

SOME COPROPHILOUS *PSILOCYBE* (STROPHARIACEAE) FROM PERNAMBUCO STATE, NORTHEAST BRAZIL

FELIPE WARTCHOW^{1*}, ALINE S. CARVALHO², MARIA C. A. SOUSA² & VAGNER G. CORTEZ³

¹Universidade Federal de Pernambuco, Departamento de Micologia, Centro de Ciências Biológicas, Av. Prof. Nelson Chaves, s/n, 50670-901, Recife, PE, Brazil

²Universidade Federal de Pernambuco, Departamento de Farmácia, Laboratório de Pesquisas Toxicológicas, Av. Artur de Sá, s/n, 50740-520, Recife, PE, Brazil (alinesblue@yahoo.com.br, mcasousa@gmail.com)

³Universidade Federal do Rio Grande do Sul, Programa de Pós-graduação em Botânica, Av. Bento Gonçalves, 9500, 91501-970, Porto Alegre, RS, Brazil (cortezvg@yahoo.com.br)

*Author for correspondence: (fwartchow@yahoo.com.br)

(Some coprophilous *Psilocybe* (Strophariaceae) from Pernambuco State, Northeast Brazil) – Coprophilous species *Psilocybe argentina*, *P. pegleriana* and *P. cubensis* are reported for the first time for Northeast Brazil. The last one is a hallucinogenic mushroom. Descriptions, discussions and drawings of the species are provided.

Key words: Coprophilous fungi, Neotropics, Agaricales.

(Algumas espécies coprófilas de *Psilocybe* (Strophariaceae) do Estado de Pernambuco, Brasil) – As espécies coprófilas *Psilocybe argentina*, *P. pegleriana* e *P. cubensis* são referidas pela primeira vez para o Nordeste Brasileiro, sendo esta última uma espécie de cogumelo alucinógeno. Descrições, discussões e desenhos das espécies são fornecidos.

Palavras-chave: Fungos coprófilos, Neotrópicos, Agaricales.

INTRODUCTION

Recent studies reported several species of *Psilocybe* (Fr.) P. Kumm. from Brazil, such as GUZMÁN *et al.* (1984) and PEGLER (1997) from São Paulo, STIJE & DE MEIJER (1993) from Paraná, CORTEZ & COELHO (2004), GUZMÁN & CORTEZ (2004, 2005) and SILVA *et al.* (2006) from Rio Grande do Sul, among others. Such studies are almost restricted to south Brazilian specimens, and the genus has been rarely reported from Northeast Brazil. GUZMÁN (1983) described *P. singeriana* Guzmán based on specimens collected by Rolf Singer in Bahia; MAIA *et al.* (2002) in their list of exsiccate at URM reported only one unidentified species of *Psilocybe*. In this work we report three coprophilous *Psilocybe* species from Pernambuco, in order to provide additional data on the distribution of the genus in Brazil.

MATERIALS AND METHODS

Microscopic study was based on then section of the basidiomata mounted in 5% KOH and 1% Congo Red solutions (LARGENT *et al.*, 1986). For the identification of the species were used GUZMÁN (1983, 1995) and CORTEZ & COELHO (2004).

Specimens were deposited at URM (Herbarium of the Department of Mycology of the “Universidade federal de Pernambuco”).

RESULTS AND DISCUSSION

Psilocybe argentina, *P. pegleriana* and *P. cubensis* were identified, all of them growing on dung. A key for identification of these species is provided:

- 1a. Partial veil absent. Pileus dark brown, small..... **1. *P. argentina***
- 1b. Partial veil present on stipe. Pileus yellowish to ochraceous-brown, small to larger..... 2
 - 2a. Basidiomata usually large, ranging to 140 mm diam., bluing when compressed. Basidiospores 12.5–15.5 µm long..... **2. *P. cubensis***
 - 2b. Basidiomata usually small, up to 15 mm diam., no bluing when compressed. Basidiospores 8.5–12 µm long..... **3. *P. pegleriana***

1. *Psilocybe argentina* (Speg.) Singer, Beih. Nova Hedw. 29: 241. 1969.
Figs. 1-4.

Pileus 8-12 mm, hemispherical to nearly convex, brown to

dark brown, surface subviscid, glabrous, smooth, shortly sulcate at margin. Lamellae adnate, dark grayish brown, with a pale edge, membranous, sub distant, with lamellulae. Stipe 7-15×1-1.5 mm, central, cylindrical, concolorous with the pileus, smooth, glabrous. Context very thin, whitish,

unchanging. Basidiospores 12.5-14.5 (-15.5) × 7.5-10 (-12) μm, subhexagonal in frontal view, subellipsoid in side view, smooth, thick walled, with a broad germ pore, yellowish brown to almost brown in KOH. Basidia 25-30 × 11-12 μm, bearing four sterigmata. Pleurocystidia absent. Cheilocystidia 27.5-32 × 8-10 μm, lageniform with a long neck, thin-walled, hyaline. Pileipellis an ixocutis of prostrate hyphae. Hymenophoral trama regular. Clamp connections present.

