

Diversidade, Espécies Ameaçadas e Sustentabilidade

Hohenbuehelia
(*Pleurotaceae*) in western
Paraná, Brazil

Hohenbuehelia
(*Pleurotaceae*) no oeste do
Paraná, Brasil

ALEXANDRE G. S. SILVA-FILHO¹

VAGNER G. CORTEZ²

The genus *Hohenbuehelia* Schulzer is characterized by the pileus sessile, subsessile or with a lateral pseudostipe, rarely with a central stipe, gelatinized context, hyphae monomitic with clamp-connections, thick-walled metuloids, cheilocystidia of several shapes, especially fusiform with capitate apex (THORN & BARRON, 1986; CORNER, 1994). *Hohenbuehelia* comprises about 50 species widespread in the world (KIRK *et al.*, 2008), but 180 names are recorded in Index Fungorum database (<www.indexfungorum.org>), including synonyms related to pleurotoid genera *Resupinatus* Nees and *Tectella* Earle. Based on recent molecular phylogenetic research, *Hohenbuehelia* — previously classified in Tricholomataceae R. Heim or Polyporaceae Fr.—, was confirmed in Pleurotaceae Kühner (THORN *et al.*, 2000).

The asexual stage, *Nematoctonus* Drechsler, has been used for the biological control of plant-parasitic nematodes (THORN & BARRON, 1986). Some species are considered edible, but of little culinary value, especially due to reduced size of basidiomata, although some larger species as *H. petaloides* (Bull.) Schulzer are reported to be consumed (GÁNDARA & CRUZ, 2005).

¹ Universidade Federal do Paraná, Programa de Pós-graduação em Botânica, Caixa Postal 19031, Curitiba, PR, Brasil — CEP 81531-9801. Email: silvafilhoags@gmail.com. ² Universidade Federal do Paraná, Departamento de Biodiversidade, Rua Pioneiro 2153, Jardim Dallas, CEP 85950-000, Palotina, PR, Brasil.

The genus has received little attention in Brazil, where 20 species are currently known, including nine species and one variety described after collections from Amazon and Atlantic Forest (SINGER 1989; CORNER 1994; PUTZKE, 1994; DE MEIJER, 2006). In Paraná State, DE MEIJER (2006; 2008) reported four species: three of uncertain identification and a new one, *H. silvae-araucariae* de Meijer. All these reported species from Paraná are from Dense and Mixed Ombrophilous Forest, except for *Hohenbuehelia cf. portegna* (Speg.) Singer, also recorded from Seasonal Semideciduous Forests of the State.

In this paper we report five *Hohenbuehelia* species from Seasonal Semideciduous Forest, western region of Paraná State, as part of ongoing survey of the *Agaricales* that occurs in this ecosystem (SILVA-FILHO *et al.* 2016).

MATERIAL AND METHODS

Specimens were collected from January to December 2015 in two localities: São Camilo State Park, (24°18'00"–24°19'30"S), municipality of Palotina; and RPPN Fazenda Açú (24°11'15.86"S–53°58'2.10"W), municipality of Terra Roxa. Both areas are fragments of Seasonal Semideciduous Forest, a typical vegetation at the Atlantic Forest Biome in western region of Paraná State (KOZERA & PELUCI, 2015).

Morphological analysis (both macro- and microscopical) followed standard procedures for agaricoid fungi (SINGER, 1986). Color names and codes used in the macroscopical descriptions are based on KORNERUP & WANSCHER (1978); microscopic colors are based on potassium hydroxide (3-5 % KOH) mounts, except when indicated. In the basidiospores description, Q is the quotient between the length and width, Q_m is the mean value of Q, and n is the number of measured basidiospores/analyzed basidiomata/collections. Microscopic photographs were made under an Olympus CX31 microscope with a Touptek FMA050 digital camera, and measurements were taken through software Touptek Touptek View. All specimens were housed at the Herbarium of Universidade Federal do Paraná, Campus Palotina (HCP).

TAXONOMY

Hohenbuehelia angustata (Berk.)

Lilloa 22: 255 (1951)

(Fig. 1A-H)

Pileus 19 mm diam., dimidate to flabeliform, plane, surface smooth, margin slightly striate, lobed, eroded, greyish green (1C4) to greyish yellow (1B4), margin pale yellow (1A3) to yellowish white (1A2). Lamellae

decurrent, crowded, with 3–4 sized lamellulae, margin serrate, concolor with sides, white (1A1), yellowish white (1A2). Context thin (<1.5 mm), pale grey (1B1). Stipe 4.5 mm diam., lateral, compressed, smooth, inserted, greyish yellow (1B4) to yellowish white (1A2).

