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Some rare or interesting Agaricales (Basidiomycotina) of Caldera de Taburiente National Park (La Palma, Canary Islands)

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Abstract – This result of a mycological inventory of Agaricales in Caldera de Taburiente National Park in the Canary Islands (Spain) reports a total of 59 species: 51 of these are quoted for the first time for this protected area, 13 are new to La Palma island, and 8 are new to the Canary Islands: *Clitocybe pruinosa*, *Cystoderma jasonis*, *Naucoria pseudo-amarescens*, *Melanoleuca nigrescens*, *Mycena sylvae-nigrae*, *Phaeomarasmius erinaceus*, *Resupinatus kavinii* and *Tricholoma batschi.* Some of the latter species, together with *Lentinellus flabelliformis*, *L. micheneri*, *Marasmius wynnei*, *Resupinatus applicatus*, *T. scalpturatum* var. *meleagroides* and *T. striatum* are described and illustrated in more detail.

Agaricales / Canary Islands / inventory

INTRODUCTION

Caldera de Taburiente National Park is situated in the central part of northern La Palma (Canary Islands) and covers 4690 hectares. Created in 1954, this National Park stands out by its exceptional landscape and geological interest. It represents a broad semicircular depression 8 km in diameter, with steep walls over 1000 m height and radial ravines allow for an abrupt drop in altitude from the higher elevations reaching 2426 m a.s.l. in Roque de los Muchachos, to the lowest point at Barranco de las Angustias at 430 m a.s.l. Moreover, it constitutes the main water reserve for the island, a reason that explains why the National Park was able to maintain a good conservation status.

The vegetation of Taburiente is characterized by the omnipresent canarian pine (*Pinus canariensis*), but different plant communities inside the Caldera reflect the wide climatic variation that results from the large altitudinal range, the contrasts in exposition and the variation in soil properties and soil water retention capacity. The mean annual temperature ranges from 19.2ºC at 275 m a.s.l. to 9.5ºC at 2426 m a.s.l., with minimum records of 11.6ºC and 3ºC, respectively in the coldest season. Precipitations are mainly in autumn and winter, oscillating between 411.2 mm at 275 m a.s.l. and 978 mm at 1070 m a.s.l. (Del Arco & González, 2004).

From the phytosociological point of view, pine forest of La Palma constitutes the endemic association *Loto hillebrandi-Pinetum canariensis*, which

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belongs to the alliance *Cisto-Pinion canariensis*, class *Cytiso-Pinetea canariensis*. This association comprises three facies or variants in La Caldera:

– The "mixed pine forest" (subass. *Ericetosum arboreae*) representing a mesohygrophytic pine community of humid environments, NE exposed and occupying ravine gorges and beds, slopes, etc, where *Erica arborea* and *Myrica faya* predominate.

– The "pinar-jaral" (subass. *Cistetosum symphytifolii*) which is the genuine pine forest in its more xeric facies, characterized by a poor floristic cohort and dominated by *Cistus symphytifolius* var. *canus*.

– The "summit shrub formations" above 1900 m a.s.l. dominated by *Adenocarpus viscosus* var. *spartioides*.

Fungi adapted to very wet conditions are favoured by (1) the presence of many intermittent waterfalls in La Caldera allowing for the establishment of hygrophytic communities of *Adiantum capillus-veneris*, mosses and liverworts; and (2) some mosaic formations of willow (*Salix canariensis*) that can be found in ravine channels.

Human activities have been scarce in Taburiente, but some of the encountered fungi clearly depend on the presence of human-introduced elements, such as *Ficus carica*, *Castanea sativa* and some grazing (*Bituminaria bituminosa*) or foraging plants (*Chamaecytisus proliferus* ssp. *proliferus* var. *palmense*) reported by Beltrán & Pérez de Paz (2004).

MATERIALS AND METHODS

Fresh carpophores were examined macro- and microscopically using a stereo microscope (10-80x magnification) and compound microscope (Olympus BX 41), respectively. At least 20 spores per collection were measured from lamellae. Microscopic structures were drawn with a camera lucida. In some cases, herbarium specimens were examined and rehydrated in 3% KOH. Nomenclature follows http://indexfungorum.org/Names/Names.asp. All material has been deposited and preserved at the herbaria of La Laguna, Spain, section Mycology (TFC Mic.) and in the herbarium of M. Bon in Lille (LIP).

Our results are presented according to the above mentioned main vegetation types in Taburiente National Park.