Habitat: Dispersed on cow dung in pastures.

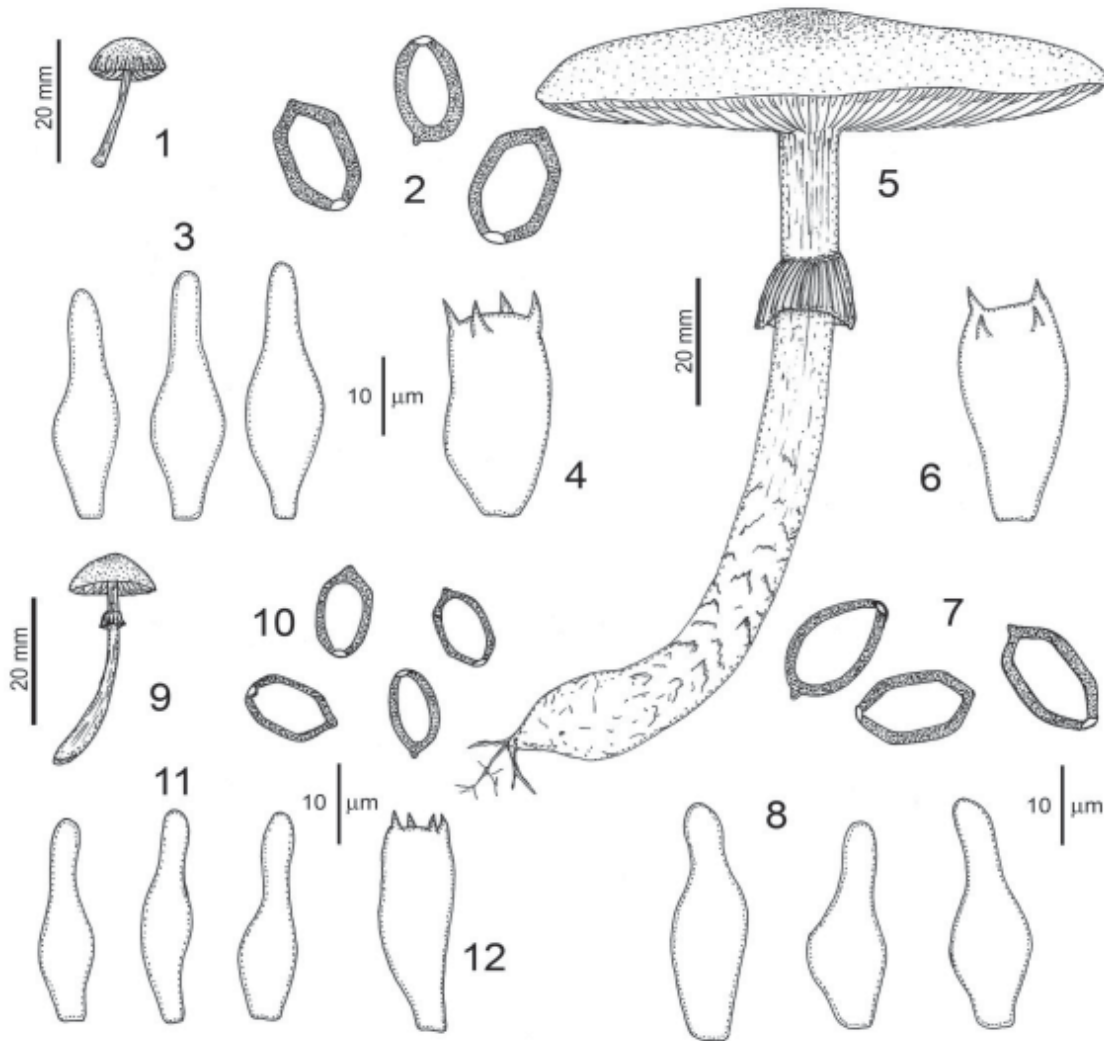
Remarks: This non-hallucinogenic species is closely related to *P. coprophila* (Bull.: Fr.) P. Kumm. According to GUZMÁN *et al.* (1977) and GUZMÁN (1983, 1995), it differs in the size of the spores (9-) 10-12 (-14) × 7-9.5 μm in that species, against 12.5-14.5 (-15.5) × 7.5-10 (-12) μm in *P. argentina*. Due to its geographical distribution, it seems that Pernambucan

mushroom is intermediary between both species, because *P. argentina* is typical of temperate regions and *P. coprophila* is most common in tropical regions (GUZMÁN, 1983). Reported only from Rio Grande do Sul (GUZMÁN, 1983), its occurrence is now extended to Northeastern Brazil.

