

***Cantharellus eyssartierii* sp. nov. (Cantharellales,
Basidiomycota) from monospecific *Uapaca ferruginea*
stands near Ranomafana (eastern escarpment,
Madagascar)**

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Abstract – *Cantharellus eyssartierii* sp. nov. is described from *Uapaca* stands in dense mountain forest near Ranomafana (eastern escarpment, Madagascar), and is recognized by its dull colors, pale and well-developed, poorly forking gill-folds and intense yellowing of the lower stipe. It shares near identical microscopic features with the very similar *C. isabellinus* var. *parvisporus*, a woodland taxon from mainland Africa. *C. isabellinus* s.s., as well as the extremely close, but two-spored *C. croceifolius*, differ microscopically from our species in their distinctly larger, more voluminous spores. The quite similar African *C. tomentosus* differs from all these species in its thick-walled hyphal extremities at the cap surface.

Biodiversity / Cantharellaceae / endemic / ectomycorrhizal / new species / taxonomy / *Uapaca* symbionts

INTRODUCTION

The earliest, original descriptions of Malagasy chanterelles (Patouillard 1924, Heim 1936) were very brief and did not mention the original habitat in which new species had been collected. More recently, Eyssartier & Buyck (1999) and Buyck et al. (2012) described five new taxa of *Cantharellus* (two species and three taxa with clear African affinities that were provisionally described at the infraspecific level), all associated with endemic Malagasy vegetation dominated by various tree species of the genus *Uapaca* (Phyllantaceae). In this contribution, the authors describe a new chanterelle associated with small, monospecific *Uapaca ferruginea* patches that are present near or on mountain crests just outside the Ranomafana national park (Fianarantsoa prov., Madagascar).

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MATERIAL AND METHODS

The color notations indicated in the descriptions are from Kornerup and Wanscher (1978). Microscopic features of collections were examined and sketched by B. Buyck. Type studies for the other taxa had been made available previously (Eyssartier 2001). All microscopic observations and measurements were made in ammoniacal Congo red, after a short aqueous KOH pretreatment to improve tissue dissociation and matrix dissolution. Original drawings for all elements of the hymenium or pellis were made at $\times 2400$. Measurements are based on 20 spores (n) per specimen and the measurements in italics represent the average values. The mean length/width ratio (Q) gives minimum, mean, and maximum values. All studied specimens are deposited in the mycology herbarium of the Paris' Natural History Museum unless otherwise indicated. A general description of the habitats in which we collected *Cantharellus* in Madagascar can be found in Buyck (2002).

RESULTS

Cantharellus eyssartierii Buyck & Randrianjohany sp. nov.