RESULTS

1. Agaricales of mixed pine forest

1.1. *On wood*

Agrocybe aegerita (V. Brig.) Singer, on stumps of *Ficus carica*. 16-12-2000 (TFC Mic. 9590); ***Gymnopilus sapineus*** (Fr.) Maire, on stumps, fallen branches, decayed wood, barks and cones of *Pinus canariensis*, 16-12-2000 (TFC Mic. 9592); 20-12-99 (TFC Mic. 9552); 13-05-2001 (TFC Mic. 11340); ***Mycena amicta*** (Fr.) Quél., on wood and barks of *Pinus canariensis*, 15-12-2000 (TFC Mic. 9584); ***Mycenella***

margaritispora (J.E. Lange) Singer, on decayed roots of *Erica arborea*, 19-01-2001 (TFC Mic. 9608); ***Mycena silvae-nigrae*** Maas Geest. & Schwöbel, on decayed wood of *Erica arborea*, 15-12-2000 (TFC Mic. 9576); ***Phaeomarasmius erinaceus*** (Pers.) Scherff. ex Romagn, on twigs of *Myrica faya*, 17-12-2000 (TFC Mic. 9601); ***Psilocybe fasciculare*** (Huds.) Noordel., on decayed wood of *Pinus canariensis*, 16-12-2000 (TFC Mic. 9575); ***Tapinella panuoides*** (Batsch) E.-J. Gilbert, on decayed trunks of *Pinus canariensis*, 19-01-2001 (TFC Mic. 10656).

Resupinatus kavinii (Pilát) M.M. Moser, Kleine Kryptogamenflora Bd II b/2, ed. 4 (Stuttgart): 153 (1978) (Fig. 1)

Pileus up to 0.8-2 mm, sessile, attached dorsally to the substrate by fine tomentosity, moreles campanulate, greyish-brown, margin somewhat incurvate, sulcate-striate up to half radium. **Lamellae** 10-12, broad, convergent towards

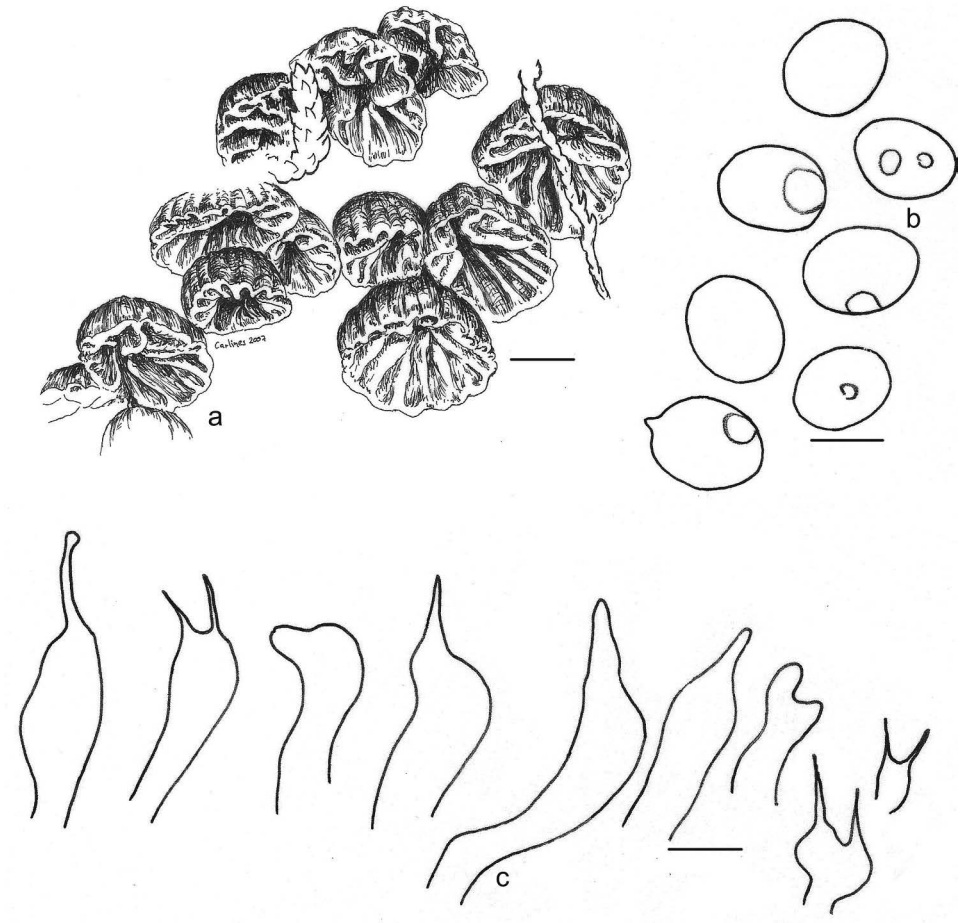

Fig. 1. *Resupinatus kavinii*. a) Carpophores, bar = 1 mm; b) Spores, bar = 4 µm c) Marginal cells, bar = 6 µm.

centre, greyish-white; lamellulae scarce. **Spores** 5.2-6.4 × 4.3-4.8 µm, broadly ellipsoid to subglobose, shortly apiculate. **Lamellae edge** with tortuous, basidiole-like, thin 2.3-5.3 µm wide cells, cuspidate by a long sterigma-like appendage, which is sometimes weakly broadened upwards forming a small globule or digitate. **Context of pileus** made up of 2-3 µm wide, cylindrical, gelatinized hyphae. **Pileipellis** a cutis with transitions to a trichoderm of narrow, 1.8-2.5 µm wide, not gelatinized, entangled, cylindrical hyphae, provided with short, single, 2.5-4 (5.5) µm or dichotomously ramified digitations; pigments brown, intracellular and parietal. **Clamp-connections** abundant.

