

**GYMNOPUS CASTANEUS, A NEW MEDITERRANEAN SPECIES
FROM SPAIN**

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Gymnopus castaneus, characterized by its reddish-brown colour and lack of hymenial cystidia, is described as new from Spain. In addition, the new combination *Gymnopus brunnescens* (Murrill) Villarreal, Heykoop & Esteve-Rav. is proposed.

Gymnopus castaneus, a new species from central Spain, is described and discussed. On account of its peculiar macro- and microscopical characters combined with the strong farinaceous smell, this new taxon is easily distinguished from other taxa of *Collybia* sensu lato. From a nomenclatural point of view this new species is included in the genus *Gymnopus*, following the treatment of Antonín et al. (1997), though there is still a considerable controversy in adopting this name for many species traditionally recognized within the genus *Collybia* (Bon, 1999).

Colours are given according to the colour code of Munsell (1988).

***Gymnopus castaneus* Villarreal, Heykoop & Esteve-Rav., spec. nov. — Figs. 1–4**

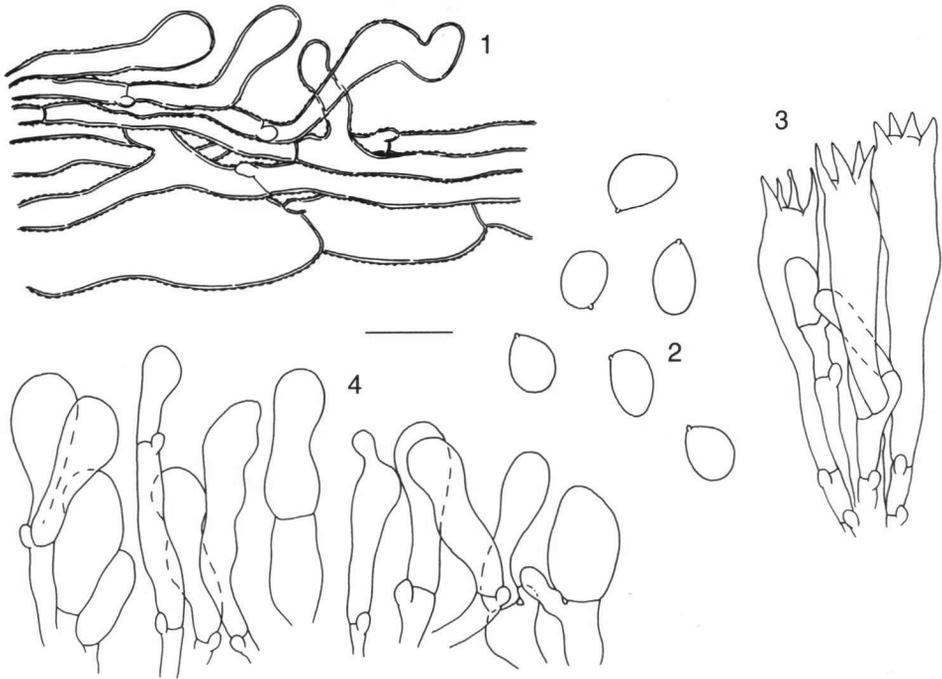
Basidiomata sparsa vel subcongregata. Pileus 3–18 mm latus, ab initio campanulatus vel convexus, dein subinfundibuliformis, haud umbonatus, non striatus, toto obscure castaneus, minute velutinus. Lamellae c. 1 mm latae, distantes, emarginatae vel dente-decurrentes, albae, intervenatae. Caro tenuis, alba. Odore saporeque farinaceis. Stipes 8–35 × 1.5–3.5 mm, cylindricus, concolor pileo, toto albo-pruinoso.