Figs 1-4

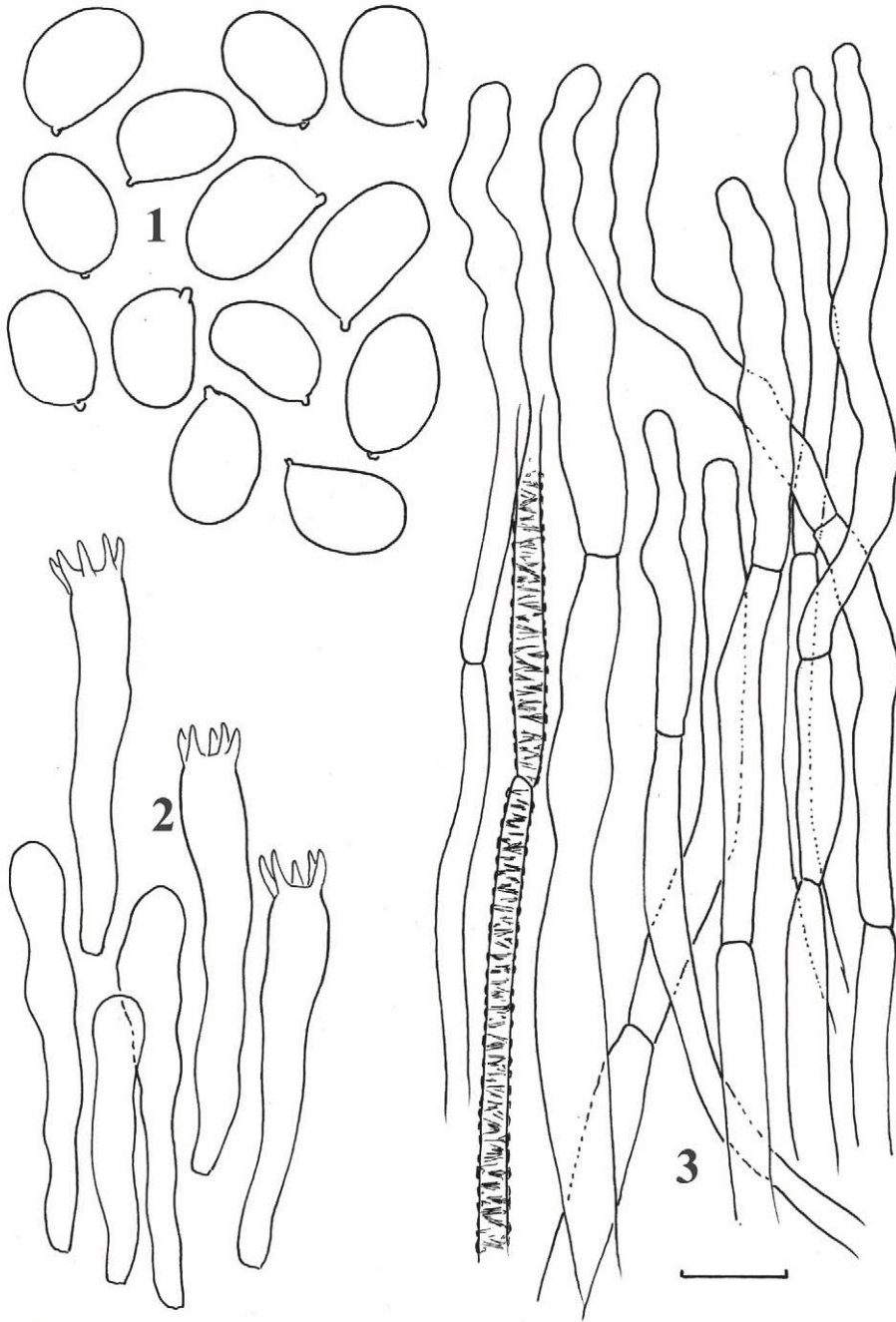
Mycobank MB 803426

Etymology: dedicated to Guillaume Eyssartier, longtime collaborator and taxonomic expert on *Cantharellus*

Diagnosis: Our new species, collected in dense mountain forest, is recognized by its dull colors, pale and well-developed, poorly forking gill-folds and yellowing of the lower stipe. It shares near identical microscopic features with the very similar *C. isabellinus* var. *parvisporus*, a woodland taxon from mainland Africa. *C. isabellinus* s.s., as well as the extremely close, but two-spored *C. croceifolius* Heinem., differ microscopically from our species in their distinctly larger, more voluminous spores.

Holotypus: MADAGASCAR. Central Highlands. Fianarantsoa prov., Ranomafana, 2 km East of Ambatolahy, on the borderline with Ranomafana National Park, in leaf litter of monospecific *Uapaca ferruginea* patches on a North-oriented mountain crest next to RN25, 5 Feb.1999, leg. E. Randrianjohany, in Buyck 99.528 (PC0085158)

