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First record of *Dacryopinax elegans* (Berk. & M.A. Curtis) G.W. Martin (Dacrymycetaceae) for the Pampa biome, Brazil

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Abstract: The Pampa biome, although harboring approximately 9% of Brazilian biodiversity, remains one of the most neglected and threatened ecosystems in the country due to the rapid conversion of native grasslands into agricultural and silvicultural areas. This lack of conservation is reflected in the scarcity of biological inventories, especially for the kingdom Fungi, which presents one of the lowest numbers of records in the Pampa among Brazilian biomes. The present study reports the first record of *Dacryopinax elegans* for the Pampa biome, in the state of Rio Grande do Sul. Although historical records of the species made by Johannes Rick in the early twentieth century exist, they were restricted to areas of the Atlantic Forest. This new occurrence at southern latitudes significantly expands the known geographic distribution of the species within Brazilian territory. The identification of lignocellulolytic taxa in remnants of native forests of the Pampa reinforces the urgent need for systematic studies to better understand local ecological dynamics. This record contributes to filling biogeographical gaps and supports conservation strategies that integrate fungal diversity as an essential component of environmental resilience in southernmost Brazil.

Keywords: Dacrymycetes, geographic distribution, jelly fungi, mycology, southern grasslands.

Resumo: (Primeiro registro de *Dacryopinax elegans* (Berk. & M.A. Curtis) G.W. Martin (Dacrymycetaceae) para o bioma Pampa, Brasil). O bioma Pampa, embora abrigue cerca de 9% da biodiversidade brasileira, permanece como um dos ecossistemas mais negligenciados e ameaçados do país devido à rápida conversão de campos nativos em áreas agrícolas e silviculturais. Essa carência de conservação reflete-se na escassez de inventários biológicos, especialmente para o reino Fungi, que apresenta no Pampa um dos menores índices de registros do Brasil. O presente trabalho relata o primeiro registro de *Dacryopinax elegans* para o bioma Pampa, no estado do Rio Grande do Sul. Embora existam registros históricos da espécie realizados por Johannes Rick no início do século XX, estes se restringiram a áreas de Mata Atlântica. A nova ocorrência em latitudes austrais amplia significativamente a distribuição geográfica conhecida da espécie no território brasileiro. A identificação de táxons lignocelulolíticos em remanescentes de mata nativa do Pampa reforça a necessidade urgente de estudos sistemáticos para compreender a dinâmica ecológica local. Este registro contribui para o preenchimento de lacunas biogeográficas e fundamenta estratégias de conservação que integrem a diversidade fúngica como componente essencial da resiliência ambiental no extremo sul do Brasil.

Palavras-chave: Dacrymycetes, distribuição geográfica, fungos gelatinosos, micologia, campos sulinos.

Introduction

The Pampa biome, located in the extreme south of Brazil, is recognized for its vast expanse of natural grasslands and unique biodiversity, harboring more than 12,500 species—approximately 9% of the national biota within just 2% of the Brazilian territory (IBGE, 2019; Andrade et al., 2023). Despite its biological richness and the essential ecosystem services it provides, the Pampa is one of the most neglected and threatened biomes in the country (Roesch et al., 2009; IBGE, 2019; Andrade et al., 2023). The rapid conversion of native grasslands into agricultural monocultures, especially soybean, as well as into silviculture plantations of exotic species such as *Pinus* L. and *Eucalyptus* L'Hér. has led to severe fragmentation of its original habitats (Roesch et al., 2009; Andrade et al., 2023). This anthropogenic pressure, combined with bio-

logical invasions and the lack of public conservation policies specifically targeting grassland ecosystems, places numerous species at risk even before they are properly documented by science (Overbeck et al., 2015).

In this context of knowledge gaps, the kingdom Fungi stands out due to its disproportionate lack of studies within the biome. While biomes such as the Atlantic Forest and the Amazon concentrate most fungal records in Brazil, the Pampa and the Pantanal have historically ranked among the regions with the lowest numbers of cataloged species (Maia et al., 2015). Until the mid-2010s, the Pampa had only 84 fungal species recorded in the Catálogo de Plantas e Fungos do Brasil, a number that drastically underestimates the actual diversity expected for the region (Maia et al., 2015). Although the state of Rio Grande do Sul presents one of the highest fungal diversities in the country, the vast majority of these records are associated with Atlantic Forest and Araucaria forest areas, leaving the gallery forests of the Pampa as true mycological "voids".

