figure 1).

2.2. Data collection and analysis

The samples were obtained through active search collections throughout the park or by incubating leaf litter and tree cortex in a moist chamber cultivated in the laboratory. These data represent a combination of 17 years of collecting myxomycetes in this area, at different times of the year, accumulating a large number of recorded species deposited in the fungarium of the Universidade Estadual de Goiás (HUEG-Fungi) (Thiers, 2024 [continuously updated]).

The identification of specimens was carried out using traditional methods, analyzing macro and microscopic structures, according to Martin and Alexopoulos (1969), Cavalcanti et al. (2006) and Poulain et al. (2011a, b). Maintaining the tradition of years of research, we included Ceratiomyxomycetes in this inventory even though it does not belong to the Myxomycetes group, but rather to the Protosporangiida group (Kang et al., 2017). In the morphological analysis, color indication was based on Kornerup and Wanscher (1978).

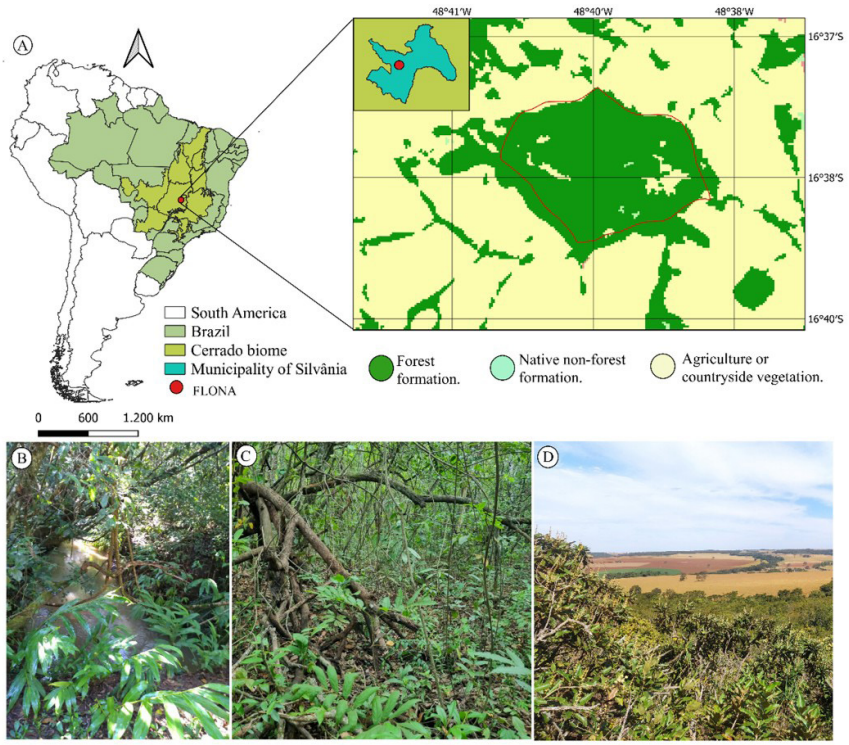

Figure 1. Study area localization. A- Map of South America including the Silvânia National Forest, Goiás, Brazil and vegetation cover; B- Gallery Forest; C- Mesophilic Forest; D- Cerrado *sensu stricto* and pastures that surround the area.

The distribution of species was conducted by analyzing published scientific articles and according to the databases: CRIA (2023), Flora e Funga do Brasil (2024), and GBIF (2023). For GBIF, we considered only materials deposited in herbaria. The distribution of species was made globally for new records from Brazil and nationally for new records from the Cerrado biome.

