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Nidularia pulvinata (Schwein.) Fries (Gasteromycetes): a new record from Brazil[1]

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Note

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ABSTRACT - (*Nidularia pulvinata* (Schwein.) Fries (Gasteromycetes): a new record from Brazil). A survey of the gasteroid mycota from "cerrado" vegetation of the state of São Paulo, Brazil, revealed for the first time a rare species of nidulariaceous fungi, *Nidularia pulvinata*, growing on decaying wood of *Syagrus flexuosa* (Mart.) Beccari (Palmae). Descriptions of the macro and microscopic features of *N. pulvinata*, including taxonomic considerations, are given.

RESUMO - (*Nidularia pulvinata* (Schwein.) Fries (Gasteromycetes): um novo registro para o Brasil). Um levantamento da micota de gasteromicetos em vegetação de cerrado do estado de São Paulo revelou pela primeira vez uma espécie rara, *Nidularia pulvinata*, crescendo sobre madeira em deterioração de *Syagrus flexuosa* (Mart.) Beccari (Palmae). Descrições das características macro e microscópicas, incluindo considerações taxonômicas, são apresentadas.

Key words - Nidulariaceae, taxonomy, rare species, state of São Paulo, "cerrado"

Introduction

Nidularia Fries (Gasteromycetes), the type genus of the family Nidulariaceae (Nidulariales), comprises two species: *N. confluens* Fries (=*N. farcta* Brodie, Brodie 1975) and *N. pulvinata* (Schwein.) Fries. However, Hawksworth *et al*. (1995) and Dring (1973) consider *N. confluens* and *N. farcta* as distinctive species. These species are characterized by subglobose fruit-bodies with one-layered peridium constructed of irregular, rigid, spinose, ramose, aseptate hyphae, and by the absence of a funiculus and epiphragm (Brodie 1984).

Nidulariaceae has received sporadic attention from collectors in the past and has not been properly collected. Few species are deposited in the Brazilian herbaria and are insufficiently documented. *Crucibulum* Tul. & C. Tul. and *Cyathus* Haller *ex* Pers., other Nidulariaceae, were reported respectively to the states of Rio Grande do Sul (Rick 1961) and São Paulo (Bononi *et al*. 1981). The genus *Nidularia* was cited by Lloyd (1906) but the region was not mentioned. This paper reports for the first time the occurrence of a rare species of a nidulariaceous fungus, found in a "cerrado" area in the state of São Paulo.

Material and methods

Field studies have been made in the "Estação Ecológica de Jataí" (state of São Paulo), located in an area of 4.532,18 ha, at 21°33' - 21°37' S and 47°45' - 46°51' W. According to the Köppen System, the climatic conditions belong to the AW type. This site was visited nine times for collecting *Nidularia pulvinata* (Schwein.) Fries. During the fieldtrips, the collections were randomly chosen along the existing trails or new ones looking to cover the physiognomic types of the "cerrado" vegetation.

Fresh and dried material were prepared for examination in light microscopy by removing small sections of the peridium and peridiolum from the basidiocarp, and soaking them in Melzer's reagent plus 5% KOH (Dominguez de Toledo 1993). Permanent slides were made using PVL resin (Alcohol Polyvinilic and Lactophenol) in conformity with Trappe & Schenck (1982). Color terms in parenthesis are those of Kornerup & Wanscher (1978), abbreviated as KW. The material was included in the "Herbário Científico do Estado Maria Eneyda P. Kauffmann. Fidalgo" (SP).

Results and Discussion

Nidularia pulvinata (Schwein.) Fr., Syst. Myc. 2: 301. 1822.

Basyonym: *Cyathus pulvinatus* Schw., Fung. Car. Sup. 51. 1818.

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Synonyms: *Granularia pulvinata* (Schw.) Kuntze, Rev. Gen. Pl. 2: 855. 1891; *Nidularia alabamensis* Atk. Bull Cornell Univ. (Science) 3: 23. 1897 (according to Brodie 1975).

Peridium subglobose, 5-6 mm high, 5-8 mm broad, flocose, pulverulent, dark brown (KW-5F2), fragile, soon weathering away then exposing numerous peridioles; peridium hyphae branched sometimes dichotomous, 3-6 μm diameter, spinose, pale yellow to pale brown. Peridioles yellowish brown (KW-5F4), lenticular (0.5-0.7 x 0.2-0.3 mm), wrinkled when dry, cortex composed of branched and spinose hyphae, 2-3 μm diameter, thick-walled. Basidium tetrasporic, 25-30 x 8-12 μm. Basidiospores subglobose, elliptical or somewhat egg-shaped, smooth, 6-7 x 4-5 μm.