Specimen examined: On fallen trunks of *Pinus canariensis*, 20-12-1999 (TFC Mic. 9541).

Observations: Our material coincides well with the description provided by Malençon & Bertault (1975). These authors report the presence of "lamellae edge hairs" as observed in our samples but not mentioned by Watling & Gregory (1989) nor by Noordeloos (1995).

1.2. *On soil*

Clitocybe metachroa (Fr.) P. Kumm.,19-01-2001 (TFC Mic. 9620, 9621); ***Clitocybe sinopica*** (Fr.) P. Kumm., 20-12-99 (TFC Mic. 9551; 9553); ***Clitocybe trulliformis*** (Fr.) P. Karst., 20-12-99 (TFC Mic. 10858); 19-01-2001 (TFC Mic. 9617); ***Clitocybe vermicularis*** (Fr.) Quél., 29-04-2000 (TFC Mic. 9586); ***Cortinarius scobinaceus*** Malençon & Bertault., 19-01-2001 (TFC Mic. 10663); ***Cystoderma cinnabarinum*** (Alb. & Schwein.) Fayod var. ***cinnabarinum***, 20-12-99 (TFC Mic. 9560); 15-12-2000 (TFC Mic. 9580); ***Cystoderma granulosum*** (Batsch) Fayod, 15-12-2000 (TFC Mic. 9569); ***Gymnopilus sapineus*** (Fr.) Maire, 29-04-2000 (TFC Mic. 9588); 28-04-2000 (TFC Mic. 9587); 20-12-99 (TFC Mic. 9552); ***Hebeloma edurum*** Métrod ex Bon, 19-01-2001 (TFC Mic. 9619); ***Inocybe dulcamara*** (Alb. & Schwein.) P. Kumm., 19-01-2001 (TFC Mic. 9629); ***Inocybe geophylla*** (Pers.) P. Kumm. var. ***geophylla***, 19-01-2001 (TFC Mic. 9625); 20-12-1999 (TFC Mic. 9542); ***Inocybe geophylla*** (Pers.) P. Kumm. var. ***lilacina*** Gillet, 19-01-2001 (TFC Mic. 10657); ***Lactarius deliciosus*** (L.) Gray var. ***deliciosus***, 20-12-1999; ***Lactarius sanguifluus*** (Paulet) Fr., 20-12-99 (TFC Mic. 9557); ***Lactarius tesquorum*** Malençon, under *Cistus symphytifolius* and *C. monspeliensis*, 19-01-2001 (TFC Mic. 9626); 20-12-99 (TFC Mic. 9550); ***Leucoagaricus melanotrichus*** (Malençon & Bertault) Trimbach, 20-12-99 (TFC Mic. 9540); ***Mycena amicta*** (Fr.) Quél., 20-12-99 (TFC Mic. 9539); ***Mycena capillaripes*** Peck, 15-12-2000 (TFC Mic. 9573); 15-12-2000 (TFC Mic. 9577); ***Myxomphalia maura*** (Fr.) Hora, 20-10-2001 (TFC Mic. 10554); ***Pseudoclitocybe cyathiformis*** (Bull.) Singer, 19-01-2001 (TFC Mic. 9627); ***Russula aurea*** Pers., 30-04-2000 (TFC Mic. 9585); ***Russula delica*** Fr., 20-12-99 (TFC Mic. 9561); ***Suillus bellinii*** (Inzenga) Watling, 15-12-2000 (TFC Mic. 9583); ***Suillus collinitus*** (Fr.) Kuntze, 29-04-2000 (TFC Mic. 11167); ***Suillus granulatus*** (L.) Roussel, 15-12-2000 (TFC Mic. 9579); 15-12-2000 (TFC Mic. 9581); ***Tricholoma batschi*** Gulden ex M. Chr. & Noordel., 15-12-2000 (TFC Mic. 9578); ***Tricholoma myomyces*** (Pers.) J.E. Lange, 3-01-73 (TFC Mic. 253); ***Tricholoma stans*** (Fr.) Sacc., 20-12-99 (TFC Mic. 9563); ***Tricholoma striatum*** (Schaeff.) Sacc., 20-12-1999 (TFC Mic. 9548).

Clitocybe pruinosa (Lasch) P. Kumm., Führer Pilzk.: 120 (1871) (Fig. 2)
= *C. radicellata* Gillet ss Kühner & Romagn., Moser; *C. verna* Egeland pp.