3. Results

Were recorded 55 species distributed across 27 genera, 11 families and eight orders (Table 1), developing on different substrates (Figure 2A). The most represented orders were Trichiales and Stemonitales, both with 28% of species occurrence, Physarales with 23%, Cribrariales with 7%, Ceratiomyxales, Reticulariales and Liceales with 4% each and finally, Echinosteliales with 2% species occurrence (Figure 2B). Of the species identified, *Colloderma oculatum*, *Polyschismium chailletii* and *Trichia flavicoma* are new records for Brazil, while *Ceratiomyxa morchella*, *Licea castanea*, *Licea minima*, *Paradiacheopsis longipes*, *Stemonitopsis gracilis*, *Stemonitopsis hyperopta* and *Stemonitis virginiensis* are new records for the Cerrado biome.

3.1. New records from Brazil

Colloderma oculatum (C. Lippert) G. Lister, J. Bot. 48:312 (1910). (Figure 3A).

Specimens examined: **BRAZIL**, Goiás, Silvânia, Floresta Nacional de Silvânia, 16°19′07″S 48°55′44″W, on decomposing leaf, in moist chamber, 30–XII–2022, Toschi LA 19, HUEG 16369.

Sporocarps scattered, forming small groups of two to three fruiting bodies, sessile, globose, 0.8–1.2 mm in diameter, sitting on a wide brownish beige (6-E3) hypothallus when wet, after dehydration, the hypothallus becomes a concolor membrane; Peridium double, the outer layer thick, hyaline, gelatinous when fresh and cartilaginous, shiny olive brown (4-E4) when dry, the inner layer membranous and hyaline; Columella absent; Capillitium a system of wires coming out of the base of the sporocarp, 1–3 µm thick, lighter in color on the extremes, with darker additions; Spore-mass brownish grey (5-F2); Spore grayish-brown under transmitted light, spinulose, globose to subglobose, 11–14 µm in diameter.

Geographical distribution: Europa (Eliasson, 1981), North America (Schnittler and Novozhilov, 1995; Stephenson, 2004), Central America (Rojas et al., 2015) and South America in Uruguay, Ecuador (Lado and Basanta, 2008), Paraguay (McHugh, 2005) and Brazil (present study).

Polyschismium chailletii (Rostaf.) A. Ronikier, J.M. García-Martín, A. Kuhnt, J.C. Zamora, M. de Haan, Janik & Lado, in Ronikier, Janik, de Haan, Kuhnt & Zankowicz Mycologia 114 (6): 1028 (2022). (Figure 3B).

Specimens examined: **BRAZIL**, Goiás, Silvânia, Floresta Nacional de Silvânia, 16°19′07″S 48°55′44″W, on decomposing leaf, in moist chamber, 23–XII–2022, Toschi LA 16, HUEG 16363.

Sporocarps sessile, clustered, on a broad base and hemispherical or occasionally subglobose, 0.8–2 mm in diameter; Hypothallus hyaline and membranous; Peridium membranous, thin, brownish grey (7-F2), with abundant presence of white (1-A1) scales; Columella hemispherical, filled with large calcareous scales matching the peridial

Table 1. List of species of myxomycetes from the Silvânia National Forest with their respective substrates.

Taxa	Occurrence substrate and voucher (HUEG)
Ceratiomyxales	
Ceratiomyxaceae	
Ceratiomyxa fruticulosa	MC- 8666; LG- 8696; 9252, 9343, 9344, 9345, 9346, 9347, 9348, 9349, 9350, 9351, 9353, 9354, 9355, 9356, 9357, 15592, 15602, 15617
*Ceratiomyxa morchella**	LG- 16060
Echinosteliales	
Clastodermataceae	
Clastoderma debaryanum	CO- 8698
Reticulariales	
Reticulariaceae	
Lycogala epidendrum	LG- 8671, 8350, 9283, 9390, 9391, 9393, 9394, 9396, 9397
Lycogala conicum	LG- 17514
Cribrariales	
Cribrariaceae	
Cribraria languescens	LG- 9363, 9364, 9342
Cribaria microcarpa	LG- 8699, 8700, 16365
Cribraria splendens	LG- 9358, 9365
Cribraria tenella	LG- 9359, 9360, 9361, 16376
Liceales	
Liceaceae	
*Licea castanea**	FO- 16345
*Licea minima**	FO- 16352
Trichiales	
Arcyriaceae	
Arcyria cinerea	LG- 8353, 8672, 8707, 8708, 8709, 8710, 8711, 8712, 8713, 9329, 9330, 9331, 9332, 9333, 16065, 16067
Arcyria denudata	LG- 8348, 8714, 8715, 9334, 9335, 9336, 9337, 9338
Arcyria insignis	CO- 18385
Arcyria marginoundulata	FO- 15692
Trichiaceae	
Hemitrichia calyculata	LG- 9276, 9277, 9292, 9340, 9375, 9376, 9378, 9380, 9383, 9384, 9385, 9386, 9388, 15648, 15570, 15669, 16059
Hemitrichia decipiens	LG- 8668, 8669