Basidiospores $3.5\text{--}5 \times 2.5\text{--}3.5 \mu\text{m}$, $Q=1.29\text{--}1.92$, $Q_m=1.52$ $n=25/1/1$, subglobose to subellipsoid, smooth, thin-walled, guttulate, hyaline, inamyloid. Basidia $14\text{--}15.5 \times 3.5\text{--}4.5 \mu\text{m}$, narrow-clavate to clavate, with four and two sterigmata, hyaline. Cheilocystidia $15\text{--}29 \times 2\text{--}7.5 \mu\text{m}$, lecythiform, clavate, ventricose-capitulate, flexuous, thin-walled, fusiform, filiform, capitulum globose, oblong strangulate, with or without an apical mucron, hyaline. Metuloids $18\text{--}60 \times 7\text{--}17 \mu\text{m}$, clavate, fusiform, ventricose-fusiform, lanceolate, non-abundant, with apical incrustations, some few incrustated, hyaline, occurring on both sides and edge of the gills, but a little smaller at the edge. Pileipellis a gelatinized cutis of interwoven hyphae, 1.5–6 μm in wide, smooth and incrustated, thin-walled, hyaline. Pileocystidia of two types: I) leptocystidia, $8\text{--}19 \times 1.5\text{--}6.5 \mu\text{m}$, filiform, ventricose-filiform, some capitulate and with an apical mucron, scattered, thin-walled, hyaline; II) metuloids, $29.5\text{--}79.5 \times 5\text{--}9.5 \mu\text{m}$, clavate to fusoid, inserted into the gelatinous layer, thick-walled (1.5–2 μm thickness), scattered, some slightly incrustated at the apex, hyaline (Fig 1G). Pileus trama two layered: I) upper gelatinous layer, 97–137 μm thick, with horizontally arranged, smooth, hyaline and slightly incrustated hyphae, 3–5.5 μm in wide; II) non-gelatinized layer, 29–50 μm thick, with interwoven hyphae, 2–4 μm in wide, smooth, hyaline. Lamellar trama subregular, non-gelatinized, thin-walled, with hyphae 1.5–3.5 μm wide, smooth, hyaline. Clamp-connections present.

EXAMINED SPECIMENS — BRAZIL: Paraná. Palotina, São Camilo State Park, 04/V/2015, A.G.S. Silva-Filho 352 (HCP 1140).

HABITAT AND DISTRIBUTION — Solitary on decaying wood, in the forest. Known from North (COKER, 1944; THORN & BARRON, 1986), Central (GÁNDARA & CRUZ, 2005) and South America (SINGER & DIGILIO, 1951). In Brazil, this species is recorded from Atlantic Forest of Rio Grande do Sul and Paraná States (PUTZKE & CAVALCANTI, 1995; DE MEIJER 2006), and Amazonia Forest (CORNER, 1994). In Paraná State, DE MEIJER (2006) recorded this species only in Ombrophilous Mixed Forest, with *Araucaria angustifolia* (Bertol.) Kuntze.

DISCUSSION — Our collected specimens exhibited the main morphological features described by SINGER & DIGILIO (1951), THORN & BARRON, (1986), CORNER (1994) and GÁNDARA & CRUZ (2005), and were identified based on the presence of a spatulate basidiomata, glabrous pale yellow pileus, crowded lamellae, subglobose to subellipsoid basidiospores and scarce pileocystidia.

Hohenbuehelia testudo (Berk.) Pegler is a close species, whose limits with *H. angustata* are somewhat uncertain, as discussed by THORN & BARRON (1986). However, the pileus color, basidiospores size, and the metuloid pigment are features used to segregate these two species (PUTZKE & CAVALCANTI, 1995).