Pileus 3-4.5 cm broad, plano-convex to slightly depressed, dry, greyish brown to leather coloured, sometimes rather orange to ochre pigmented. **Lamellae** broadly adnate to subdecurrent, close, sometimes forked near the stipe

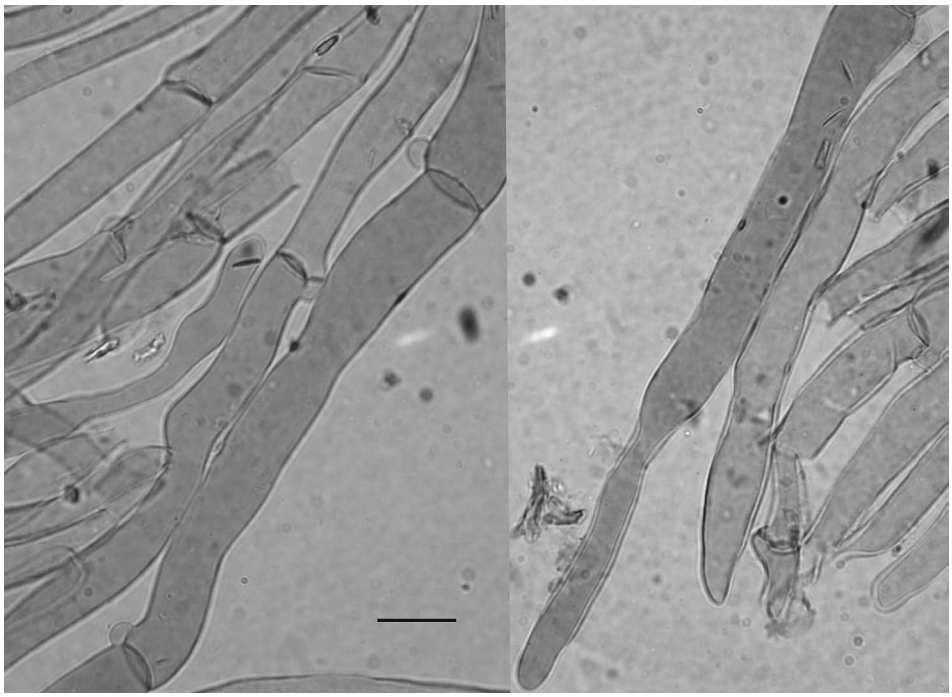

Fig. 2. *Clitocybe pruinosa*. Pileipellis, bar = 12 µm.

and usually intervenose in old pilei, whitish to beige. **Stipe** 2-4 × 0.3-0.5 cm, cylindrical, dry, subconcolorous with pileus, tenacious, soon hollow, base extended with white thick rhizomorphs. **Spores** (5.5)6-7.7 × (2.9)3.5-5.1 µm, ellipsoid. **Pileipellis** a cutis 80-200 µm thick; hyphae subparallel, 22-130 × 6-14.5 µm, cylindrical, sometimes shortly digitated, almost hyaline with intracellular granulose pigment, clamp-connections abundant; terminal elements apically obtuse, sometimes claviform 15.5-17.5 in diameter.

Specimen examined: Terricolous, 29-04-2000 (TFC Mic. 9589).

Observations: Our material coincides well with the description provided by Bon (1997) and Harmaja (1969) of this taxon belonging to subg. Clitocybe, sect. Vernae Singer, except for the apparently absence of a pruinose pileus. Bon (*op. cit.*) includes the species in a series of conflictive taxa [*C. pruinosa* sensu Harmaja, *C. radicellata* Gillet, *C. verna* sensu J. Favre, Raithelh., *C. rhizophora* (Velen.) Joss.], suggesting the Lasch's species with priority in case of synonymy. Harmaja (*op. cit.*) indicates that *C. pruinosa* occurs in autumn, winter and also throughout spring when it can be confused with the strictly vernal and closely related *C. vermicularis* (Fr.) Quél. [*C. rhizophora* (Velen.) Joss. sensu auct. pp., non Joss.]. In the study area both species were observed only in spring, also in close locations, but *C. vermicularis* is easily differentiated by its considerably smaller spores, ranging 3.7-5.1(5.5) × 2.6-3.7 µm. Revision of herbarium material in TFC Mic. revealed that some citations for the Canary Islands of *C. vermicularis* (Bañares & Beltrán, 1982; Bañares *et al*., 1986) and *C. rhizophora* (Beltrán *et al*., 1989; Bañares *et al*., 1991; 1992), both collected from autumn to spring, were confused with *C. pruinosa*.