Cap 11-45 mm, first plane-convex with strongly inrolled margin, then quickly becoming slightly depressed in the center with the marginal zone remaining partly incurved or even fissured in adult specimens, smooth, sometimes slightly undulating; the surface finely tomentose to minutely squamulose, sometimes locally areolate exposing the underlying paler context, hygrophanous, pale brown, dark grayish brown, fuliginous (6D3 and 5C3 towards the margin, 5-6E3 in the center) when wet, with the extreme margin often remaining locally off-white. **Hymenophore** composed of strongly decurrent, well-differentiated gill-like folds attaining 2-5 mm in height, unequal to sparsely forked, not anastomosing, cream, later becoming a dirty pale brown to almost concolorous with the cap margin. **Stipe** 20-40 \times 3-5(6) mm, equal or slightly broader towards the hymenophore or near the base, not becoming fistulose; the surface smooth, dull, first pale, off-white, then cream and finally pale dirty brown, upon handling turning initially and intensely lemon yellow, then changing to saffron yellow and finally ferruginous to rusty brown, the extreme base usually white-tomentose and agglomerating the soil underneath. **Flesh** thin, pale, cream but particularly in the



Figs 1-3. *Cantharellus eyssartierii* sp. nov. (holotype). 1. Spores. 2. Basidia and basidiola. 3. Hyphal extremities of the pileipellis with indication of pigment incrustations in one of them. Scale = 10 μ m, but 5 μ m for spores (all drawings Buyck).



Fig. 4. *Cantharellus eysartierii* sp. nov. (holotype). Photo B. Buyck.

stipe base intensely yellowing when cut and exhibiting the same color changes as the stipe surface. **Odor** weak and more fungus-like than the typical apricot smell. **Taste** mild or with a very weak and short acrid component. **Spore print** fresh a pale yellowish cream, whitish when dried.

Spores measuring (7) 7.25-7.73-8.25 (8.5) × (4.75) 5-5.4-6 (6.5) μm, Q = (1.15) 1.32-1.44-1.5 (1.62), regularly ellipsoid to slightly reniformous in profile, yellowish under the microscope, neither amyloid nor cyanophilous. **Basidia** of variable size, narrowly clavate, measuring for ex. 55-65 × 7-8 μm, 4-6-spored with rather plump, robust sterigmata. **Cystidia** absent. **Lamellar trama** filamentous, composed of intermixed, narrow hyphae of 2-3(4) μm diam., becoming more inflated and branched towards the hymenium and composed of more irregular, sometimes ampullaceous cells measuring up to 15 μm diam. **Pileipellis** a loose cutis composed of irregular, (2)4-6(8) μm broad hyphae that are intricately interwoven (but disperse very easily in preparations after KOH treatment); the hyphal endings never thick-walled but particularly some of the more slender hyphae with refringent walls that have an encrusting, pale brownish pigment. The subpellis is composed of very irregularly and often strongly inflated, versiform elements that are almost reminiscent of a subhymenium, but with larger cells, attaining easily 20 μm diam. **Clamp connections** absent.

Additional examined material: MADAGASCAR. Central Highlands. Fianarantsoa prov., Ranomafana, on a South oriented mountain crest next to RN25, 500 m East of Ambatolahy, in leaf litter under *Uapaca ferruginea*, 4 Feb. 1999, leg. E. Randrianjohany, in Buyck 99.479 (PC0085159 paratypus)

Commentary: This species is morphologically indistinguishable under the microscope from *C. isabellinus* var. *parvisporus* Eyssart. & Buyck, a taxon from lowland miombo woodland in Tanzania (Buyck et al. 2000) that is evidently very closely related or perhaps synonymous. *C. isabellinus* var. *isabellinus*, as well as the extremely close, but two-spored *C. croceifolius* Heinem., differ from our species in their distinctly larger, more voluminous spores (see Buyck et al. 2013).

C. tomentosus Eyssart. & Buyck, equally an African woodland species, differs from our new species in the darker color of the gills at maturity and its general ecology (our species being a species of dense humid forest), and from all of the above mentioned taxa in the thick-walled terminal cells of the cap surface.

The complete absence of clamps in all tissues, a typical feature for most of the tropical African chanterelles, clearly sets this new species apart from the group of *C. cibarius* and closely related species.

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