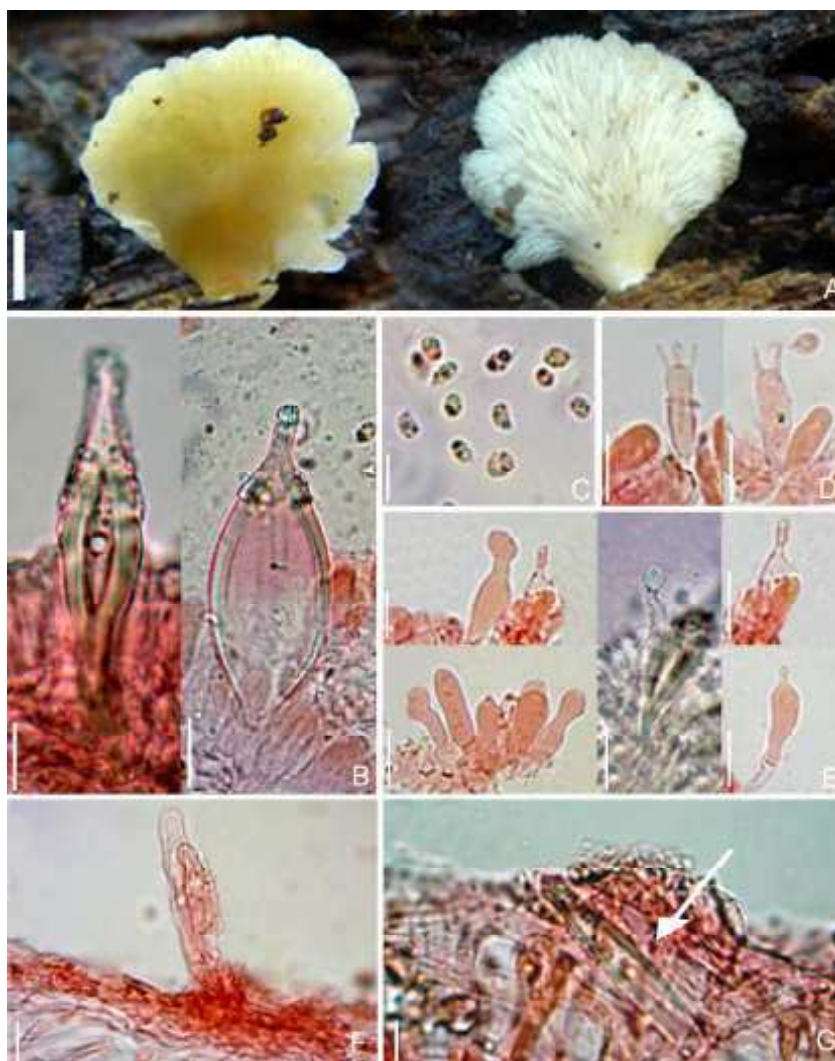


Fig. 1. *Hohenbuehelia angustata*: A, Basidiomata. B, Metuloid. C, Basidiospores. D, Basidia. E, Cheilocystidia. F, Pileipellis with thin-walled pileocystidia. G, Pileipellis with thick-walled pileocystidia. Scale bar: A = 5 mm. B-G = 10 μ m. All from A.G.S. Silva-Filho 352.

Hohenbuehelia bullulifera Singer

Lilloa 25: 119 (1951)

(Fig. 2A-H)

Pileus 4–20 mm diam., dimidiate to orbicular, conchate, surface smooth, dark grey (1F1), greyish brown (6F3), margin translucent striate, dark brown (6F4). Lamellae crowded, margin even, concolor with the sides, greyish brown (6F3) to dark brown (6F4). Context thin (<1 mm), concolor with the pileus. Pseudostipe 1–1.5 mm, compressed, smooth, inserted, without mycelial pad at insertion, concolor with pileus.

Basidiospores $5-7 \times 2.5-4 \mu\text{m}$, $Q= 1.45-2.03$, $Q_m= 1.81$, $n=50/2/2$, subellipsoid to ellipsoid, smooth, thin-walled containing 1 to 2 oil drops, hyaline, inamyloid. Basidia $15-16 \times 5.5-6 \mu\text{m}$, narrow clavate to clavate, tetrasporic, hyaline. Cheilocystidia $12-19.5 \times 7.5-11.5 \mu\text{m}$, clavate, broadly clavate, vesiculose-pedicellate, thin-walled, hyaline, some with crystal incrustation. Metuloids $23.5-62 \times 9.5-14.5 \mu\text{m}$, lanceolate, ventricose-fusiform, non-abundant, strongly incrustated with hyaline crystals at the apex, brown wall, $2.5-5 \mu\text{m}$ in wide, on both edges and sides of gill, a little smaller at the lamella edge, brownish. Pileipellis a thin cutis of interwoven, smooth to slightly incrustated, thin-walled hyphae, $3-7 \mu\text{m}$ in wide, light brown. Pileocystidia as leptocystidia of two types: I) cylindrical, cylindrical rostrate, pyriform, clavate, $11-20.5 \times 10-16 \mu\text{m}$, some with crystalline incrustations, hyaline; II) $13-77 \times 3-9 \mu\text{m}$ sphaeropendiculate, fusiform, fusiform with bifurcate apex, strangulated, some with irregular projections at the apex, some with crystal incrustation, hyaline and light brown. Pileus trama a gelatinous layer, $304-330 \mu\text{m}$ thick, composed of interwoven hyphae, $1.5-3 \mu\text{m}$ in wide, horizontally arranged, smooth and slightly incrustated mixed, thin-walled, hyaline. Lamellar trama irregular gelatinized, with hyphae $1.5-3.5 \mu\text{m}$ in wide, thin-walled, smooth, hyaline. Clamp-connections present.

EXAMINED SPECIMENS — BRAZIL: Paraná. Palotina, São Camilo State Park, 30/IX/2010, A. J. Ferreira & R. L. Dias 8-4 (HCP 364), 8-8 (HCP)A.G.S. Silva-Filho 528 (HCP 366), 01/VII/2015, A. G. S. Silva-Filho 528 (HCP 1259). Terra Roxa, RPPN Fazenda Açu, 14/X/2015, A.G.S. Silva-Filho 623 (HCP 1260).

HABITAT AND DISTRIBUTION — Solitary, on rotting wood, in the forest. Known from Argentina and Brazil (SINGER & DIGILIO, 1951). In Brazil, known only from Rio Grande do Sul State (PUTZKE & CAVALCANTI, 1995) and from Mixed Ombrophilous Forest of Paraná (DE MEIJER 2006).

DISCUSSION — *Hohenbuehelia bullulifera* belongs in sect. *Nigricans*, which includes species with black lamellae (FAZIO & ALBERTÓ, 2001). The size of basidiospores, size and shape of the cheilocystidia, and the presence of pileoleptocystidia (without thick-walls), were recognized by SINGER &

DIGLIO (1951) as diagnostic features of the species. Our samples exhibited cylindrical to vesiculose-pedicellate pileocystidia. We also noted pileocystidia sphaeropendiculate, fusiform, strangulated with crystal incrustation. The latter feature can be related with the developmental stage of the basidiomata; it is possible that younger specimens present



Fig. 2. *Hohenbuehelia bullulifera*: A-B, Basidiomata. C, Basidiospores. D, Metuloid. E, Cheilocystidia. F-G, Pileipellis. H, Pileocystidia. Scale bar. A-B, 5 mm. C-H, 10 μ m. All from A.G.S. Silva-Filho 528.

sphaeropendiculate, fusiform, strangulated pileocystidia which become cylindrical and sparse in the mature specimens.