Cystoderma jasonis (Cooke & Massee) Harmaja, *Karstenia* 18(1): 29 (1978) (Fig. 3) = *C. amianthinum* (Scop.) Fayod var. *longisporum* (Kühner) Locq.; *C. amianthinum* (Scop.) Fayod var. *longisporum* (Kühner) A.H. Sm. & Singer; *C. longisporum* (Kühner) Heinem. & Thoen

Pileus 2-2.5 cm broad, hemispherical, soon expanded, usually obtusely umbonate, granulose to verrucose, brownish beige with darker centre, margin lighter, with remnants of veil. **Lamellae** white, somewhat free. **Stipe** 25-30 ×

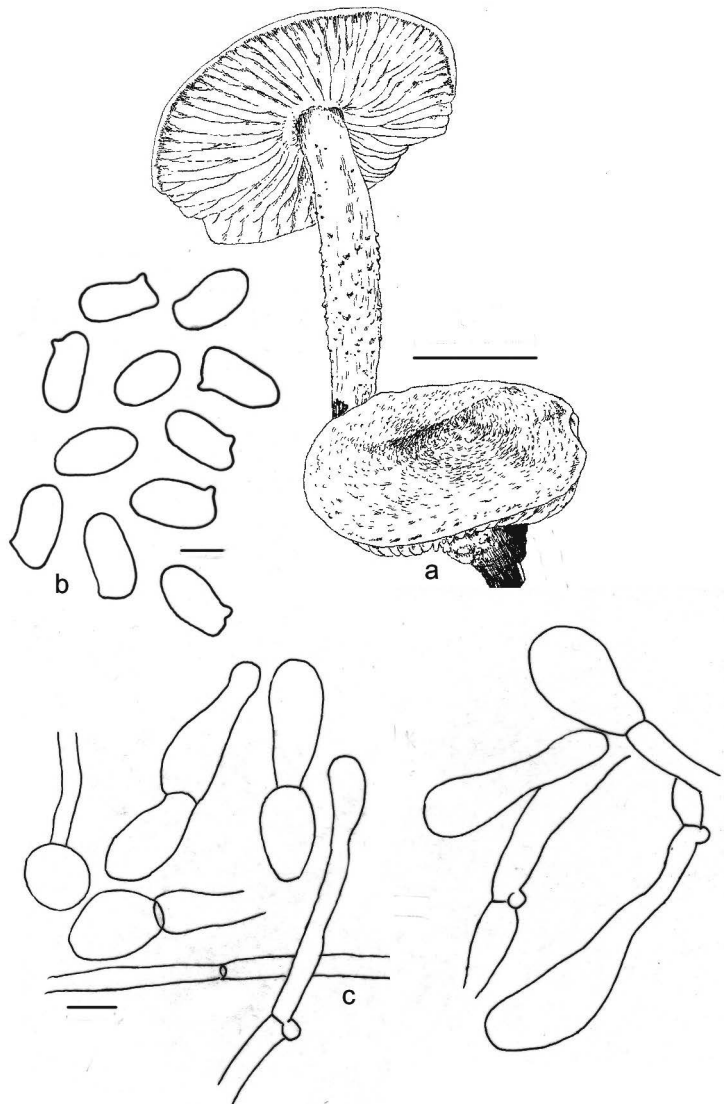

Fig. 3. *Cystoderma jasonis*. a) Carpophores, bar = 1 cm; b) Spores, bar = 4 µm; c) Pileipellis, bar = 10 µm.

3-4 mm, cylindrical, attenuate below, apex whitish cream, base abundantly granulose (granules concolorous to pileus); annulus fugacious. **Spores** 6.2-8.1 × 3.7-4.6 µm, moreles fusoid and typically depressed below the apiculus, hyaline, smooth, slightly amyloid. **Cystidia** absent. **Pileipellis** composed of subglobose to obpyriform, obovoid, claviform, sometimes appendiculate 12-18 µm wide cells, alternating with 4-7 µm wide hyphae, sometimes with clamp-connections. **Arthrospores** absent.

Specimen examined: Terricolous, 20-12-1999 (TFC Mic. 9554).

Observations: Our material coincides well with the descriptions provided by Smith & Singer (1945), Heinemann & Thoen (1973) and Bon (1999) of this taxon in section *Cystoderma*. According to Harmaja (1979), *C. jasonis* has amyloid spores and produces (always) arthrospores. However, our material lacks arthrospores as also reported by Smith & Singer (1945). Also Heinemann & Thoen (*op. cit.*) mention presence of arthrospores to occurr only with a 50% frequency. Another related arthrospore-forming species, *C. saarenoksae* Harmaja, has differently shaped spores. The slightly amyloid spores observed in our samples have also been reported by Smith & Singer (*op. cit.*). *C. jasonis* is differentiated from the closely related *C. amianthinum*, also reported from the Canary Islands, by its darker carpophores and by its larger, fusiform and depressed spores (see Harmaja, 1979).

Marasmius wynnei Berk. & Broome, Outl. Brit. Fung. (London): 220 (1860) (Fig. 4)
= *M. globularis* (Weinm.) Fr.

