

## **Edible mushrooms from Madagascar (1): notes on *Collybia tamatavae***

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**Abstract** – *Collybia tamatavae* Bouriquet, a common edible mushroom in the area of Tamatave (Madagascar) is recombined in the genus *Gymnopus*. It is described in detail, illustrated and compared to the very similar *Marasmius heinemannianus*.

### **INTRODUCTION**

The edible *Collybia tamatavae* was originally described by Bouriquet (1946) from the surroundings of Tamatava, principal town on Madagascar's East Coast, where it is common and frequently offered for sale. Since then, not one single publication has discussed this mushroom again and Bouriquet's species remained quite enigmatic. During field work in recent years (1996-2004) by Buyck and collaborators, a few collections have been made of this taxon near the type locality. The present contribution illustrates and completes the original description and discusses the systematic position as well as possible confusions with other species, in particular *Marasmius heinemannianus* for which it was actually collected when in the field.

### **DESCRIPTION**

***Gymnopus tamatavae* (Bouriquet) Antonín, Buyck & Randrianjohany comb. nov.** (Figs. 1-5)  
**Basionym:** *Collybia tamatavae* Bouriquet, Bull. Acad. Malgache 25 (for 1942-43): 20. 1946, Plate 3, fig. 4.

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**Original description:** Chapeau convexe, puis étalé, dépassant 5 cm diam.; cuticule tan. Stipe de 8 cm × 12 mm de large, clair, creux, enfoncé assez profondément dans le substratum. Lamelles libres. Spores de teinte assez claire en masse. Chair de teinte claire. Spores de 8-13 × 4-6 µ, allongées, guttulées, de teinte très claire.

*Petasatus primo convexus, deinde extensus; cuticula fusca. Stipes clarus, cavus in substrato stis infixus. Lamellae expeditae. Sporae coloris clarioris. Caro clara. Species arenosa. Communis in vicinitate Tamatavae. Februarius. Edulis.*

**Pileus** up to 60 mm broad, almost hemisphaerical when young, then plano-convex to almost applanate or somewhat uneven or with a slightly depressed centre, at the margin involute at first, becoming more or less undulate with age; surface glabrous, greyish red to brownish red (8C5-8) or orange (5-6B6), often with a darker or lighter (according to humidity) narrow zone at the extreme margin. **Lamellae** moderately close (total number for ex. 32-36), intermixed with lamellulae of 3 to 4 different lengths, emarginate and adnate with tooth, slightly ventricose, sometimes undulate, white but becoming darker, a very pale pinkish or yellowish brown at maturity, with concolorous edge. **Flesh** white, fibrous. **Stipe** cylindrical, often laterally flattened, twisted, often clearly radicate, but always partly immersed in the soil, finely tomentose-fibrous, white, but quickly sordid from handling, pale brownish near the base. **Spore print** yellowish.

**Basidiospores** measured on gills 11-14(16) × (4.5)5-6.5(7) µm, Q = (1.9) 2.1-2.2(2.4), only up to 12 µm long in spore print, ellipsoid, ellipsoid-fusoid, thin-walled, hyaline, with non-dextrinoid as well as dextrinoid; slightly thick-walled spores mixed. **Basidioles** 15-40 × 4-10 µm, clavate, cylindrical or subfusoid. **Marginal cells** on gill edge variable, (12)15-35 × 8-13 µm, clavate, cylindrical, subutriform, sometimes irregular, thin-walled; sometimes mixed with basidioles. **Lamellar trama** composed of cylindrical to subinflated, thin-walled, hyaline, dextrinoid, up to 20 µm wide hyphae. **Pileipellis** a cutis consisting of cylindrical, ± thin-walled, smooth or scattered-diverticulate hyphal extremities; the terminal cells 21-38 × 6-8 µm, clavate, cylindrical, rarely subutriform or more irregular, ± thin-walled, in some cases resembling a disintegrated hymeniderm. **Stipitipellis** a cutis composed of cylindrical, parallel, ± interwoven, finely incrustated, dextrinoid, up to 8 µm wide hyphae. Terminal cells 27-40 × 6.5-10 µm, cylindrical, clavate, subutriform, sometimes irregular, thin-walled. **Clamp-connections** present in all tissues.

**Habitat:** on sandy soil in coastal prairie, typically forming circles in well exposed places frequently visited by cattle.

#### Material studied.

Madagascar: Tamatave, near Ambarikadime, on sandy soil, Febr. 1941 leg. G. Bouriquet (holotype, PC); Ampandrasatany., near Tamatave, in coastal prairie, 11 Aug. 2001, E. Randrianjohany (PC); Foulpointe, near Fénériver Est, N. of Tamatave, leg. Buyck, Eyssartier & Moreau, 9 Feb. 1997, Buyck 97.304 (PC); ibid. July 2004, E. Randrianjohany 5 RE 019 (PC).

## DISCUSSION

Although the original description is short and the type specimen not very well preserved, these new collections undoubtedly represent Bouriquet's species.