Hohenbuehelia subbarbata (Berk. & M.A. Curtis) Singer, from Cuba, is a similar species, however is reported a white pruina on pseudostipe surface and the pileipellis does not have sphaeropendiculate, fusiform, strangulated pileocystidia (ALBERTÓ *et al.*, 1998). Moreover, the cheilocystidia in *H. subbarbata* are exclusively metuloidal.

Hohenbuehelia singeri Albertó & Fazio, from Argentina has smaller basidiomata (<5 mm diam.) with a pruinose pseudostipe, the basidiospores are smaller (4–5 × 3–3.5 µm), the pileipellis is composed a cutis of thin-walled and thick-walled hyphae without pileocystidia, and the metuloids are thin-walled with apical incrustation (ALBERTÓ *et al.*, 1998).

Hohenbuehelia mastrucata (Fr.) Singer

Lilloa 22: 255 (1951)

(Fig.3A I)

Pileus 2–20 mm diam., spatulate, flabelliform, dimidiate, conchate, surface punctate-squamulose, margin non striate, enrolled in young basidiomata, lobed when mature, greyish brown (6D4), brownish grey (6C2, 6E2, 6F2), greyish grey (1D2, 1E2), olive brown (4E4–4E3) when young, light brown (6D4) with margin white (1A1) only when mature. Lamellae subdistant, margin smooth to slightly serrate, concolor with the side, white (1A1) to pale grey (1B1). Context thin (1mm) brown (5F7) to greenish grey (1C2). Pseudostipe 2 mm diam., compressed, surface smooth, concolor with the pileus, white mycelial pad at insertion.

Basidiospores 7.5–9 × 3.5–5.5 µm Q= 1.37–2.16, Qm= 1.74, n= 40/3/3, subellipsoid to ellipsoid, thin-walled, some with an oil drop, hyaline, inamyloid. Basidia 17.5–32 × 5.5–9 µm, narrow-clavate to clavate, with four and two sterigmata, hyaline, some with bright content. Cheilocystidia 19–31 × 3.5–10.5 µm, lecythiform, broadly-clavate, capitate, rostrate, 1–2 rostri, capitulum globose, obpyriform with ring constriction, some with branched apex, hyaline. Metuloids 23.5–95 × 9.5–23.5 µm, ventricose-rostrate, ventricose-fusoid, abundant, incrustated with hyaline crystal at the apex, hyaline, wall 2–5 µm in wide, on both edge and side, smaller at the edge, hyaline. Pileipellis a cutis of subparallel hyphae, 4–12 µm in wide thin-walled, smooth and with brown and hyaline incrustation, at some points forming a pyramidal gelatinous cutis of anticlinal hyphae. Pileocystidia 11–20 × 6.5–11.5 µm, clavate, fusoid, some septate, rare capitate with mucron, thin-walled, hyaline and some with brown content. Pileus trama one gelatinous layer, 308–580 µm thick, composed of interwoven hyphae, 1.9–4.4 µm wide, slight to strongly incrustation, thin-walled, hyaline. Lamella trama irregular, with hyphae 4.5–8 µm in wide