Among the fungal groups that require greater taxonomic and biogeographic attention are the Dacrymycetes, commonly known as jelly fungi due to the gelatinous consistency of their basidiomata (Alvarenga & Xavier-Santos, 2017). The species *Dacryopinax elegans* (Berk. & M.A. Curtis) G.W. Martin is a cosmopolitan representative of this group, with records across various tropical and subtropical regions. In Brazil, its distribution includes states in the Central-West, North, Southeast, and South regions, with records from Amazonas, Goiás, Paraná, São Paulo, and Santa Catarina states (Sobestiansky, 2005; Alvarenga & Xavier-Santos, 2015; Alvarenga & Xavier-Santos, 2017; Trierveiler-Pereira, 2022).

In Rio Grande do Sul, historical records of the species date back to the early 20th century, documented by the mycologist Johannes Rick in Atlantic Forest areas. Notable among these are exsiccatae collected in São Leopoldo (October 1903, *Rick 14*, NRM-S-F208757) and Parecí (April 1905, *Rick s.n.*, SP-FUNGI 33709), both deposited in national and international herbaria (CRIA, 2026). Sobestiansky (2005) reported the occurrence of the species in Rio Grande do Sul based on a collection from Nova Petrópolis, on dead wood of an unidentified eudicotyledon. Despite these historical records in forest formations of the Atlantic Forest in the state, the occurrence of the species at more southern latitudes remained unknown. The present study reports the first record of *Dacryopinax elegans* for the Pampa biome, significantly expanding its known geographic distribution in Brazil.

Material and Methods

The material was collected at the Sanga da Bica Ecological Reserve (30°20'38.89"S, 54°19'24.57"W) (Fig. 1), in the municipality of São Gabriel, Rio Grande do Sul, in April 2026. The municipality is located within the Pampa biome, in the eastern portion of the Campanha physiographic region, approximately 320 km from Porto Alegre, and has a Cfa climate (humid temperate climate with hot summer), according to the Köppen classification (Alvares et al., 2013).

After collection, the specimen was taken to the Laboratory of Taxonomy of Fungi from Brazil, Antarctica and the Andes (LATAF) at the Federal University of Pampa, where macromorphological and micromorphological analyses were conducted for species identification. Color codes followed the color chart of Kornerup & Wanscher (1978). The exsiccate of the material has been deposited in the collection of the Bruno Edgar Irgang Herbarium (HBEI) at the Federal University of Pampa.

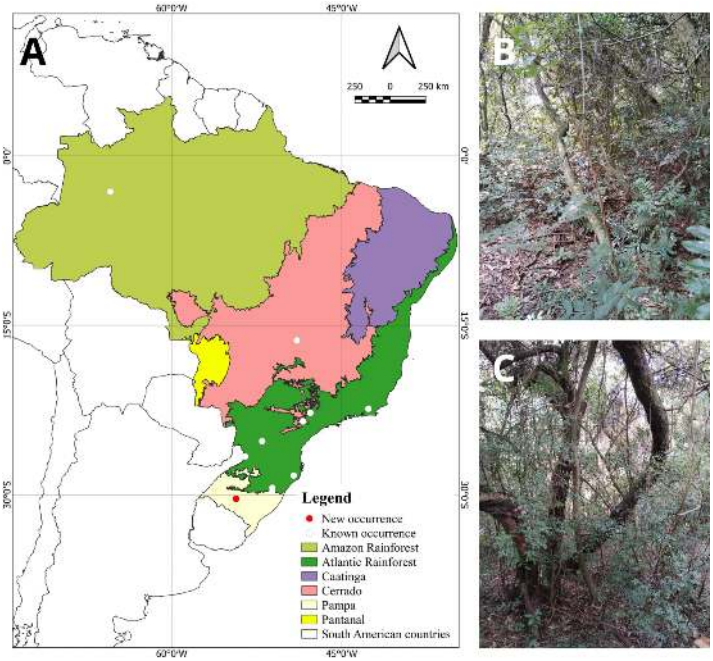


Figure 1: Location of the study area. A. Known occurrence sites of *D. elegans* in Brazil, highlighting the locality of its first record in the Pampa biome. B–C. Images of the environment of the Sanga da Bica Ecological Reserve.

