



## A new species of *Gloeocantharellus* from the Atlantic Forest of Paraíba, Brazil

Wartchow F<sup>1\*</sup>, Sá MCA<sup>2</sup> and Coimbra VRM<sup>3</sup>

<sup>1</sup> Universidade Federal do Rio Grande do Norte, Programa de Pós-Graduação em Sistemática e Evolução, Campus Universitário, Lagoa Nova, CEP 59072-970 Natal, RN, BRAZIL.

<sup>2</sup> Universidade Federal da Paraíba, Departamento de Sistemática e Ecologia/CCEN, CEP: 58051-970, João Pessoa, PB, BRAZIL.

<sup>3</sup> Universidade Federal de Pernambuco, Programa de Pós-Graduação em Biologia de Fungos, Av. Prof. Nelson Chaves, s/nº, CEP: 50670-901, Recife, PE, BRAZIL

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### Abstract

A new species of *Gloeocantharellus* described as new from Brazil: *G. substramineus*. This species is characterized by the small pale basidiomes, dry pileus, distinctly wrinkled hymenium, basidiospores size, clamp connections at basidia and basidioles, and narrow-hyphoid hymenial cystidia among basidia. Descriptions, discussion, drawings and photography of the basidiomes are providing.

**Key words** – Agaricomycetes – Gomphales – Neotropic – taxonomy

### Introduction

*Gloeocantharellus* Singer is a cantharelloid genus with yellow to pale yellow brown ornamented basidiospores and is placed in the order Gomphales (Giachini et al. 2010), although the placement of this order is confused (Zhao et al. 2017). It is an uncommon genus, for which only 12 taxa are currently known, mostly from the southern hemisphere (Giachini & Castellano 2011, Linhares et al. 2016). *Gloeocantharellus corneri* (Singer) Corner and *G. aculeatus* Linhares, Daniëls & M.A. Neves are the only known species from Brazil (Corner 1969, de Meijer 2006, Linhares et al. 2016). Recent field trips in a protected area in northeast Brazil revealed interesting undescribed taxon that is protologued in this work, increasing the number of species in this country from two to three.

### Materials & Methods

*Gloeocantharellus substramineus* was collected at the “Floresta Nacional da Restinga de Cabedelo”, an Atlantic Forest protected area comprising about 100 ha, located in municipality of Cabedelo, State of Paraíba, Brazil. The area comprises a ‘restinga’ forest, with 160 species of angiosperms belonging to 61 families, of which the most diverse are Myrtaceae, Leguminosae (all subfamilies), Rubiaceae, Poaceae and Euphorbiaceae (Pontes & Barbosa 2008).

Microscopic observations were made from material mounted in 3% KOH, Congo red solution and Melzer’s reagent. Color codes follow ‘OAC’ (Online Auction Color 2004).

Presentation of basidiospore data follows the slightly modified methodology proposed by Tulloss et al. (1992). Measurements and statistics based on 30 spores. Abbreviations include L(W) = average basidiospore length (width), Q = the length : width ratio range as determined from all measured basidiospores, and Q<sub>m</sub> = the Q value averaged from all basidiospores measured. The holotype is deposit at JPB (Thiers, continuously updated).

## Results

*Gloeocantharellus substramineus* Wartchow, sp. nov.

Figs 1–4

Mycobank number: MB 822426; Facesoffungi number: FoF3723

Etymology – *sub* (Lat. = bellow, almost) and *stramineous* (Lat. = transparent), for very pale colored and almost transparent, the predominant color of the basidiomes.

Basidiomes small in size, subgregarious. PILEUS 19–34 mm, depressed in young specimens then turning more funnel-shape in older, sometimes with two pilei; pale cream (OAC 909) with whitish, very small white appressed fibrils (only seen in 10x lens) over surface; surface somewhat dry; margin entire, straight to slightly wave in old specimens; context very thin, to 1 mm thick. HYMENOPHORE radially wrinkled to radially venose folds, sometimes anastomosing, decurrently, concolorous to pileus, unchanging; edge obtuse/truncated, smooth. STIPE 18–24 × 5–6 mm (measured at apex) and 2–3 (measured at base), gradually tapering toward base, conic inverted; cream (OAC 857), smooth, glabrous; context very thin, solid.