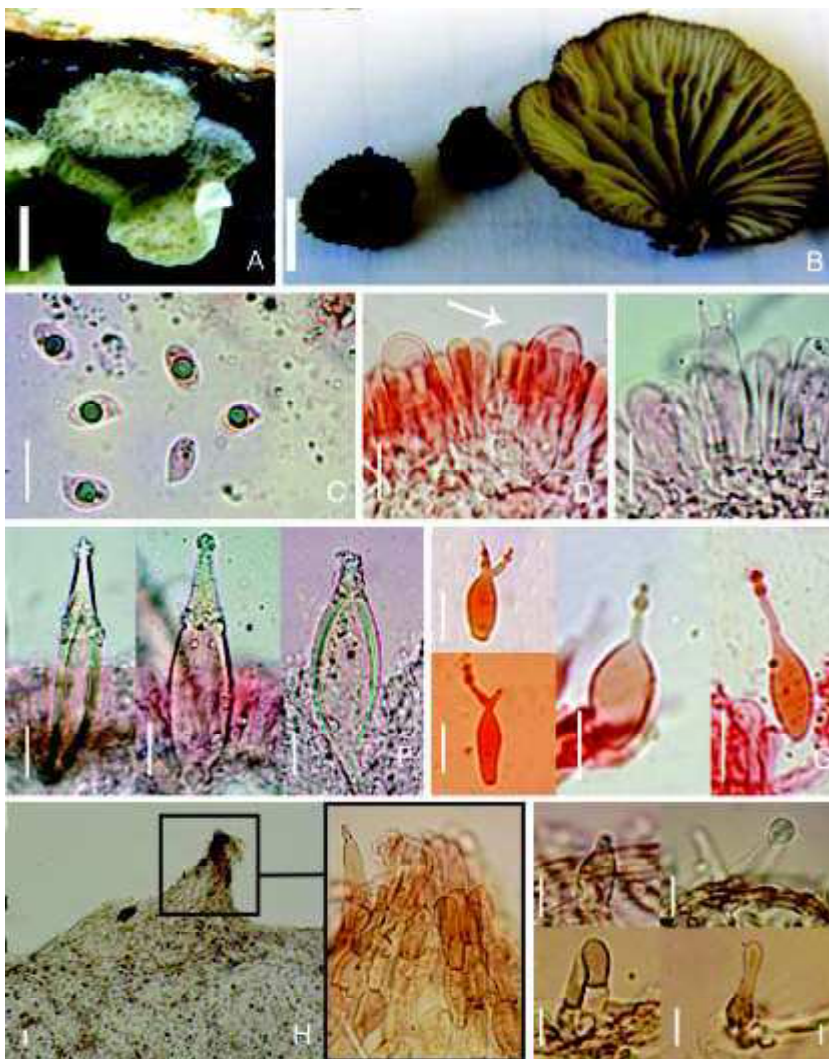


Fig. 3. *Hohenbuehelia mastrucata*: A-B, Basidiomata, C, Basidiospores, D, Hymenium with thin-walled pleurocystidia, E, Basidium. F, Metuloid. G, Cheilocystidia. H, Pileipellis and context hyphae, showing semi-erect hyphae with clavate terminal elements. I, Pileocystidia. Scale bar: A-B, 5 mm, C-I 10 μ m. All from A.G.S. *Silva-Filho* 614.

non-gelatinized, thin-walled, smooth, hyaline, some with refringent content. Clamp-connection present in all tissue.

EXAMINED SPECIMENS — BRAZIL: Paraná. Palotina, São Camilo State Park, 19/I/2015, A.G.S. *Silva-Filho* 110 (HCP 1005); 02/III/2015, A.G.S.

Silva-Filho 166 (HCP 1007); 16/III/2015, A.G.S. Silva-Filho 201 (HCP 1004); 20/V/2015, A.G.S. Silva-Filho 436 (HCP 1006). Terra Roxa, RPPN Fazenda Açú, 14/X/2015, A.G.S. Silva-Filho 613 (HCP 1002) and 614 (HCP 1003).

HABITAT AND DISTRIBUTION — Solitary on rotten wood, in the forest. Known from Japan (MURATA, 1978), North (THORN & BARRON, 1986) and South America (SINGER & DIGILIO 1951). In Brazil, known from the Atlantic Forest of Rio Grande Sul (PUTZKE & CAVALCANTI, 1995) and now we recorded from the first time from Paraná State.

DISCUSSION — *Hohenbuehelia mastrucata* is a widespread species with some variation in morphological features as reported in the literature; we identified our samples in the sense of THORN & BARRON (1986). The punctate-squamulose pileus surface with brownish-grey to brownish-olive color (Fig. 3A-B), subellipsoid to ellipsoid basidiospores (Fig. 3C), ventricose-rostrate to ventricose-fusoid metuloids (Fig. 3F), presence of capitate pileocystidia with apical mucron (Fig. 3I) were features considered for identification of this species. However our specimens were slightly smaller (2-20 mm) than those reported by THORN & BARRON (1986, 15-55 mm), SINGER & DIGILIO (1951, up to 60 mm) and COKER (1944, up to 105 mm). Also the cheilocystidia (Fig 3G) are wider (9.5–23.5 μ m) if compared to description by THORN & BARRON (1986, 4.5–7 μ m in wide). These differences may be related with climatic, developmental stages or substrate differences and future molecular studies comparing sample collections from North and South America are needed to better understand such morphological variations.

Hohenbuehelia paraguayensis (Speg.) Singer

Lilloa 25: 467 (1952)

(Fig. 4AF)

Pileus 4–31 mm diam., dimidiate to flabeliform, conchate, convex, slightly umbonate, surface smooth near the insertion, hirsute to pubescent towards the margin, sometimes scrobiculate, slightly velutinous at the margin, margin striate, slightly lobed, involuted, brownish grey (5C2–5D2), greyish brown (6E3), brown (6E5) to light brown (5D4), margin discolor white (1A1). Lamellae crowded to subdistant with 2-4 sized lamellulae, margin even to serrate, concolor with the sides, white (1A1). Context thin (1.5-3mm), white (1A1). Stipe absent with mycelial pad and white rhizomorphs at insertion.

Basidiospores 5.5–9.5 \times 3.5–5.5 μ m, Q= 1.44–2.45, Qm= 1.78, n= 65/3/3, subellipsoid to ellipsoid, smooth, guttulate, thin-walled, hyaline inamyloid. Basidia 19–24 \times 4.5–6 μ m, clavate, with four and two