FO = foliicolous, CO = corticicolous, LG = lignicolous, MC = myceticolous. *New record for the Cerrado biome; **New record for Brazil.

Table 1. Continued...

Taxa	Occurrence substrate and voucher (HUEG)
Hemitrichia serpula	LG- 8670, 9368, 9369, 9370, 9371, 9372, 9373, 9374, 15595, 15558, 15650, 15678, 15685, 15639, 16068, 16070, 16374
Metatrichia vesparia	LG- 8716, 9310, 9398, 9400, 9403, 9404, 15574, 15660, 15627, 15604, 15661, 15579, 16361
Oligonema affine	FO- 16066
Oligonema favogineum	LG- 15635, 16062
Oligonema persimile	LG- 9415
Ophioteca calongei	FO- 8717; CO- 8718
Ophioteca chrysosperma	CO- 8719
Perichaena depressa	LG- 15560; FO- 16371
Perichaena quadrata	FO- 16372
*Trichia flavicoma***	FO- 16355
Trichia papillata	FO- 16353, 16358, 16359, 16368
Physarales	
Physaraceae	
Badhamia polycephala	CO- 9539
Physarella oblonga	LG- 16064
Physarum album	9405, 8704
Physarum bogoriense	FO- 16375
Physarum stellatum	CO- 9406
Physarum viride	FO- 8705, 8706, 16435, 16436
Didymiaceae	
Diderma deplanatum	FO- 16357, 16367
Diderma laiseae	LG- 9367
Diderma saundersii	FO- 16356
Didymium clavus	FO- 8702, 16370, 16373
Didymium iridis	LG- 1605
Didymium nigripes	FO- 8703
Didymium verrucisporum	CO- 8667
*Polyschismium chailletii***	FO- 16363
Stemonitales	
Lamprodermataceae	
*Colloderma oculatum***	FO- 16369
Lamproderma sauteri	FO- 16362
Stemonitaceae	
Comatricha elegans	FO- 8723
Diachea leucopodia	FO- 16354
Enerthenema papillatum	FO- 8724
*Paradiacheopsis longipes**	CO- 8725
Stemonitis flavogenita	LG- 9412, 9413, 9418
Stemonitis fusca	LG- 9409, 9410, 16520
Stemonitis pallida	LG- 9411
Stemonitis splendens	LG- 9407, 16057, 16061, 16069
*Stemonitis virginiensis**	LG- 8726, 8727, 8728
Stemonitopsis aequalis	LG- 16063
*Stemonitopsis gracilis**	FO- 16366, 16434
*Stemonitopsis hyperopta**	LG- 8720, 8721, 8722, 16364
Stemonitopsis typhina	LG- 9362

FO = foliicolous, CO = corticicolous, LG = lignicolous, MC = myceticolous. *New record for the Cerrado biome; **New record for Brazil.