BASIDIOSPORES (8.5–) 9–11.5 (–12.5) × 4–5 (–5.3) μm, (L = 9.9 μm; W = 4.3 μm; Q = (1.89)2.00–2.78(–2.88); Q<sub>m</sub> = 2.34), inamyloid, pale olivaceous in KOH 3%, pip-shape, verrucose/rugose, thin walled, adaxial surface slightly concave near hilar appendix; hilar appendix prominent, subapical; frequently with one large guttule. BASIDIA 40–60 × 7–9 μm (measured at apex), mostly 4-sterigmate up to 1.5–3.5 μm long, thin walled, hyaline, clamps present. BASIDIOLES clavate. CYSTIDIA 33–36 × 3.5–5 μm, hyphoid to very slender clavate with obtuse to broadly subacute apex, colorless, thin walled intermingled among basidia and basidioles. HYMENOPHORAL TRAMA irregular, with interwoven orientation; gloeoplerous hyphae infrequent, flexuous, with yellowish refractive content in KOH, thin-walled. PILEUS TRAMA with filamentous hyphae and occasional gloeoplerous hyphae with amorphous content very pale yellow. PILEIPELLIS cutiform with hyphae 3–6 μm in diam., periclinal and frequently slightly interwoven colorless, thin walled. STIPITPELLIS without caulocystidia; gloeoplerous hyphae frequent in the layer bellow pellis, longitudinally oriented. CLAMP CONNECTIONS present on almost all septa, but small and subinconspicuous.

Habitat – subgregarious on sandy soil in arborous ‘restinga’ forest.

Known distribution – Known from the type locality.

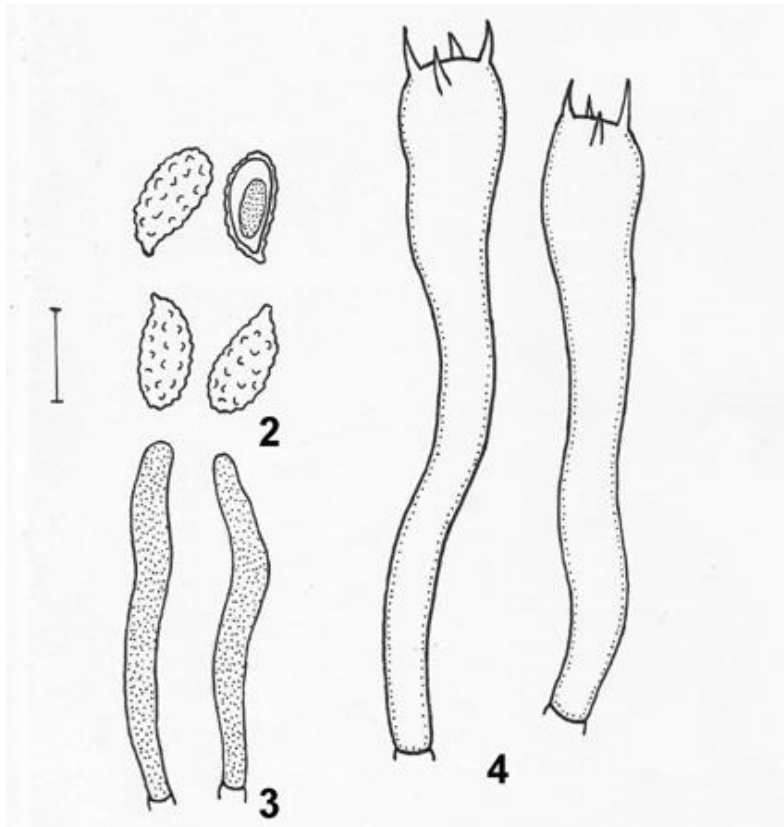
Material examined – Brazil, Paraíba, Cabedelo, Floresta Nacional Restinga de Cabedelo, 14 June 2012, F.G.B. Pinheiro & F. Wartchow FGBP46 (JPB 60533, holotype!).

Notes – *Gloeocantharellus substramineus* is characterized by the small pale basidiomes, dry pileus, distinctly wrinkled hymenium, basidiospores size, clamp connections at basidia and basidioles and narrow-hyphoid hymenial cystidia among basidia.

Giachini (2004) keyed 10 taxa of *Gloeocantharellus* using the features related to viscosity of pileus, presence of cystidia and clamp connections as important features for species separation. Among them, only *G. papuanus* Giachini, Bougher, Castellano & Trappe nom. prov. shares with our new species in the pale basidiomes and narrow hyphoid and rounded-obtuse 5–7.5 μm wide cystidia that are disperse among basidia. However, several features can help in separate it from our new species: (1) the sometimes meristematoid habit with fan-shaped pileus, (2) creamy yellow color, (3) the longer stipe to 50 × 15 mm, (4) the longer cystidia 70–90 × 5–7.5 μm and (5) larger basidiospores 12–15 (–16) × 5–5.5 (–6.5) μm.



**Fig. 1** – *G. substramineus* (Holotype). Basidiomes. – Bars = 10 mm.



**Figs 2–4** – *G. substramineus* (Holotype). 2 Basidiospores. 3 Hymenial cystidia. 4 Basidia. – Bar = 10  $\mu$ m.

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