sterigmata, hyaline, some with bright elements. Cheilocystidia $17\text{--}31 \times 2.5\text{--}10.5 \mu\text{m}$, lecythiform, rostrate, capitate, with 1–2 rostri, capitulum globose, obpyriform, oblong with ring constriction, hyaline. Metuloids $41\text{--}109 \times 10\text{--}25 \mu\text{m}$, fusoid-ventricose, ventricose-rostrate, lanceolate, numerous, incrustated with crystal at the apex, hyaline wall, $1.5\text{--}4.5 \mu\text{m}$ thick, hyaline, present on both edge and side, a little smaller at the edge. Pileipellis a cutis of interwoven hyphae, $2\text{--}14.5 \mu\text{m}$ wide, smooth and incrustated, thin-walled, some with crystal incrustation, hyaline, in some parts forming semi-erect hyphae with clavate, broadly-clavate, clavate-papillate and fusoid terminal elements, $15.5\text{--}36.5 \times 4.5\text{--}12 \mu\text{m}$, thin-walled, hyaline. Pileocystidia absent. Pileus trama composed for interwoven gelatinous layer, $83\text{--}150 \mu\text{m}$ thick, with hyphae $1.5\text{--}5 \mu\text{m}$ in wide, smooth and slightly incrustated, hyaline, some with refringent content. Lamellar trama subregular, non-gelatinized, with inflated hyphae $3.5\text{--}23 \mu\text{m}$ in wide, thin-walled, smooth hyaline. Rhizomorphs with subregular hyphae, $2\text{--}6.5 \mu\text{m}$ in wide, slightly incrustated, with refringent content. Clamp-connection not observed.

EXAMINED SPECIMENS — BRAZIL: Paraná. Palotina, São Camilo State Park, 2/III/2015, A.G.S. Silva Filho 165 (HCP 1009); 13/IV/2015, A.G.S. Silva-Filho 256 (HCP 1008); 27/VII/2015, A.G.S. Silva-Filho 581 (HCP 1010).

HABITAT AND DISTRIBUTION — Solitary on decaying wood, in the forest. Known from USA (SINGER & DIGILIO, 1951), México (GÁNDARA & CRUZ, 2005), Argentina and Paraguay (SINGER, 1951). In Brazil the species is known from Atlantic Forest of Rio Grande do Sul (PUTZKE & CAVALCANTI, 1995) and Paraná (DE MEIJER 2006) States. In Paraná, DE MEIJER (2006) reported it from Ombrophilous Mixed Forest.

DISCUSSION — The small basidiomata with surface smooth to slightly squarrose, striate margin, brown to light brown color with discolor margin (Figs. 4A–B) are features that help a field identification of this species. Microscopically, the oblong to cylindrical basidiospores (Fig 4C), the size of metuloids (Fig 4E) and cheilocystidia (Fig 4D) are diagnostic features of the species (SINGER, 1951). Our specimens agree with descriptions of SINGER & DIGILIO (1951) and GÁNDARA & CRUZ (2005). We noted the presence of rhizomorphs only in one sample collection.

Our specimens of *Hohenbuehelia paraguayensis* and *H. mastrucata* are microscopically similar. Both have basidiospores, metuloids and cheilocystidia with similar format and size, but the pileipellis in *H. paraguayensis* is a cutis with crystal-incrustated hyphae, without pileocystidia, forming scattered points with semi-erect hyphae, while *H. mastrucata* does not has crystal incrustation at cutis' hyphae, possesses