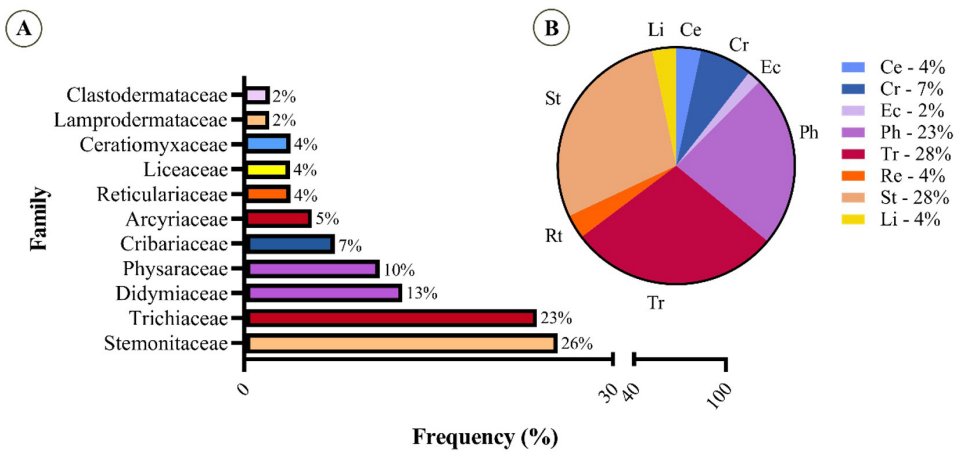

Figure 2. Distribution of frequency species of myxomycetes found in Silvânia National Forest. A - Acoording to family. B - Acoording to orders (Ce = Ceratiomyxales, Cr- Cribrariales, Ec- Echinosteliales, Ph- Physarales, Tr- Trichiales, Rt- Reticulariales, St- Stemonitales, Li – Liceales).