Pileus 1.5-3.5 cm broad, convex then plano-convex and depressed, sometimes mammilate or umbonate, white to whitish-ochre, centre darker (beige-ochre), smooth, hygrophanous and translucent-striate, sometimes subcostulate at margin. **Lamellae** adnexed to adnate, somewhat ventricose, white to greyish-white, darkening to grey; lamellulae 2-5. **Stipe** 25-70 × 1.5-4 mm, cylindrical but usually widened upwards, apex white and smooth, fibrillose and darkening to brown or greyish-brown downwards. **Smell** very pleasant when fresh. **Spores** 5.9-7.9 × (2.9)3.3-4.2 µm, oblong, sometimes lacrymoid. **Cheilocystidia** 4.3-6.3 µm wide, shortly emergent, multiform, nearly cylindrical to fusiform, claviform, sometimes lobate or with obtuse apical projections. **Context of pileus** regular, made up of cylindrical elements. **Pileipellis** hymeniform, made up of claviform, pyriform, ovate, rarely lobate elements 15-25 × 7.6-13 µm.

Specimens examined: Terricolous, also on remnants of decaying wood of *Pinus canariensis*. 19-01-2001 (TFC Mic. 9618); 16-12-2000 (TFC Mic. 9571)

Observations: Our material coincides well with the description provided by Antonín & Noordeloos (1993) of this taxon belonging to sect. *Globulares* Kühner, subsect. *Globulares*.

Melanoleuca nigrescens (Bres.) Bon, Doc. Mycol. 33: 47 (1978) (Fig. 5)
≡ *Tricholoma mirabile* Bres. var. *nigrescens* Bres.

Pileus 5-7.5 cm broad, soon applanate and somewhat obtusely mammilate, dark grey to bright sepia-brown, smooth and glabrous; margin incurved. **Lamellae** adnate to emarginate, sometimes with a small decurrent teeth, white but darkening to brownish when drying. **Stipe** 5-7 × 0.8-1 (1.2) cm, cylindrical, base slightly broadened, nearly concolour to pileus, striated, floccose to subgranulose upwards. **Odour** fruitose. **Spores** 7.7-9(10) × 4.5-5.5(5.9) µm, ellipsoid, with slightly delimited plage, verrucose, strongly amyloid. **Lamellae age** with urticiform cells, broadly based, septate, with a long tapering neck, not really

barbellate but apex sometimes with two cylindrical projections. **Basidia** (1)2-4 spored; immature basidia are pleurocystidia-like, with an apical papilla.

Specimen examined: Terricolous, 20-12-1999 (TFC Mic. 9537; Dup. in LIP, Herb. M. Bon).

Observations: Our material fits well in the key of Bon (1991), basically by the absence of true cystidia but the gill edge has ordinary, not crystalliferous cells [subg. *Acystis* (Bon) Bon = subg. *Melanoleuca* sec. Boekhout], ellipsoid spores [Q > (1.5) 1.6] (sect. *Decembres* Bon) and apically puberulent stipe (stirps *Metrodii*). Following Bon (*op. cit.*), other species without cystidia such as

