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## *Clitopilus rubroparvulus* (Basidiomycota, Agaricomycetes), a new species from the Canary Islands (Spain)

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*Clitopilus rubroparvulus* is described as a new species belonging to the subgenus *Rhodophana* on the basis of a collection from La Palma, Canary Islands. The new species grows on mosses and is known only from a single site. A colour illustration of fresh basidiomata of the type-collection and line drawings are also provided.

**Key words** – Agaricales – Entolomataceae – taxonomy

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### Article Information

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### Introduction

The complex of the orange reddish species of *Clitopilus* subgenus *Rhodophana* (Kühner) Contu (the *nitellinus*-complex) was, until now, represented in the Canary Islands by only two species, viz. *C. nitellinus* (Fr.) Noordel. & Co-David and the recently described *C. canariensis* Dähncke, Vizzini & Contu (Vizzini et al. 2011). Another member of subg. *Rhodophana* was found in the mycological collection of R.M. Dähncke, but it does not show orange reddish colours and seems to be close to *C. melleopallens* (P.D. Orton) Noordel. & Co-David (material studied by M. Contu).

According to our experience the *nitellinus*-complex (species characterized by basidiomata with a collybioid to mycenoid habit, orange-red colourations and presence of clamp-connections) deserves more careful studies because it encompasses several related but different species which have not received a name until now; an example is the tiny, muscicolous species which is here proposed as new, found among the collections of *Clitopilus* made by

R.M. Dähncke in La Palma Island during recent years.

The aim of the present paper is to describe this novel species, based on its very peculiar macro- and micromorphological features, and to provide a colour slide of the type collection.

Due to the small basidiomata, the overall reddish orange tinges, odourless and tasteless context, the new species is reminiscent of a little *Laccaria*, i.e. *L. pumila* Fayod or *L. tetraspora* Singer, but its spore morphology is typical of the *Entolomataceae* Kotl. & Pouzar.

### Methods

The macromorphological descriptions follow the detailed field notes taken on fresh material. Microscopical observations were made from dried material revived in 5% KOH and observed in ammoniacal Congo red and phloxine. Spore size is expressed both as a range and mean value based on 40 randomly chosen spores. These abbreviations are used: Q = the quotient of spore length by spore width;

Qm = the mean of Q values. The type collection of the new species has been deposited in TO (Herbarium generale del Dipartimento di Biologia Vegetale, Università degli Studi di Torino, Italy). The new species epithet was deposited in MycoBank ([www.mycobank.org](http://www.mycobank.org)).

Nomenclature and taxonomy follow Co-David et al. (2009) and Contu (2009), and, as a consequence, the genus *Rhodocybe* Maire is considered as a subgenus of *Clitopilus* (Fr. ex Rabenh.) P. Kumm. emend. Co-David & Noordel. Taxa previously placed in *Rhodocybe* section *Rhodophana* (Kühner) Singer, will now be considered as members of *Clitopilus* subgenus *Rhodophana* (Kühner) Contu (Contu 2009).

## Results

*Clitopilus rubroparvulus* Dähncke, Contu & Vizzini, **sp. nov.** Figs 1–4  
MycoBank MB 561534

Etymology – The specific epithet, derived from the Latin adjectives *ruber*, *rubrā*, *rubrum* (red) and *parvulus*, *parvulā*, *parvulum* (small, tiny), refers to the orange-reddish and small basidiomes.

Pileus 5–12 mm latus, parce carnosus, convexus vel depressus, leviter umbonatus, opacus, siccus, hygrophanus, aurantio-fulvus vel aurantius, ad medium rubro-brunneus vel obscure fulvus, iove pluvio striatus. Lamellae modice confertae vel distantes, uncinato-adnatae, cremeo-albidae deinde carneolae. Stipes 10–15 × 1–2 mm, cylindricus vel clavatus, superne albo-pruinatus, aliunde levis, pileo concolor. Caro subinconspectiva, fragilis, plerumque albida, immutabilis; odor fungicus; sapor similis. Sporae (4–)5–6.5 × (2.5–)3–4.5 μm, hyalinae, ovoideae vel subamygdaliformes, rugoso-undulatae vel verrucoso-angulatae, guttulateae. Basidia 20–30 × 7–8 μm, tetraspora, saepe fibulata. Lamellarum trama regularis, ex hyphis usque ad 35 μm latis constituta. Pleurocystidia atque cheilocystidia nulla. Pilei cutis ex hyphis cylindricis subparallelis, in suprapelle haud gelatis, 2–7(–8) μm latis, constituta; subpellis ex hyphis cylindricis subparallelis, usque ad 30 μm latis, constituta; pigmento intracellulari et incrustanti. Caulocystidia versiformes, caespitosa, clavata vel fusiformes, usque ad 6 μm lata.