Material examined: BRAZIL, Pernambuco: Carpina, Parque de Exposições Senador Paulo Guerra, 31.Jul.2005, *Carvalho s.n.* (URM 78753).

2. *Psilocybe cubensis* (Earle) Singer, *Sydowia* 2: 37. 1948. Figs. 5-8.

Pileus (17-)25-140 mm ovoid when young to finally convex to plane and umbonate in older basidiomata, brownish at center to ochraceous brown toward the margin, bluing when bruising, with small grayish scales; margin entire or only slightly striate. Lamellae adnate, sub crowded, with



Figs. 1-12. 1-4: *Psilocybe argentina*. 1. Basidioma. 2. Basidiospores. 3. Cheilocystidia. 4. Basidium; 5-8: *P. cubensis*. 5. Basidioma. 6. Basidium. 7. Basidiospores. 8. Cheilocystidia; 9-12: *P. pegleriana*. 9. Basidioma. 10. Basidiospores. 11. Cheilocystidia. 12. Basidium.

lamellulae, dark grayish brown with whitish edges. Stipe 32-100 × 7-25 mm, central, cylindrical or sub bulbous, cream colored changing to dark greenish blue when handling or bruising, glabrous, with bluish squamules below the annulus; rizomorphs present. Context thick (up to 10 mm), fleshy, quickly changing to blue when cut or bruising. Partial veil well-developed, membranous, white. Basidiospores 12-15.5 × 7-11 μm, subhexagonal in frontal view, subellipsoid in side view, smooth, thick walled with a broad germ pore, light brown. Basidia 27-32 × 11.5-13 μm, subclavate to narrowly ventricose, two or mostly four sterigmata. Pleurocystidia impossible to analyze. Lamella edge sterile, with crowded cheilocystidia. Cheilocystidia 23-29 × 7-9 μm, lageniform to mucronate or sub capitate, thin walled, hyaline and colorless. Pileipellis an ixocutis of radially organized hyphae, hyaline, moderately gelatinized. Hymenophoral trama regular. Clamp connections present.

Habitat: densely gregarious on cow dung in pastures.

Remarks: This is a bluing and hallucinogenic mushroom very common in all tropics and subtropics of the world (GUZMÁN, 1983, 1995). It is known from South and Southeastern Brazil (SINGER, 1953; STIJVE & DE MEIJER, 1993; PEGLER, 1997; CORTEZ & COELHO, 2004), but is now reported for Pernambuco State. The big, subhexagonal thick-walled spores 12-15.5 × 7-11 μm, and the annulus on the stipe are typical.

Material examined: BRAZIL, Pernambuco: Carpina, Parque de Exposições Senador Paulo Guerra, 06.Jul.2005, *Carvalho s.n.* (URM 78755).

3. *Psilocybe pegleriana* Guzmán, *Doc. Mycol.* 29: 43. 2000. Figs. 9-12.

Pileus 10-15 mm, hemispheric to almost convex, brown at centre turning ochraceous to the margin; surface dry, glabrous, hygrophanous, margin entire, non-striate.

Lamellae adnate to slightly subdecurrent, membranous, sub crowded, dark grayish brown with a distinct whitish margin. Stipe 33-65 × 2-3 mm, central, cylindrical, pale brownish and white at base, glabrous, slightly striate. Partial veil membranous, white and dark violaceous on the upper surface due the spore deposition, in the upper half of the stipe, near to pileus. Context thin, fleshy, pale brown unchanging. Basidiospores 8.5-12 × 6-8 μm, subhexagonal in frontal view, sub ellipsoid in side view, smooth, thick walled with a broad germ pore, dark brown. Basidia up to 32 × 8.5 μm, clavate, bearing four sterigmata. Pleurocystidia absent. Cheilocystidia 21-27 × 4.5-6 μm, mainly lageniform, hyaline, thin walled. Pileipellis an ixocutis of prostrate hyphae pale pigmented. Hymenophoral trama regular. Clamp connections present.

Habitat: gregarious on cow dung in pastures.

Remarks: This species was confused with the Asiatic mushroom *P. pseudobullacea* (Petch) Pegler (PEGLER, 1977; GUZMÁN, 1983) and also with *P. meridiana* (Fr.) Ricken (GUZMÁN *et al.*, 1977). However, the annulus and the lack of pleurocystidia separate *P. pegleriana* from that species, as discussed by GUZMÁN (2000). In spite of being recently described, *P. pegleriana* has been reported from several localities, as for example Ecuador, Mexico and Venezuela (GUZMÁN, 2000), India (THOMAS *et al.*, 2002), Argentina (MOYANO & DANIELE, 2003) and South Brazil (CORTEZ & COELHO, 2004).

Material examined: BRAZIL, Pernambuco: Carpina, Parque de Exposições Senador Paulo Guerra, 06.Jul.2005, *Carvalho s.n.* (URM 78754).

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