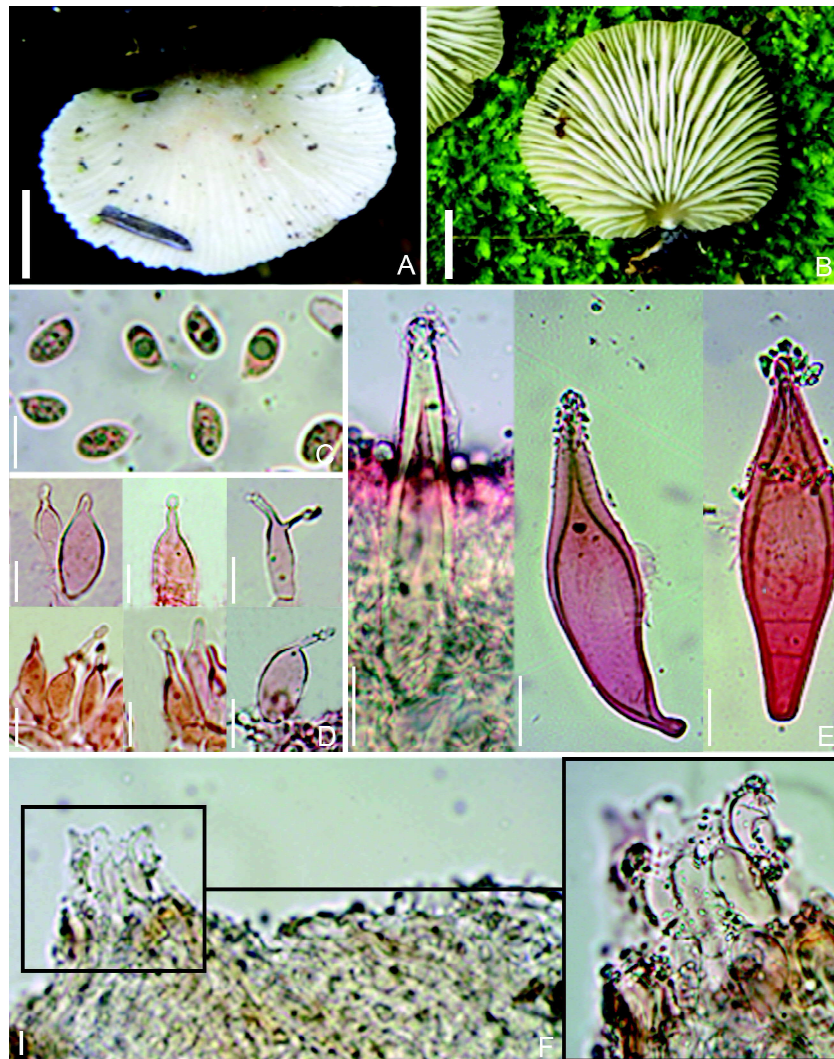


Fig. 4. *Hohenbuehelia paraguayensis* A-B, Basidiomata, C, Basidiospores, D, Cheilocystidia. E, Metuloid. F, Pileipellis and context, showing semi-erect hyphae with crystals incrustated on clavate terminal elements. Scale bar: A-B. 5 mm, C-F 10 μ m. All from *A.G.S. Silva-Filho* 256.

pileocystidia and form a pyramidal gelatinous cutis of anticlinal hyphae. Macroscopically, *H. paraguayensis* has pileus with light-brownish coloring with discolor and striated margin, surface smooth at insertion and hirsute to pubescent near the margin, while *H. mastrucata* has pileus

with olive-brownish coloring, margin non striated and surface punctate-squamulose.

The pileus surface and darker pileus color segregate *H. paraguayensis* from *H. phalligera* (Mont.) Singer, which also lacks capitate cheilocystidia (PUTZKE & CAVALCANTI, 1995).

Hohenbuehelia portegna (Speg.) Singer

Lilloa 22: 256 (1951)

(Fig. 5AH)

Pileus 18–22 mm diam., convex, dimidiate, conchate, surface smooth, tomentose to hirsute at insertion point, brown (7E4), greyish brown (7D3), brownish grey (5C2) at the center, discolor at the margin, which is pastel grey (1A3), white (1A1) to pale grey (1B1), slightly striate, some lobed. Lamellae crowded to subdistant, with 2–3 sized lamellulae, margin even to slightly wave, concolor with sides, white (1A1) to pale grey (1B1). Stipe absent. Context thin (2–3mm), light brown (5D5) to white (1A1).

Basidiospores 7–11.5 × 3–5 μm, Q= 1.88–2.42, Qm= 2.17, n= 25/1/1, ellipsoid, smooth, thin-walled, hyaline, with refringent content, hyaline, inamyloid. Basidia 17–28.5 × 5–7.5 μm narrow clavate, to clavate, with one, two or mostly four sterigmata, hyaline, some with refringent content. Cheilocystidia 14–32 × 4–13 μm, thin-walled, lecythiform, fusiform, short clavate, capitate, capitulum globose, oblong, some with branched apex, hyaline. Metuloids 20–96 × 7.5–21 μm, ventricose-fusoid, clavate, lanceolate, bearing crystalline incrustation at the apex, some non-incrusted, walls hyaline, 2.5–5.3 μm wide, hyaline, on both edge and side, smaller at the edge. Pileipellis a cutis of interwoven hyphae, 3–9.5 μm in wide, smooth to some brown incrusted, hyaline and light brown in groups, thin-walled, rarely thick-walled, 1–3 μm diam., giving rise to narrow and conical of erect hairs 64–238 × 3–5 μm, hyaline. Pileocystidia rare, 35–50 × 5–9 μm, ampullaceous to subcapitate, thin-walled, hyaline. Pileus trama two layered: I) upper gelatinous layer, 500–962 μm thick, with erected hyphae, 1.5–4 μm wide, incrusted or smooth, thin-walled, hyaline; II) lower non-gelatinized layer, 100–156 μm thick, with interwoven hyphae 1.5–6 μm, smooth, thick-walled, 1–2.5 μm, hyaline. Lamella trama subregular, slightly gelatinized with hyphae, 3–6.5 μm wide, thick-walled, 1–3 μm, smooth, hyaline. Clamp-connections present in all tissue.

EXAMINED SPECIMENS — BRAZIL: Paraná. Terra Roxa, RPPN Fazenda Açú, 06/VI/2015, A.G.S. Silva-Filho 461 (HCP 1139); 23/VI/2015, A.G.S. Silva-Filho 631 (HCP 1031).

HABITAT AND DISTRIBUTION — Solitary on decaying wood, in the forest. Known from Argentina (SINGER & DIGILIO, 1951; RAITHELHUBER, 1991)

and Brazil, from the Atlantic Forest of São Paulo (PEGLER, 1997), Paraná (DE MEIJER, 2006) and Rio Grande do Sul States (PUTZKE & CAVALCANTI, 1995).