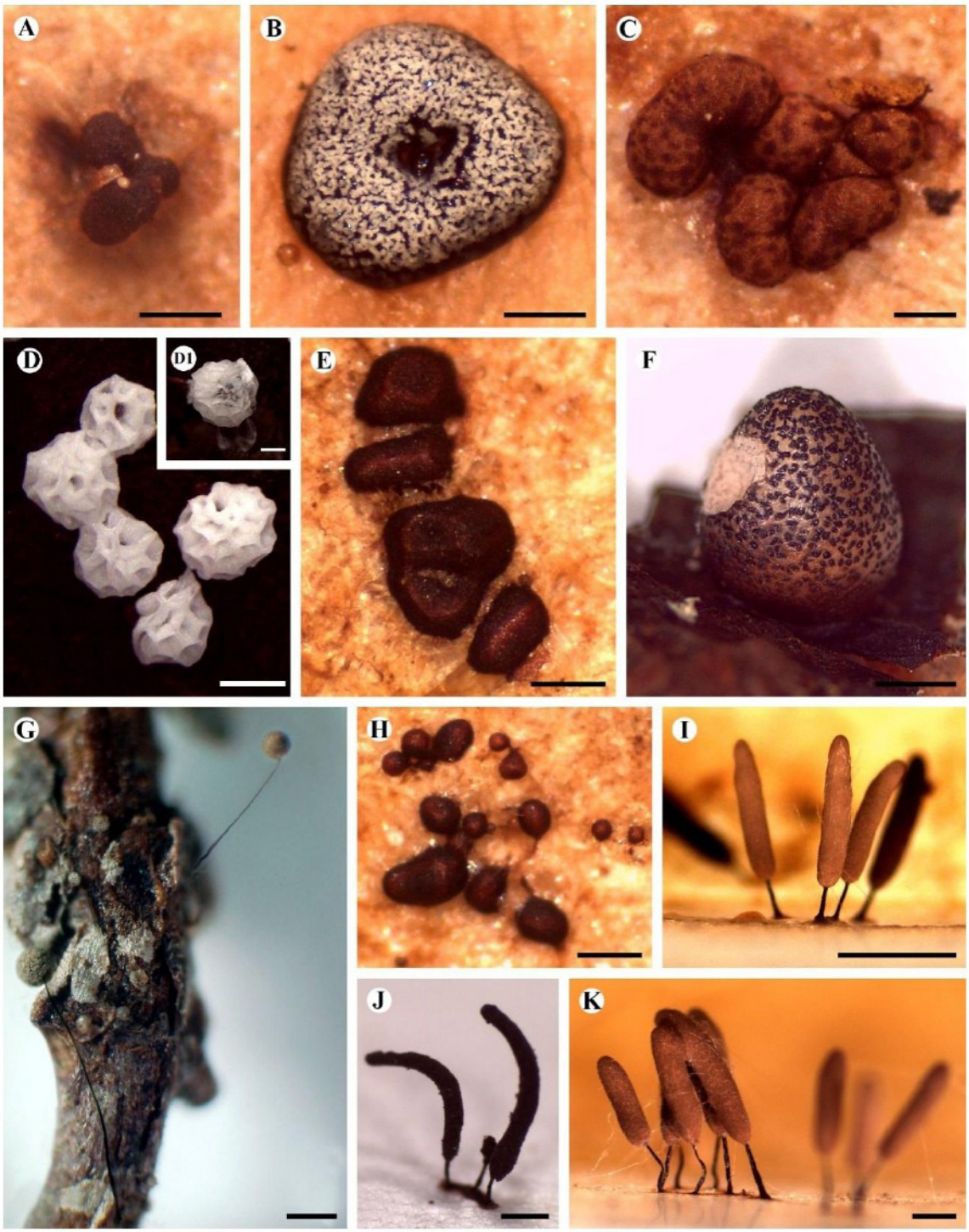

Figure 3. Sporophores of newly recorded species in Brazil and Cerrado biome. A- *Colloderma oculatum* (bar 0.3 mm); B- *Polyschismium chailletii* (bar 0.25 mm); C- *Trichia flavicoma* (bar 0.25 mm); D-D1- *Ceratiomyxa morchella*. D- herborized sporangia (bar 0.5 mm); D1- fresh sporangium with your hyaline stalk (bar 0.2 mm); E- *Licea castanea* (bar 0.25 mm); F- *Lycogala conicum* (bar 1 mm); G- *Paradiacheopsis longipes* (bar 0.25 mm); H- *Licea minima* (bar 0.25 mm); I- *Stemonitopsis hyperopta* (bar 1 mm); J- *Stemonitis virginiensis* (bar 0.5 mm); K- *Stemonitopsis gracilis* (bar 0.5 mm).

calcareous scales; Capillitium abundant, yellowish brown, almost hyaline, composed of long, smooth and thin threads, connecting the columella to the peridium. Spore-mass dark brown (6-F4); Spore violet-brown under transmitted light, uniform in color, globose, spinulate, 11–13 µm in diameter.

Geographical distribution: Asia, Europe, North America (Krivomaz et al., 2010), South America in Peru (GBIF, 2023) and Brazil (present study).

Trichia flavicoma (Lister) Ing, Trans. Brit. Mycol. Soc. 50(4):558 (1967). (Figure 3C).

Specimens examined: **BRAZIL**, Goiás, Silvânia, Floresta Nacional de Silvânia, 16°19′07″S 48°55′44″W, on decomposing leaf, in moist chamber, 30–XII–2022, Toschi LA 13, HUEG 16355.

Sporocarps gregarious, stalked or sessile; Hypothallus not observed; Stalk 0.2–0.5 mm long, olive grey (3-2E); Peridium brown (5-F5) with yellowish brown (5-D8) streaks, smooth and resistant; Capillitium elateres, dull yellow, 3–5 µm in diameter, ending in free, pointed tips, ornamented with random globose swellings; Spore-mass olive yellow (3-C6); Spore yellow under transmitted light, globose to subglobose, spiny, 9–14 µm in diameter.

Geographical distribution: Asia (Bo and Yu, 2016), Euro-asia (Sesli and Denchey, 2008), Europe (Ing, 1967; Lado, 1994), North America (Hagelstein, 1944; Kowalski, 1974) and South America in Argentina (GBIF, 2023) and Brazil (present study).