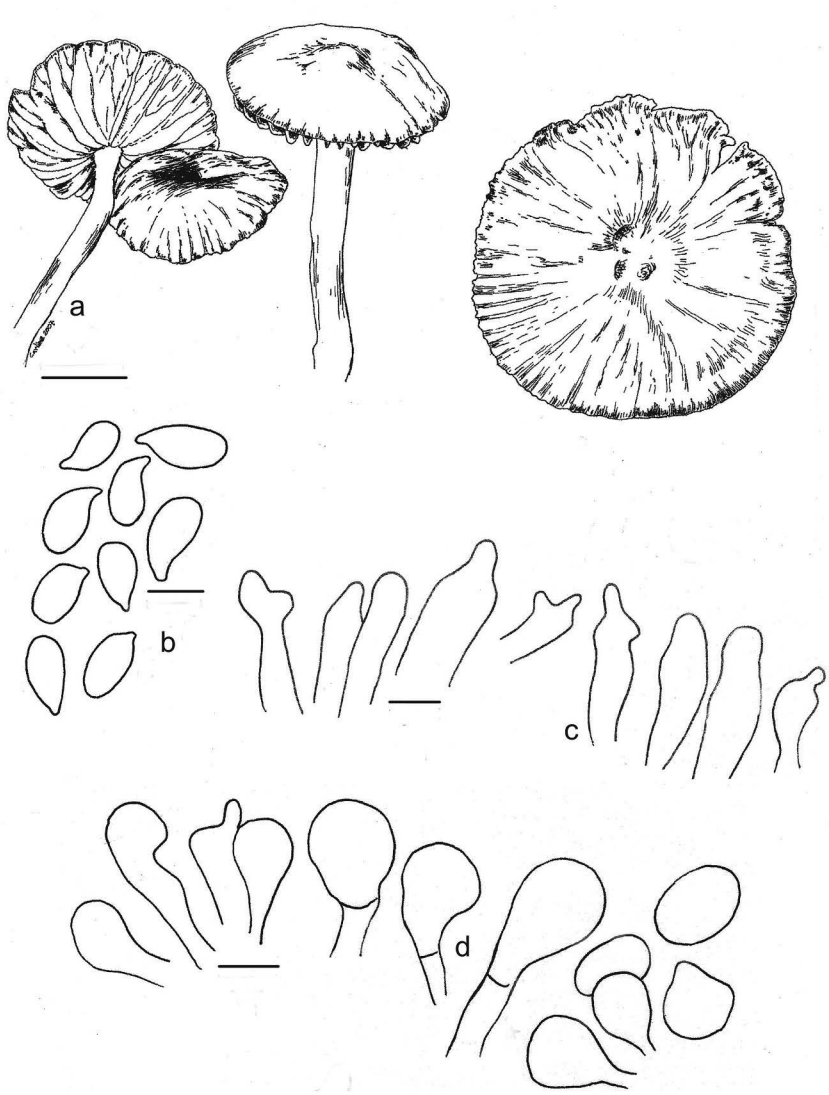

Fig. 4. *Marasmius wynnei*. a) Carpophores, bar = 1 cm; b) Spores, bar = 5 µm; c) Cheilocystidia, bar = 6 µm; d) Pileipellis, bar = 8 µm.

M. robertiana Bon (*M. melaleuca* sensu Kühner, Boekhout, *non al.*) has been reported for the Canary Islands (Bañares *et al.*, 1992). *M. melaleuca* (Pers.: Fr.) Murril (= *M. vulgaris* Pat.), a macroscopically similar species to *M. robertiana* differs by the presence of macrocystidia and is also present in the Canaries (Bañares *et. al.*, 1980; *op. cit.*; Dähncke, 1998).