DISCUSSION — *Hohenbuehelia portegna* is recognized by the pileus size and color, with tomentose to hirsute surface, margin slightly striate

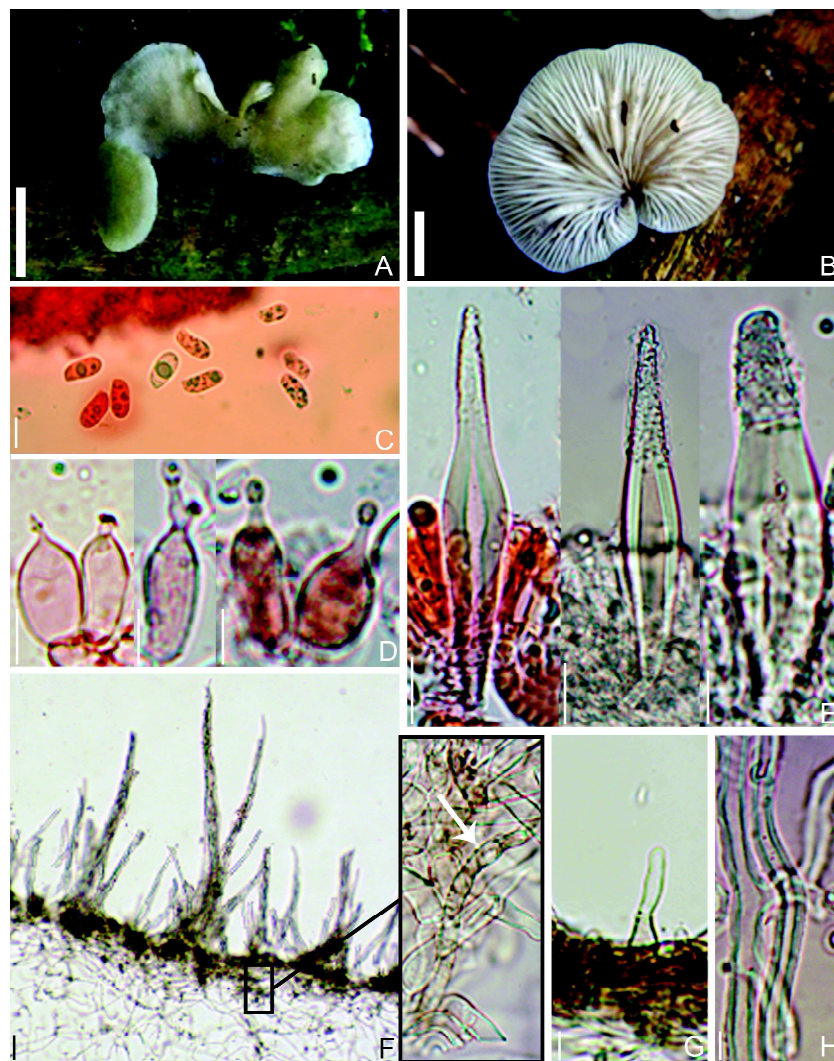


Fig. 5. *Hohenbuehelia portegna* A-B, Basidiomata, C, Basidiospores, D, Cheilocystidia, E, Metuloid, F, Pileipellis and context hyphae, showing incrustated brown hyphae. G, Pileocystidia, H, Lamella trama hyphae with thick walls. Scale bar: A-B, 5 mm, C-G 10 µm. All from A.G.S. Silva-Filho 631.

and discolor (Figs. 5A-B), basidiospores size (Fig. 5C), cheilocystidia lecythiform, fusiform, short clavate and capitulate (Figs. 5D), and erect hairs in the pileipellis (Figs. 5F). We noted in our samples some thick-walled hyphae in the lamella trama (Fig. 5H), which were not reported by SINGER & DIGILIO (1951) and SINGER & KUTHAN (1980). The variation in pileus color is due to developmental stage, which becomes paler in age, as also observed in *H. mastrucata* specimens. Morphologically, it is very similar to *H. atrocaerulea* (Fr.) Singer, and was considered by SINGER & DIGILIO (1951) as a variety of this species, however SINGER & KUTHAN (1980) distinguished both species mainly by basidiospores size. SINGER (1975) suggested that *H. portegna* thus far known only from the temperate zones of South America, while *H. atrocaerulea* is distributed in the Northern Hemisphere.

SUMMARY

A survey of *Hohenbuehelia* in Seasonal Semideciduous Forests from the Western Paraná State in South Brazil, resulted in the identification of five species: *H. angustata*, *H. bullulifera*, *H. mastrucata*, *H. paraguayensis* and *H. portegna*. All these are described and illustrated. *Hohenbuehelia mastrucata* is a new record from Paraná State.

KEY WORDS: Agaricales; Atlantic forest; pleurotoid fungi; taxonomy

SUMÁRIO

No levantamento das *Hohenbuehelia* em áreas de Floresta Estacional Semidecidual no oeste do Paraná, cinco espécies foram identificadas: *H. angustata*, *H. bullulifera*, *H. mastrucata*, *H. paraguayensis* e *H. portegna*. Todas espécies são descritas e ilustradas. *Hohenbuehelia mastrucata* é uma nova citação para o Paraná.

PALAVRAS-CHAVE: Agaricales; Floresta Atlântica; fungos pleurotoides; taxonomia

RÉSUMÉ

Dans l'étude des *Hohenbuehelia* des forêts saisonnières de l'ouest du Paraná, au sud du Brésil, cinq espèces ont été identifiées: *H. angustata*, *H. bullulifera*, *H. mastrucata*, *H. paraguayensis* et *H. portegna*. Toutes ces espèces sont décrites et illustrées. *Hohenbuehelia mastrucata* est un nouveau record de l'État du Paraná.

MOTS-CLÉS: Agaricales; Forêt atlantique; champignons pleurotoides; taxonomie

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