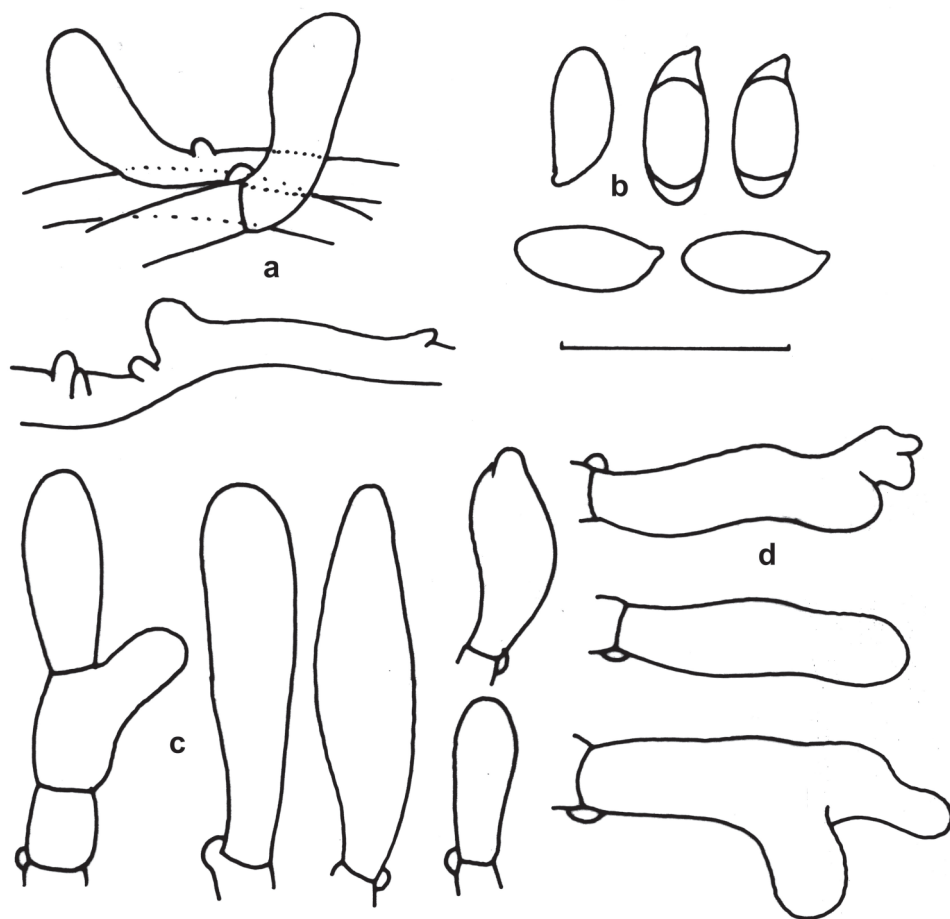


Fig. 1. *Gymnopus tamatavae*: a) pileipellis hyphae, b) basidiospores, c) cheilocystidia, d) caulocystidia. Scale bar = 20  $\mu\text{m}$  (del. V.Antonin).

The original description is accompanied by an illustration (our Fig. 2) which is far too brown with respect to the colour revealed by the collections made in recent years.

*Gymnopus tamatavae* is characterised by having rather large, fleshy carpophores, a brownish red to yellowish orange pileus, rather large basidiospores, variable, clavate, cylindrical, subutriform cheilocystidia, a pileipellis of cylindrical hyphae with more or less clavate terminal elements and by a very well-defined habitat. The area where it is found seems limited to the coastal plains around Tamatave, or Toamasina as it was called before, although it is likely to be present in the same type of habitat all along Madagascar's east coast.



Fig. 2. Original illustration accompanying the description of *Collybia tamatavae* (from Bouriquet 1942-43).

Macroscopically, *Marasmius heinemannianus* represents a very close species known only from the African continent. It was originally described from Benin (Antonin 1998) and is equally consumed by the local populations (De Kesel *et al.* 2002). It is found in almost exactly the same habitat (grazed, exposed prairies) but not near the coast. However, *M. heinemannianus* is slightly different in colour (pileus reddish-brown to yellow-orange or reddish yellow), never shows a radicating stipe, and it possesses well-developed pleurocystidia and a pileipellis in the form of a hymeniderm which can be somewhat disintegrated when old (Antonín 1988, 2005).





Fig. 3. *Gymnopus tamatavae* in its natural habitat (photo. E.Randrianjohany).



Fig. 4. *Gymnopus tamatavae* in its habitat (photo. E.Randrianjohany).