Basidia (30–)35–45 × (8.5–)9.5–12 µm, clavata, 4-sporigera, fibulata. Sporae 7.20–8.60–10.30 (–11) × 5.50–6.42–7.65 (–7.70) µm, ellipsoideae vel raro subglobosae, leves, inamyloideae. Cystidia nulla. Trama hymenophori non dextrinoidea, haud in materiam gelatinosam immersae. Pileipellis ex elementis dermatocystidiformibus fasciculatis pseudohymeniformibus vel haud hymeniformiter efformata; dermatocystidia numerosa, cylindracea, cylindraceo-flexuosa vel subclavata, usque ad 55 × 6–9 µm, ascendentibus vel suberectis. Hyphae et dermatocystidia pigmento luteolo incrustata. Caulocystidia – 90 × 5–10 µm, descendentia ad basim, dermatocystidiis similia. Hyphae stipitipellis 3–6 µm latae, non dextrinoidea, leves vel raro diverticulatae. Hyphae vasculares praesentia sed dispersae.

Holotypus: Spain, Toledo, Pinar de Almorox, 19 Nov. 1996, F. Esteve-Raventós, C. Sánchez & M. Villarreal (AH no. 21520).

Etymology: referring to the colour of the pileus and stipe.

Basidiomata collybioid to subomphalioid. Pileus 3–18 mm in diam., campanulate to convex when young, then plano-convex with depressed centre, finally infundibuliform, without apical papilla, margin somewhat exceeding the lamellae, at first involute, then inflexed to straight, dry, slightly hygrophanous, not striate, weak red to dusky red (Mu. 10 R 3/4, 4/4), with margin pale red (10 R 5/6), glabrous to fairly sericeous. Context whitish to pale red (10 R 6/4) under the cuticle, not darkening. Smell and taste slightly farinaceous. Lamellae 19–25, c. 1 mm wide, distant, deeply emarginate, with decurrent tooth, ventricose, locally intervenose, especially at their base, whitish to cream in dried material, with the edge entire and concolorous, lamellulae present. Stipe 8–35 × 1.5–3.5 mm, central, cylindrical, equal



Figs. 1–4. *Gymnopus castaneus* (holotype). 1. Pileipellis; 2. spores; 3. basidia; 4. caulocystidia. Bar = 15 μm .

or tapering upwards (–3.5 mm), rarely compressed and tapering downwards, uniformly pale red (10 R 5/6) except for the pinkish base, apparently smooth, completely pruinose under the lens, more pronounced at the apex.

Spores 7.2–8.6–10.3(–11) \times 5.5–6.4–7.6(–7.7) μm ; $Q = 1.22\text{--}1.34\text{--}1.49$; ($n = 23$), broadly ellipsoid, rarely subglobose, sometimes with a very faint suprahilar depression, smooth, thin-walled, hyaline or with vacuolar inclusions, inamyloid, acyanophilic. Basidia (30–)35–45 \times (8.5–)9.5–12 μm , clavate, 4-spored, some 2-spored (rarely 1- or 3-spored), sterigmata up to 7 μm long, hyaline or with coarse vacuolar inclusions, clamped. Cheilocystidia absent, only some cylindrical to clavate elements intermingled with the basidia. Hymenophoral trama regular to subregular, not embedded in gelatinous matter, not dextrinoid, consisting of cylindrical hyphae –40 \times 2.5–6 μm , fairly thick-walled (0.5–1 μm). Pileipellis a ‘pseudohymeniderm’ consisting of hyphae 2–5(–8) μm wide, fairly thick-walled (–0.5 μm), with numerous cylindrical, cylindrico-flexuose to subclavate dermatocystidioid elements up to 55 \times 6–9 μm , rostrate or suberect, not forming a well-developed palisade, and locally forming dense clusters. All hyphae and dermatocystidioid elements with yellowish intraparietal and encrusting pigment. Caulocystidia up to 90 \times 5–10 μm , descending to the base, similar to the dermatocystidioid elements. Hyphae of the stiptipellis 3–6 μm wide, not dextrinoid, smooth or with very few isolated projections. Oleiferous hyphae present, but very scarce. No sarcodimitic tissues present. Clamps present at all septa.

Habitat — On soil, mossy banks, among fallen, decaying leaves of *Quercus ilex* ssp. *ballota* (Desf.) Samp. and *Pinus pinea* L.

Material studied. SPAIN: Toledo, La Iglesuela, 13 Dec. 1995, S.G. Busutil, C. Sánchez & M. Villarreal, AH 20475; Toledo, Pinar de Almorox, 19 Nov. 1996, F. Esteve-Raventós, C. Sánchez & M. Villarreal, AH 21520 (holotype); Toledo, Pinar de Almorox, 11 Dec. 1999, R. Izquierdo & M. Villarreal, AH 25421; Toledo, Pinar de Almorox, 30 May 2000, R. Izquierdo & M. Villarreal, AH 27053.