3.2. New records from Cerrado

Ceratiomyxa morchella A. L. Welden, Mycologia 46 (1): 94. (1954). (Figure 3D).

Specimens examined: **BRAZIL**, Goiás, Silvânia, Floresta Nacional de Silvânia, 16°38′31″S 48°39′04″W, on dead wood. 26–X–2022, Toschi LA 39, HUEG 16060.

Sporocarps white (1-A1), with many holes, roughly gregarious, 1–2 mm total height, subglobose; Stalk short, gelatinous, cylindrical, hyaline, or almost absent; Spore-mass white (1-A1); Spore ovoid, hyaline, smooth, 5–7 × 9–11 µm diameter.

Geographical distribution in Brazil: Amazon Forest, in the Northern Region: Amazonas and Roraima; Atlantic Forest, in the Northeast Region: Pernambuco (Cavalcanti et al., 2008); in the Southern Region in Rio Grande do Sul (Velloso et al., 2024); Cerrado, in the Midwest Region: Goiás (present study).

Licea minima Fr., Syst. mycol. 3(1):199 (1829). (Figure 3E).

Specimens examined: **BRAZIL**, Goiás, Silvânia, Floresta Nacional de Silvânia, 16°19′07″S 48°55′44″W, on decomposing leaf, in moist chamber. 01–II–2023, Toschi LA 11, HUEG 16352.

Sporangia scattered, sessile; Sporotheca pulviniform, subglobose, 0.4–0.7 mm in diameter; Peridium double, external layer persistent, thick, greyish brown (5-F3), organized in polygonal plates with brownish grey (6-F2) sole on the edges, internal surface membranous, filled with papillae, showing deicence in the welds of the polygonal plates; Spore-mass olive (2-E4); Spore globose, grayish-brown to olive, slightly spinulous, thick wall with defined thinner hemispherical area, 10–13 µm in diameter.

Geographical distribution in Brazil: Caatinga, in the Northeast Region: Bahia (Flora e Funga do Brasil, 2024); Cerrado, in the Midwest Region: Goiás (present study).

Licea castanea G. Lister, J. Bot. 49:61 (1911). (Figure 3H)

Specimens examined: **BRAZIL**, Goiás, Silvânia, Floresta Nacional de Silvânia, 16°19′07″S 48°55′44″W, on decomposing leaf, in moist chamber. 01–II–2023, Toschi LA 33, HUEG 16345.

Sporangia scattered, sessile; sporotheca pulviniform, subglobose, 0.2–0.5 mm diam; Peridium double, external surface persistent, thick, brown (6-E7), organized in polygonal plates with greyish yellow (4-C5) sole on the edges, internal surface membranous, with papillae, showing deiscence in the welds of the polygonal plates; Spore-mass olive brown (4-E8); Spore globose, yellowish brown to olive, smooth, thick wall with well-defined thinner hemispherical area, 10–12 µm in diameter.

Geographical distribution in Brazil: Atlantic Forest, in Northeast Region: Pernambuco (Bezerra and Cavalcanti, 2007); Pampa, in the South region: Rio Grande do Sul (Xavier-Lima and Cavalcanti, 2017); Cerrado, in Midwest Region: Goiás (present study).

Lycogala conicum Pers., Syn. meth. fung. 1:159 (1801). (Figure 3F).

Specimens examined: **BRAZIL**, Goiás, Silvânia, Floresta Nacional de Silvânia, 16°19′07″S 48°55′44″W, on dead wood, 12–III–2024, Toschi LA 107, HUEG 17514.

Ethalium conical, tapering as it approaches the apex, gregarious, 1.8–2.2 mm high, grayish green (1-D4) scorched with voluminous olive gray spots (2-F2) arranged in a reticulated pattern. Apical dehiscence; Pseudocapillitium with few branches, thin, hyaline; Spore-mass greyish brown (5-D3); Spores globose, hyaline, minutely reticulated, 6–8 µm in diameter.