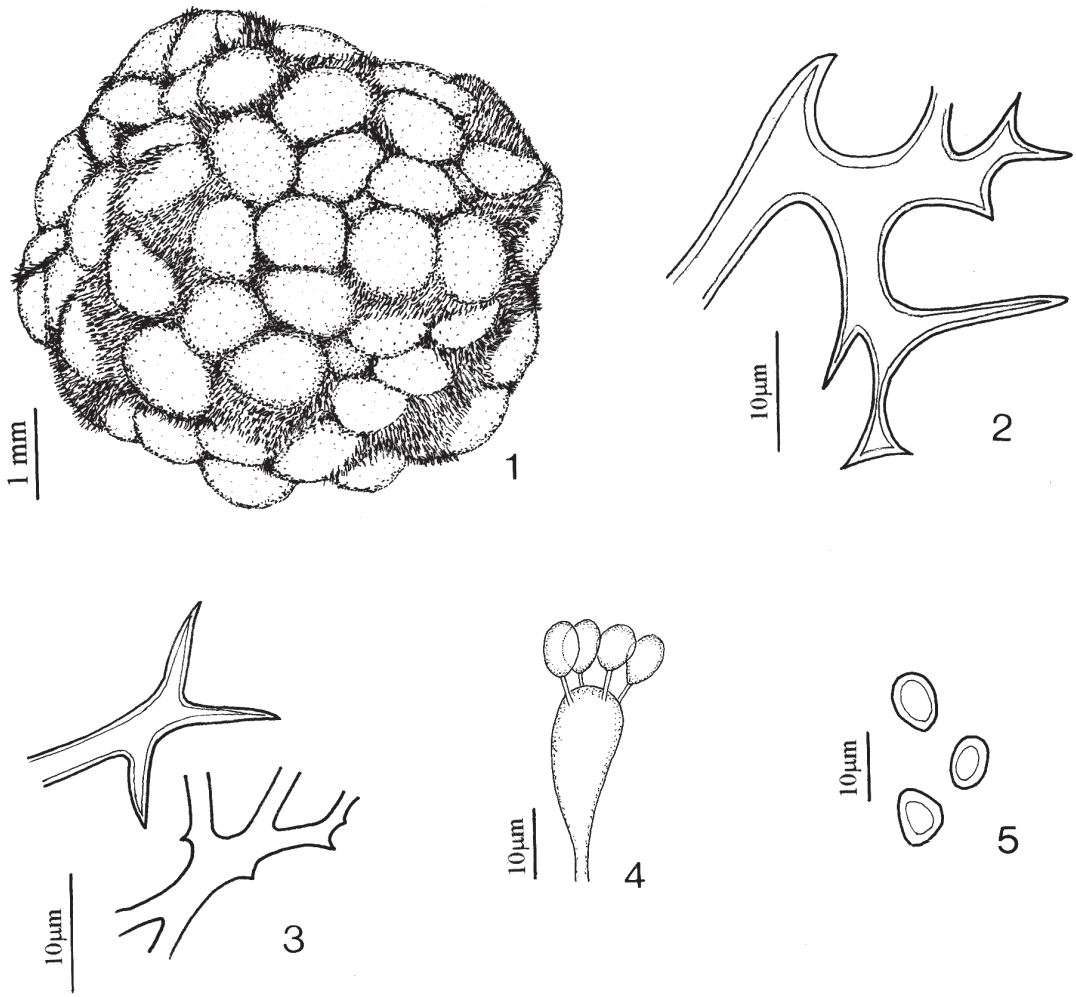
Material examined - BRAZIL: São Paulo: Luís Antônio, Estação Ecológica, 03/5/1999, I.G. Baseia, 371 (SP 307301); 08/6/1999, I.G. Baseia 388 (SP 307302).

Additional material examined - USA: Iowa: 22/7/1939, coll. M. Nichols, det. G.W. Martin (SP 38845).

Habitat - Solitary on decaying wood of *Syagrus flexuosa* (Mart.) Beccari (Palmae), rare.

Distribution - Argentine (Spegazzini 1927), Brazil (Lloyd 1906), China (Liu 1984), France (Boidin *et al*. 1986), Iceland (Jeppson 1979), Norway (Eckblad 1955), Spain (Moreno & Barrasa 1985), United States (Write 1902, Coker & Couch 1928, Lindsey & Gilbertson 1975).

Remarks - This species is characterized by the pulverulent surface of the peridium, caused by the



Figures 1-5. *Nidularia pulvinata* (Schw.) Fr. 1. basidioma (general aspect); 2. hyphae of peridium; 3. hyphae of peridiole cortex; 4. tetrasporic basidium; 5. basidiospores.

innumerable ends of the hyphae which compose the peridium protruding above the main structure, soon becoming broken or eroded. The presence of spinose hyphae in the peridium has been observed by other authors (Fries 1910, Palmer 1960, 1961, Flegler & Hooper 1980) and these hyphae were used to segregate the former section *Sorosia* of *Nidularia* as the genus *Mycocalia* (Palmer 1961). *Nidularia pulvinata* differs from *N. confluens* mainly by its branched and spinose hyphae in the peridiole cortex.

According to Brodie (1984), in Europe, the genus *Nidularia* is represented only by *N. confluens*. Palmer (1960) explains that the records of *N. pulvinata* from Europe given by Cejp (1958) were incorrectly identified and in fact those records were of an aethalioid myxomycete, *Lycogala epidendrum* (L.) Fr.

The small dimension of the fruit-bodies together with absence of specifics and intensive studies about *Nidularia* species, perhaps are some of the reasons for the scarcity reports, mainly in South America. This is the first report of *Nidularia pulvinata* from Brazil.

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