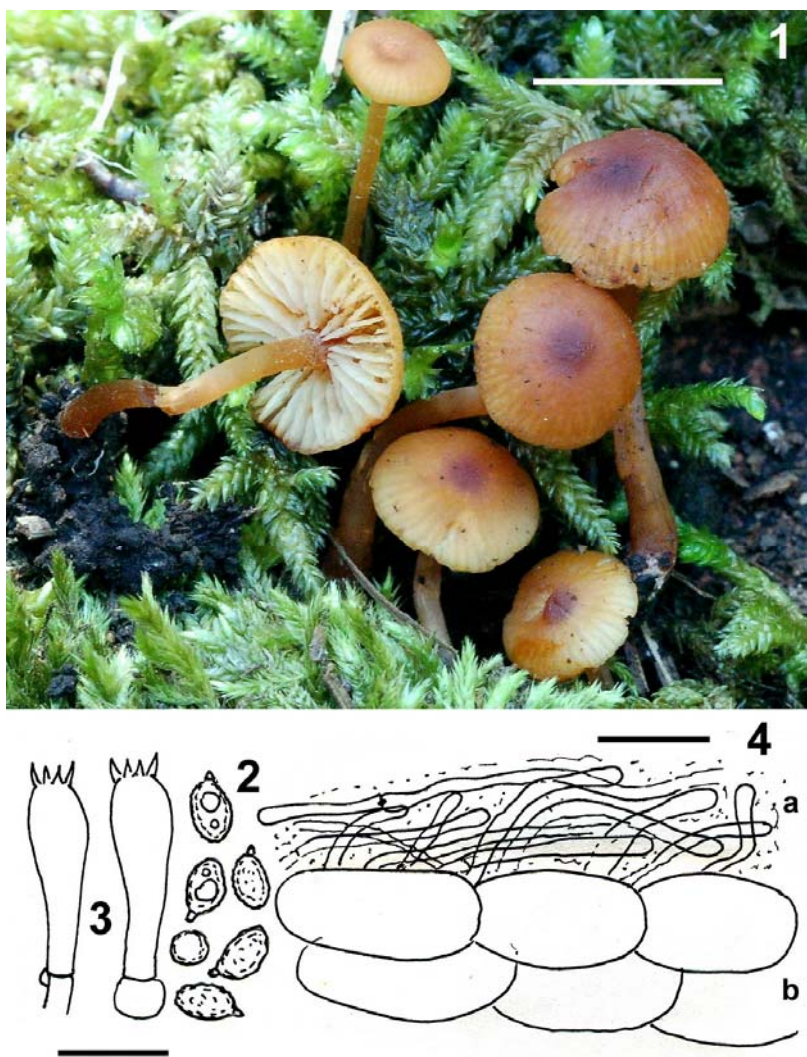
Fibulae praesentes sed haud numerosae. Hyphae oleiferae absentes.

Habitat – gregaria ad muscos. Autumnalis.

Holotypus – Hispania, Insulae Canariae, La Palma, Lomo Hoyo de Rehielo, 1300 m a.s.l., 27.10.2010, leg. R.M. Dähncke (TO HG2287).

Pileus 5–12 mm broad, convex, usually slightly umbonate, sometimes depressed towards the centre, orange-fulvous, then paler, hygrophanus and becoming pale rosy buff, smooth, glabrous, dry, opaque, translucently striate. Lamellae moderately thick, distant, uncinato-adnate, with lamellulae, whitish cream, then pinkish, with a concolorous edge. Stipe 10–15 × 1–2 mm, central, terete, mostly clavate but also cylindrical-equal, dry, glabrous, pruinose at apex, smooth elsewhere, concolorous with the pileus or slightly paler, with a white basal tomentum, without rhizomorphs. Context very scarce and thin, pale, whitish, unchanging; smell and taste fungoid, not distinctive. Spore print not obtained.