Geographical distribution in Brazil: Amazon Rainforest, in the North region: Roraima; Atlantic Rainforest, in the Northeast: Bahia, Maranhão, Pernambuco and Sergipe; Southeast region: São Paulo; Pampa, in the South region: Rio Grande do Sul; Pantanal, in the Midwest region: Mato Grosso do Sul (Flora e Funga do Brasil, 2024); Cerrado, in the Midwest regin: Goiás (present study).

Paradiacheopsis longipes Hooff&Nann. -Bremek. Proc. Kon. Ned. Akad. Wetensch. C 99(1-2):51 (1996). (Figure 3G).

Specimens examined: **BRAZIL**, Goiás, Silvânia, Floresta Nacional de Silvânia, 16°19′07″S 48°55′44″W, on living trunk with bryophyte, 20–XI–2011, Araújo JC 17, HUEG 8725.

Sporocarps stalked, sparse, 0.5–0.9 mm tall; Hypothallus membranous, discoid, dark brown (8-F4); Stalk slender, 70–90% of the total height, dark brown (6-F8); Sporotheca globose, beige (4-C3), 0.1–0.3 mm diam; Columella reaching to about the centre of the sporotheca; Capillitium lax, with branches arising mostly from the columella apex, branching dichotomously 1–3 times and peripherally occasionally with a few anastomoses, slender, pale brown, smooth or verruculose; Spore-mass beige (4-C3); Spores brown, almost hyalines, globose, slightly spiniculous, 6–9 µm in diameter.

Geographical distribution in Brazil: Atlantic Forest, in Northeast Region: Rio Grande do Norte (Bezerra and

Cavalcanti, 2009); Cerrado, in Midwest region: Goiás (present study).

Stemonitis virginiensis Rex, Proc. Academic. Nat. Sci. Phila. 43: 391. 1891. (Figure 3J).

Specimens examined: **BRAZIL**, Goiás, Silvânia, Floresta Nacional de Silvânia, 16°19′07″S 48°55′44″W, on decomposing leaf, 30–III–2012, Araújo JC 34, HUEG 8726; 39, HUEG 8727; 30–III–2012; 40, HUEG 8728.

Sporocarps stalked, grouped, 2–5 mm total height; Sporotheca cylindrical, 1.5–3 mm long and 0.4 mm diam., brownish grey (6-F2); Hypothallus inconspicuous, yellowish-brown (5-D5), membranous; Stalk reaching 12.5–40% of the total sporocarp height, dark brown (6-4F); Columella cylindrical, sinuous, branching along its entire length, tapering near the apex, concolored to the stalk; Capillitium network, yellowish brown, almost hyaline; Spore-mass brownish grey (5-F2); Spores light brown, globose, reticulate, 6–8 µm in diameter.

Geographical distribution in Brazil: Atlantic Forest, in the Northeast Region: Pernambuco, Piauí and Sergipe (Mobin and Cavalcanti, 1999; Flora e Funga do Brasil, 2024); Cerrado, in the Midwest region: Goiás (present study).

Stemonitopsis gracilis (G. Lister) Nann.-Bremek., Nederlandse Myxomyceten (Zutphen) 210 (1975). (Figure 3K).

Specimens examined: **BRAZIL**, Goiás, Silvânia, Floresta Nacional de Silvânia, 16°19′07″S 48°55′44″W, on decomposing leaf, 23–I–2023, Toschi LA 23, HUEG 16366; on decomposing leaf, 20–VI–2023, Toschi LA 78, HUEG 16434.

Sporocarps stalked, grouped, 1–2 mm total height; Sporotheca cylindrical, 0.8–1 mm long and 0.4 mm in diameter, reddish brown (8-D4). Hypothallus membranous, dark brown (6-F3). Stalk reaching 20–25% of the total height of the sporocarp, concolor to the hypothallus. Columella cylindrical, sinuous, branching along its entire length, branching at the apex, concolor to the stalk. Capillitium network, brown; Spore-mass greyish brown (6-D3); Spores light brown, globose, reticulate, 6–8 µm in diameter.