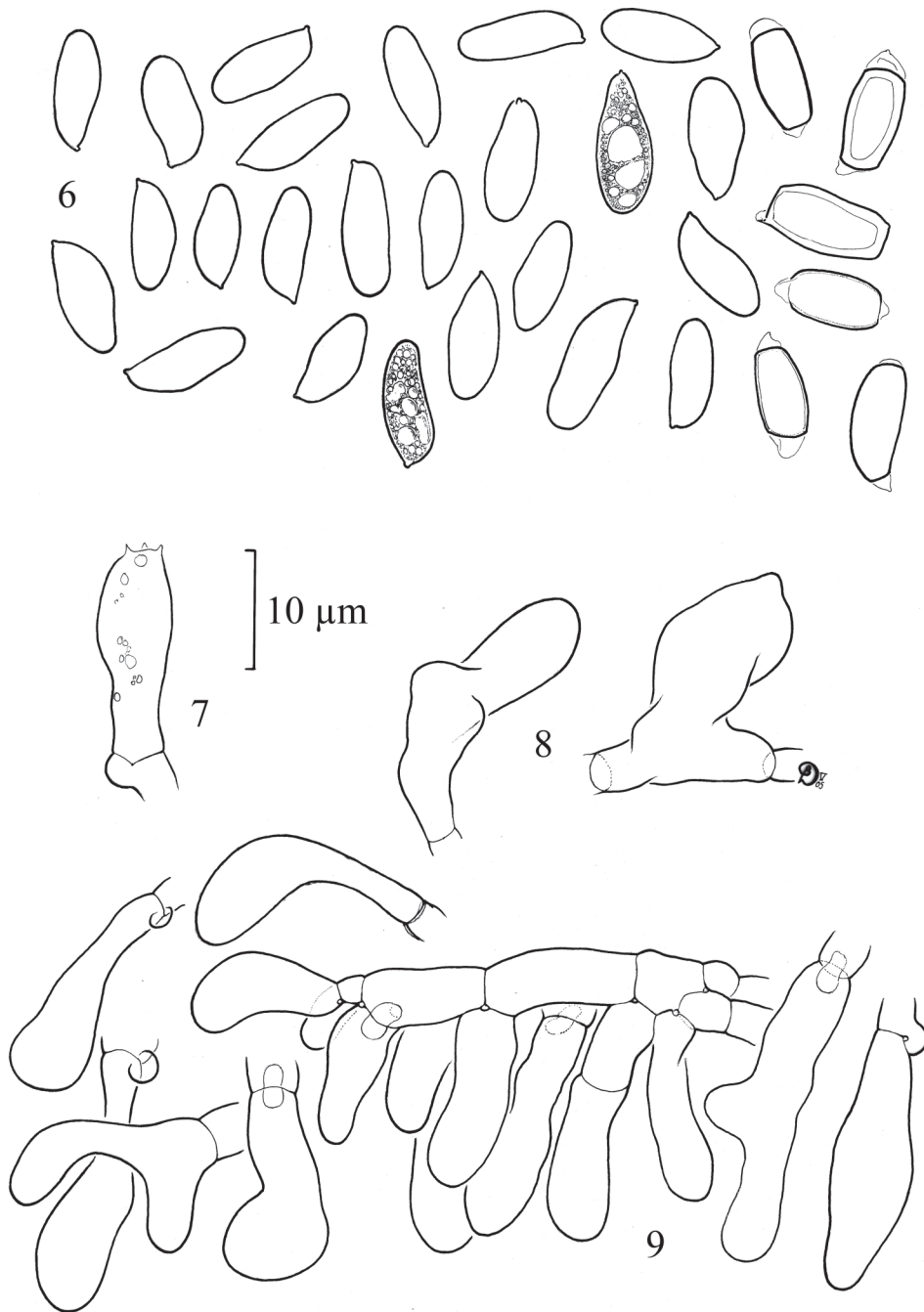


Fig. 5. *Gymnopus tamatavae* as it is sold in Tamatava. (photo. E. Randrianjohany)

The spores of *Gymnopus tamatavae* were already well illustrated in the original description and are to some extent reminiscent of spores of boletes by their general form. The contraction of the spore contents, emptying the distal ends of the spores (see our fig. 9), which then shrivel, as if turning the spore into some kind of truncated resting structure, is very similar as the phenomenon observed in the resupinate *Jaapia argillacea* Bres. (compare with Erikson & Ryvarden, 1976: fig 370), which is classified in Coniophoraceae (Boletales).

## REFERENCES

- ANTONÍN V., 1998 — *Marasmius heinemannianus*, a new edible species from Benin, West Africa. *Belgian Journal of Botany* 131(2): 127-132.
- ANTONÍN V., 2005 — Monograph of *Marasmius*, *Gloiocephala*, *Palaeocephala* and *Setulipes* in tropical Africa. In: *Flore Illustrée des Champignons d'Afrique Centrale* (in press).
- BOURIQUET G., 1946 — Notes de mycologiae malgache. *Bull. Acad. Malgache* 25(for 1942-43): 12-24.
- DE KESEL A., CODJIA J.T.C. & YOROU N.S., 2002 — *Guide des Champignons comestibles du Bénin*. Cotonou, 273 pp.
- ERIKSON J. & RYVARDEN L., 1976 — *The Corticiaceae of North Europe. Volume 4*: 549-886. Fungiflora. Oslo.



Figs 6-9. 6. Spores with several "resting" spores on the right. 7. Basidium. 8. Terminal cells of the pileipellis. 9. Marginal cells of the gill edge. (del. B. Duhem). Scale bar = 10 µm.