Results

Dacryopinax elegans (Berk. & M.A. Curtis) G.W. Martin, Lloydia 11 (2): 116. 1948. = *Guepinia elegans* Berk. & M.A. Curtis, Hooker's Journal of Botany and Kew Garden Miscellany 1: 239. 1849. Fig. 2

Basidiomata scattered, with a firm gelatinous consistency, 18.3 mm in height; pileus spatulate and concave, dark brown (7F7) when fresh, coriaceous, measuring 15.9 × 10.8 mm; stipe 9.5 × 3.5 mm, orange-brown (6D6), densely covered with minute, septate, thick-walled hairs; hymenium unilateral, smooth, orange-brown (6D6); hyphae lacking clamp connections. *Probasidia* cylindrical to clavate, 33–39 × 2.5–5 µm; metabasidium cylindrical to clavate, aseptate, bifurcate, measuring 24 × 4.2 µm. *Spores* curved-cylindrical, with 1–3 septa, 10–13 × 4.5–6 µm.

Material examined: BRAZIL, Rio Grande do Sul, São Gabriel, Sanga da Bica Ecological Reserve (30°20'38.89"S, 54°19'24.57"W), on decaying wood, 25 Apr 2026, *J.R.P. Velloso & M.L. Schafer-Morellato 7.097* (HBEI-148).

Distribution in Brazil: Amazonas, Goiás, Paraná, Rio de Janeiro, Rio Grande do Sul, Santa Catarina, São Paulo, in areas of the Amazon, Cerrado, and Atlantic Forest biomes (Flora e Funga do Brasil, 2026).