Spores (4–)5–6.5 × (2.5–)3–4.5 μm (n = 40), average 5.9 × 4.0 μm, Q = 1.33–1.66 (1.83), Qm = 1.48, hyaline, ellipsoid in profile view, ovoidal to subamygdaliform in face-view, rounded in polar view, distinctly undulate-verrucose and with an ornamentation reminding of that of *C. nitellinus*, wall thick and evenly cyanophilic, inamyloid, with a patent apiculus of the *Entolomataceae*-type (Co-David et al. 2009), and one or more oil drops (Fig. 2). Basidia 20–30 × 7–8 μm, tetrasporic, clavate, sometimes clamped (Fig. 3). Subhymenium consisting of hyphoid or inflate elements; hymenophoral trama regular, made up of cylindrical, hyaline, thick-walled hyphae, up to 35 μm wide in the central stratum. Cheilocystidia, pleurocystidia and pseudocystidia absent. Pileal surface (pileipellis) two-layered: suprapellis as an ixocutis consisting of radially arranged to tightly interwoven, gelified, encrusted, and cylindrical hyphae, 2–7(–8) μm wide (Fig. 4a); subpellis well differentiated, made up of larger elements, up to 30 μm wide, and pseudoparenchymatic for places (Fig. 4b). Stipital surface (stipitipellis) consisting of a xerocutis of parallel, with an orange intraparietal pigment; caulocystidia up to 6 μm wide,



**Figs 1–4** – *Clitopilus rubroparvulus* (TO HG2287, holotypus). **1** Basidiomata. **2** Spores. **3** Basidia. **4** Pileipellis (**a** suprapellis, **b** subpellis). Bars 1 = 10 mm, 2–3 = 10  $\mu\text{m}$ , 4 = 20  $\mu\text{m}$ .

versiform, clavate to fusiform. Clamp connections present but not abundant, sometimes not well formed. Thromboplerous hyphae absent.

Habitat – in small groups, not caespitose, on mosses. Autumn.

Distribution – until now known only from the Canary Islands (La Palma Island).

Material examined – Spain, Canary Islands, La Palma, Hoyo de Rehielo, 1300 m a.s.l., 27.10.2010, *leg.* R.M. Dähncke, (TO HG2287, holotypus).

### Discussion

In the field, *C. rubroparvulus* looks like small, umbonate, striate basidiomata of *C. canariensis* but the smaller, heavily ornamented spores and the fertile lamellar edge, devoid of any kind of cystidioid elements are fully diagnostic.

*C. nitellinus*, according to the specialistic literature (Baroni 1981, Noordeloos 1988) clearly differs by having medium-sized basidiomata (pileus 10–25 mm broad), a context with a rancid-mealy smell and larger spores, easily reaching 9  $\mu\text{m}$  in length.

*C. melleopallens* (P.D. Orton) Noordel. & Co-David has spores measuring 4.5–7  $\times$  3–4  $\mu\text{m}$  and thus similar to those of *C. rubroparvulus*, but they are not so heavily ornamented, the pileus tinges are melleous brown and the context has a mealy smell (Orton 1960, Noordeloos 1983, 1988), whilst *C. cupreus* (J. Favre ex Contu) Contu has darker tinges both in pileus and stipe, lacks an umbo at the pileus centre, has slightly longer and larger basidiospores and does not have a two-layered pileipellis (Favre 1960, Consiglio & Contu 2006).

We were not able to find any other clamp-bearing *Clitopilus* species exhibiting the peculiar complex, macro- and micromorphological features of *C. rubroparvulus* (Singer & Digilio 1951, Horak 1978, 1979, Baroni 1981, Baroni & Redhead 1985, Noordeloos 1983, 1988, Baroni & Largent 1989, Contu & Bon 1991, Baroni & Halling 1992, Baroni & Horak 1994, Esteve-Raventós 2001, Baroni & Gates 2006, Bidaud & Contu 2007, Consiglio & Contu 2008, Henkel et al. 2010) and so consider it unique in the genus as a whole.

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