



SHORT COMMUNICATION

First record of the psychotropic mushroom *Copelandia cyanescens* (Agaricales) from Pernambuco State, Northeast Brazil

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ABSTRACT: (First record of the psychotropic mushroom *Copelandia cyanescens* (Agaricales) from Pernambuco State, Northeast Brazil). The pantropical species *Copelandia cyanescens*, a mushroom with psychotropic properties, is reported for the first time from the State of Pernambuco, Northeastern Brazil. Complete description, taxonomic and biogeographical discussions, and drawings of the morphological diagnostic structures are presented.

Key words: Basidiomycota, Agaricomycetes, neotropical fungi, taxonomy, psilocybin.

RESUMO: (Primeiro registro do cogumelo psicotrópico *Copelandia cyanescens* (Agaricales) para Pernambuco, nordeste brasileiro). A espécie pantropical *Copelandia cyanescens* (Agaricales), cogumelo com propriedades psicotrópicas, é referida pela primeira vez para o estado de Pernambuco, Nordeste Brasileiro. São apresentados uma descrição completa, uma discussão taxonômica e biogeográfica e desenhos das estruturas morfológicas diagnósticas.

Palavras-chave: Basidiomycota, Agaricomycetes, fungos neotropicais, taxonomia, psicolocibina.

INTRODUCTION

Recently, Wartchow *et al.* (2007) published three *Psilocybe* (Fr.) P. Kumm. growing on dung in Pernambuco State, Northeastern Brazil. Continuing to identify agarics on dung and other substrates, the lead author received two almost dried basidiomes of a bluing mushroom with some reminiscent of the original white color resembling *Panaeolus* (Fr.) Quél., however without fields notes. But after observing the occurrence of metuloids laterally spread on lamellae and over the pileipellis, they were assigned into the genus *Copelandia* Bres. (Singer 1986). This report expands the distribution of this species in Brazil.

MATERIAL AND METHODS

Microscopical study was based on hand sections of basidiomes mounted in 5% KOH according to the usual approach for the study of agarics. Macroscopic notes for description were obtained directly from the collected specimens. The annotation 'n' correspond the sample of basidiospores measured. Color names and codes follow Watling (1969). The specimens were deposited at URM Herbarium (Department of Mycology, Universidade Federal de Pernambuco).

RESULT AND DISCUSSION

Copelandia cyanescens (Berk. & Broome) Singer, *Lilloa* 22: 473, 1951 (Fig. 1).

≡ *Agaricus cyanescens* Berk. & Broome, *J. Linn. Soc. Bot.* 11: 557, 1871.

≡ *Panaeolus cyanescens* (Berk. & Broome) Sacc., *Syll. Fung.* 5: 1123, 1887.

Basidiomata small, bluing in all parts. Pileus 10-15 mm, probably hemispheric to almost convex, pure white (2B) in all surface before staining in blue; surface dry, glabrous, hygrophanous, margin entire, not striate. Lamellae apparently adnate, membranous, moderately crowded, dark grayish brown (near to Olivaceous black 37) with pale margin. Stipe up to 50 × 2-3 mm, central, cylindrical, uniformly white (2B), glabrous. Annulus absent. Context thin, fleshy, probably white in pre-staining condition.

Basidiospores 11-16 (-18) × 9-12.7 (-13.7) μm, average 13.8 × 10.4 μm (n=20) in frontal view, lemoniform in frontal view, ellipsoid in side view, smooth, thick-walled with a broad germ pore, dark brown with a slightly paler wall. Basidia up to 20-28 × 9-11.5 μm, clavate, with four sterigmata, up to 3 μm high. Pleurocystidia as abundant metuloids, 55-65 × 13-28 μm, fusiform to almost utriform, wall c. 1 μm, mostly pale yellowish brown, without incrustation. Cheilocystidia not observed, probably collapsed. Pileipellis as an epithelium of more or less isodiametric cells 16-35 × 15-30 μm, pale colored to almost hyaline, with scarce septa, and pileocystidioid bodies c. 55-65 × 15-20 μm, with similar pigment to those of hymenial cystidia. Hymenophoral trama regular, with hyphae ranging 3-8 μm wide. Clamp-connections present.

Habitat: coprophilous on cow dung in man-made pastures.

Material examined: BRAZIL. PERNAMBUCO: **Carpina**, Parque de Exposições Senador Paulo Guerra,

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Remarks: This material agrees in all aspects with the description of *Copelandia cyanescens* given by Singer (1960) and Pegler (1983, 1986). Ola'h (1969) considered *Copelandia cyanescens* as belonging to "psilocybean" group of the genus *Panaeolus*, whereas Singer *et al.* (1958) and Singer (1960) only suspected its hallucinogenic properties. However, only recently Stijve (1992) confirms under biochemical assays that *C. cyanescens* has several psychotropic compounds.

According to Guzmán (pers. com.), *C. cyanescens*, also known as its synonym *Panaeolus cyanescens*, is a fimicolous common mushroom in all the tropics around the world also reaching the European Continent. Even producing psilocybin, its use has not been directly reported in religious ceremonies of human traditional groups, but is popularly treated as a magic mushroom (Wurst *et al.* 2002).

Growing on tropical and neotropical areas in both hemispheres, *C. cyanescens* is reported from Sri Lanka (Pegler 1986), Thailand, Australia, (Stijve 1992), Phillipines, and France (Stamets 1996), and is also reported in the Americas from USA, Mexico to Bolivia frontier with Brazil, (Singer 1960), Trinidad and Venezuela (Dennis 1961), and Colombia (Pulido 1983, Franco-Molano & Uribe-Calle 2000).

This psychoactive mushroom was referred from Brazil by Guzmán *et al.* (2000), but the state is not referred by them. Apparently the distribution of this taxon in Brazil is not very clear, but obviously it is occasionally referred from this country. More recently, it was recorded to the State of Paraná, Southern Brazil (de Meijer, 2006), and now it is recorded for the first time from Pernambuco State, Northeastern Brazil.

Fungal database (<http://www.mycobank.org> and <http://www.indexfungorum.org>) consider *Copelandia* as synonym of *Panaeolus*. Phylogenetic studies of psychoactive mushrooms by Muruyama *et al.* (2006) clustered the material under the epipeth "cyanescens" in the genus *Panaeolus*, but no voucher number were provided for "*P. cyanescens*." The authors prefer maintain *Copelandia* as the generic name for the epipeth

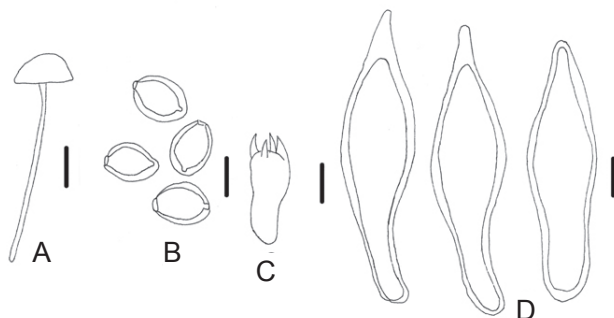


Figure 1. *Copelandia cyanescens*. A. Basidiome. B. Basidiospores. C. Basidium. D. Pleurocystidia. Scale bar is 10 µm for microstructures and 10 mm for basidioma.

"*cyanescens*" until more detailed studies in this group are performed.

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