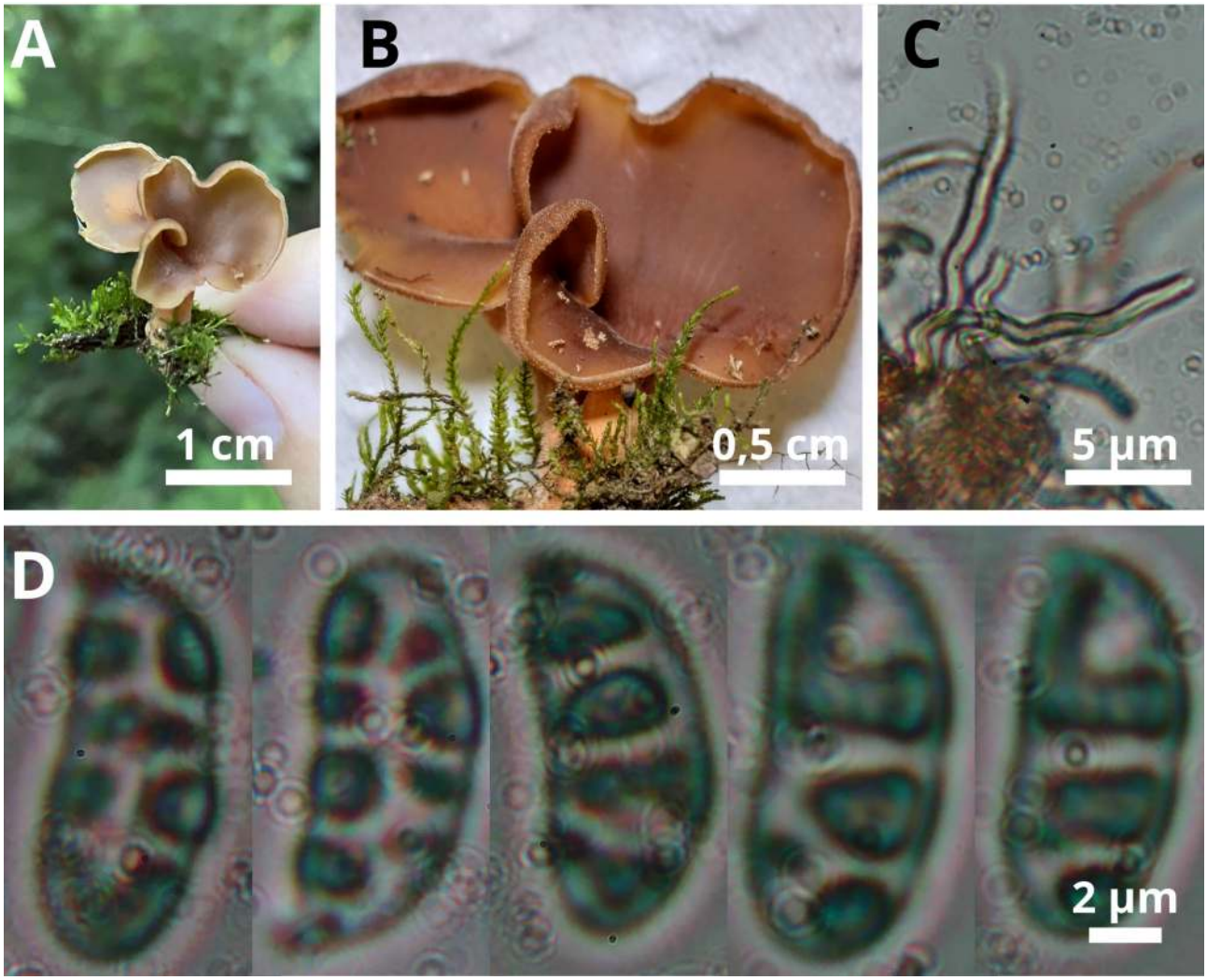


Figure 2: A. Basidioma *in situ*. B. Basidioma observed under a stereomicroscope. C. Marginal hairs. D. Spores.

Discussion

This study explores a virtually uninvestigated region, contributing to the knowledge of the geographic distribution of Dacrymycetes in Brazil. Data on the occurrence of jelly fungi in the country remain scarce, possibly due to difficulties in preserving basidiomata during the drying process, as well as the limited number of specialists in the field (Alvarenga & Xavier-Santos, 2017).

Among the species of the genus *Dacryopinax*, *D. spathularia* (Schwein.) G.W.Martin is the most widely studied, particularly due to its metabolic potential and edibility (Thachunglura et al., 2023; Sharma et al., 2024; Oliveira et al., 2024). In contrast, *D. elegans* is globally recognized for its role in the decomposition of plant materials such as wood, contributing to the release of essential nutrients, including nitrogen and phosphorus (Boddy & Watkinson, 1995). More recently, in Brazil, Trierveiler-Pereira (2022) also highlighted its potential as an edible

fungus, suggesting that the species can be prepared similarly to other jelly fungi, such as those of the genus *Auricularia* Bull. ex Juss.

The expansion of the geographic distribution of *D. elegans* to the Pampa biome is particularly relevant given the scenario of fragmentation and habitat loss that characterizes the region. Andrade et al. (2023) emphasize that the Pampa harbors a highly expressive yet underestimated biodiversity, with more than 12,500 recorded species, of which fungi represent a still poorly documented fraction. The record of lignocellulolytic taxa such as *D. elegans* in gallery forests and forest remnants of the Pampa reinforces the fundamental role of these organisms in nutrient cycling and in maintaining ecosystem health in environments under strong anthropogenic pressure.

Furthermore, the presence of *D. elegans* at southern latitudes suggests ecological plasticity that enables its occurrence across different Brazilian phytogeographic domains, from the Amazon and the Cerrado to the Southern Grasslands (Sobestiansky, 2005; Alvarenga & Xavier-Santos, 2015; Alvarenga & Xavier-Santos, 2017; Trierveiler-Pereira, 2022). This biogeographic connectivity highlights the importance of ecological corridors and the preservation of native forests in the Pampa, which functions as refuges for the mycobiota. Recent studies indicate that fungal conservation should be integrated into protection policies for neglected biomes, as the loss of fungal diversity may compromise environmental resilience and essential ecosystem services (Brasil, 2025; Drechsler-Santos et al., 2025).

Conclusion

The record of *D. elegans* in the Pampa not only fills an important biogeographic gap but also reinforces the urgent need for systematic mycological inventories in the biome. Documenting the presence of lignocellulolytic taxa in remaining native forest areas and in transitional zones of the biome is an essential step toward understanding the ecological dynamics of these ecosystems and supporting conservation strategies that recognize fungal biodiversity as a vital component of environmental resilience in southern Brazil.

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