Gymnopus castaneus belongs to sect. *Vestipedes* (Fr.) Antonín, Halling & Noordel., and is characterized by its reddish basidiomata, inamyloid spores, the absence of hymenial cystidia, presence of encrusting and intraparietal pigment and absence of sarcodimitic tissues. Because of the presence of repent to suberect dermatocystidia this new taxon was at first thought to belong to *Hydropus*. However, *G. castaneus* does not have vacuolar pigment, the trama of the stipe is not sarcodimitic, vascular hyphae are very rare, there are no cheilo- and no pleurocystidia, and the spores are non-amyloid. In quite a few species placed in *Hydropus* by Singer (1982) one or more of these characters are lacking, but in none of them are they all lacking. Singer (1982: 9) mentioned 12 species with encrusting pigment, but in 11 of these it occurs in addition to evident vacuolar pigment. Only in *H. brunnescens* did he describe the sole presence of encrusting pigment. We believe that the latter is not a true *Hydropus* but should be included in *Gymnopus* as well. We therefore propose the following new combination:

***Gymnopus brunnescens* (Murrill) Villarreal, Heykoop & Esteve-Rav., comb. nov.**

Basionym: *Omphalina brunnescens* Murrill, Proc. Florida Acad. Sci. 7 ('1944' 1945) 112.

Hydropus brunnescens (Murrill) Singer, Flora Neotropica 32 (1982) 48. Not to be confused with *Collybia brunnescens* Peck, Bull. Torrey Bot. Club. 33 (1906) 214.

Singer (1982: 48) indicated that *G. brunnescens* has amyloid spores and cheilocystidia (which according to him were also observed in other Floridan material). However, we could not observe these characters in the type.

Whilst studying the taxonomic status of this taxon we also considered its inclusion in *Dennisiomyces* Singer on account of the absence of vacuolar pigment and the presence of abundant parietal and encrusting pigment. According to Singer (1982, 1986: 391) *Dennisiomyces* differs mainly from *Hydropus* in the absence of intracellular pigments and the predominantly collybioid to tricholomatoid habit. However, the diagnosis of *Dennisiomyces* (Singer, 1955) only includes cystidiate species with amyloid spores.

The very simple anatomy of this taxon points to its inclusion in the *Collybia-Marasmiellus* complex, where, according to the monograph of that group by Antonín & Noordeloos (1997), it keys out in *Gymnopus* sect. *Vestipedes*. However, the presence of a strong farinaceous smell and the absence of cheilocystidia separate *Gymnopus castaneus* clearly from both subsections *Impudicae* and *Vestipedes*. The most closely related species within section *Vestipedes* is *G. terginus* (Fr.) Antonín & Noordel. The latter is, however, different from *G. castaneus* because of its yellow to reddish brown pileus, its collybioid (never omphalioid) habit, the presence of cheilocystidia, and much narrower spores (up to 3–4.5 µm).

Gymnopus brunnescens, described from Florida is very similar to *G. castaneus* sharing the following characters: 1) similar structure of the pileipellis and stiptipellis; 2) absence of hymenial cystidia; 3) similar pigmentation. The differences between *G. castaneus*, *G. brunnescens* and *G. terginus* are tabulated in Table I.

Table I. A comparison between *G. castaneus*, *G. brunnescens* and *G. terginus*.

	habit	pileus colour	lamellae colour	sporal shape	cheilocystidia	Q (L/l)
<i>Gymnopus castaneus</i>	collybioid to subomphalioid	red-brown	whitish when fresh and dry	broadly ellipsoid to subglobose	absent	1.22–1.34 –1.49
<i>Gymnopus brunnescens</i>	omphalioid	isabelline	fresh: white or citrinous? dry: orange-brown	narrowly ellipsoid	absent	1.50–1.80 –2.08 (–2.09)
<i>Gymnopus terginus</i>	collybioid	yellow to reddish brown	whitish to reddish brown	oblong to cylindrical	present	2.00

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