Geographical distribution in Brazil: Pampa, in the South region: Rio Grande do Sul (Xavier-Lima and Cavalcanti, 2017); Cerrado, in the Midwest region: Goiás (present study).

Stemonitopsis hyperopta (Meyl.) Nann. -Bremek., Nederlandse Myxomyceten (Amsterdam): 206 (1975). (Figure 3I).

Specimens examined: **BRAZIL**, Goiás, Silvânia, Floresta Nacional de Silvânia, 16°19′07″S 48°55′44″W, on decomposing leaf, 30–III–2012, Araújo JC 24, HUEG 8720; 35, HUEG 8721; 30, HUEG 8722; 19-XII-2022, Toschi LA 14, HUEG 16364.

Sporocarps stalked, grouped, 3–5 mm in total height; Sporotheca cylindrical, 1.5–2.5 mm long and 0.5 mm diam., reddish brown (8-E5); Hypothallus inconspicuous, reddish-brown (8-E4), membranous; Stalk reaching 25-50% of the total sporocarp height, brownish grey (7-F2); Columella densely branched at the apex of the sporoteca, concolored to the stalk; Capillitium networked, reddish-brown, almost hyaline, narrower peripherally, giving rise to a fragile superficial network, present mainly at the base of the sporotheca and generally absent in the upper part; Spore-mass brown (5-E6); Spores gray-lilac, almost hyaline, globose, reticulate, 7–9 µm in diameter.

Geographical distribution in Brazil: Atlantic Forest, in Northeast Region: Rio Grande do Norte in the (Bezerra, 2008); Pampa, in the South region: Rio Grande do Sul (Xavier-Lima and Cavalcanti, 2017); Cerrado, in the Midwest region: Goiás (present study).

4. Discussion

Considering that 263 species of myxomycetes have been recorded in Brazil, this inventory represents approximately 21% of that total. In addition, we report three new occurrences for Brazil, including the first records of the genera *Colloderma* and *Polyschismium* in the country, as well as eight new occurrences for the Cerrado biome. These findings highlight the myxomycete diversity potential of Flona-Silvânia, which, despite suffering significant anthropic pressure, presents a rich myxodiversity. This inventory also contributes significantly to the knowledge of the myxobiota of the state of Goiás, which currently ranks 18th in number of myxomycete records in Brazil, with just over 29 species registered and indexed (Flora e Funga do Brasil, 2024).

A predominance of foliicolous and lignicolous species was observed, which can be attributed to the sampling strategy employed in the area, involving not only field collections but also the incubation of substrates representative of these categories. Additionally, the species reported as new records in this study — with the exception of *Ceratiomyxa morchella* and *Lycogala conicum* — were all obtained from humid chamber cultures. This highlights the importance of comprehensive sampling methodologies that consider species with different ecological habits and improve the detection of inconspicuous taxa. For example, species of the genus Licea were only detected in humid chambers, likely due to their small size and coloration that camouflages them in the substrate. In contrast, species such as *Hemitrichia calyculata*, *H. serpula*, and *Ceratiomyxa fruticulosa* were abundantly recorded, but only observed directly in the field.

5. Conclusion

The myxobiota inventory in the Flona-Silvânia represents a significant contribution to the knowledge of myxomycetes in the Cerrado and Brazil, with the addition of species that place Brazil in the geographical distribution of the genus *Colloderma, Trichia flavicoma and Polyschismium chailetii*, as well as the addition and of the species *Ceratiomyxa morchella, Licea castanea, L. minima, Paradiacheopsis longipes, Stemonitopsis gracilis, S. hyperopta* and *Stemonitis virginiensis* to the Cerrado biome. These data enriches our understanding of the distribution of these organisms, highlighting the importance of preserving natural areas, such as the Flona-Silvânia. Also highlight the ongoing need for research into biodiversity in conservation areas to better understand biological diversity and promote effective conservation practices.

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