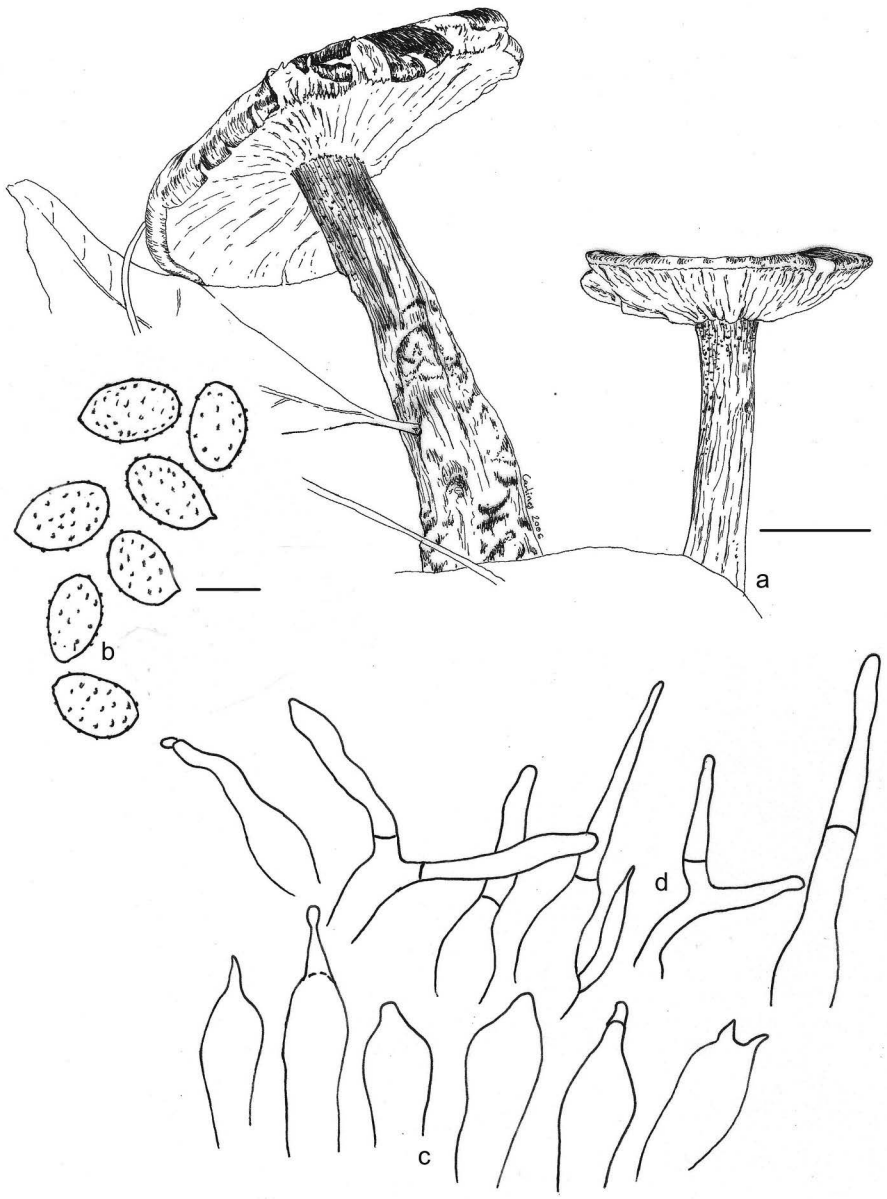

Fig. 5. *Melanoleuca nigrescens*. a) Carpophores, bar = 1,5 cm; b) Spores, bar = 6 µm; c) Basidia; d) Marginal cells.

Naucoria pseudoamarescens (Kühner & Romagn.) Kühner & Romagn., Fl. Analyt. Champ. Súper. (París): 236 (1953) (Fig. 6)
≡ *Alnicola pseudoamarescens* Kühner & Romagn.; *Hebeloma pseudoamarescens* (Kühner & Romagn.) Collin
= *Hebeloma funariophilum* M. M. Moser

Pileus 2-3.5 cm broad, plano-convex, somewhat umbonate, brown-beige, centre somewhat darker, hygrophanous, sometimes cracked radially. **Lamellae**

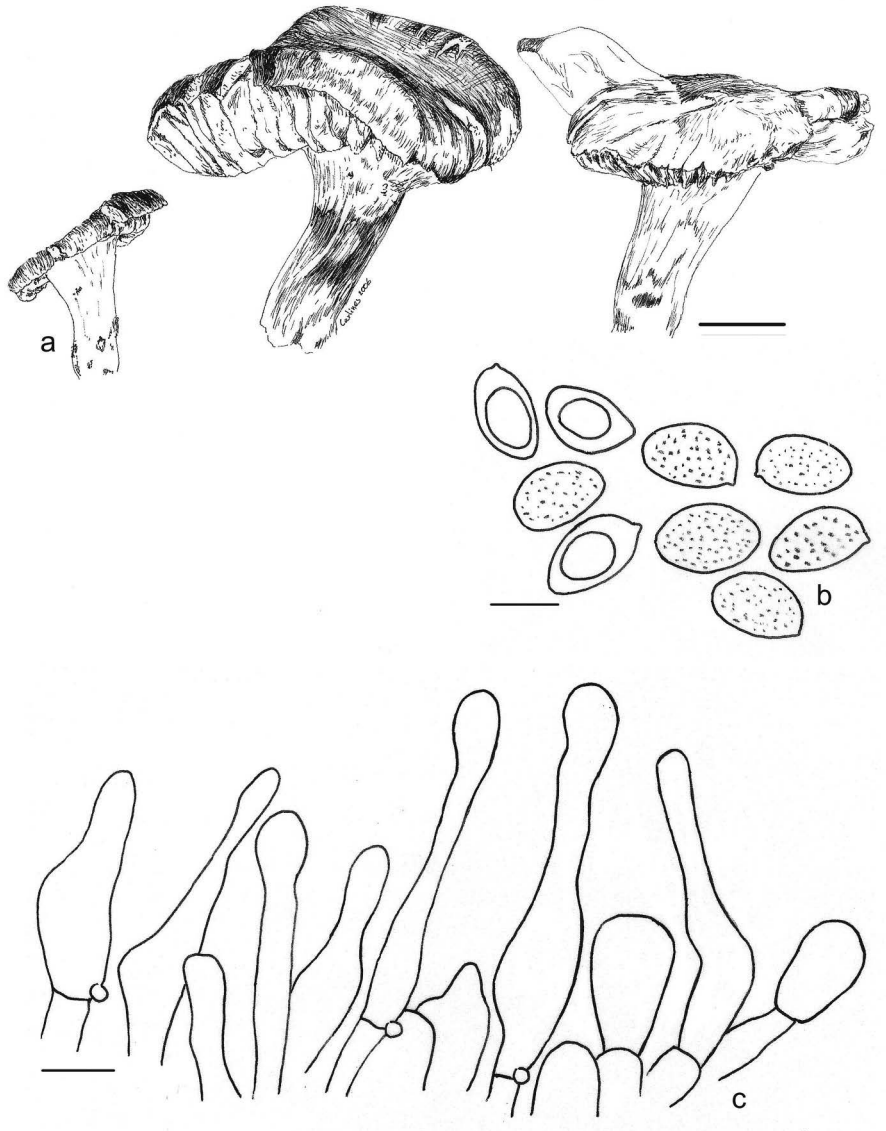

Fig. 6. *Naucoria pseudoamarescens*. a) Carpophores, bar = 1 cm; b) Spores, bar = 8 µm; c) Cheilocystidia, bar = 6 µm.

adnate, ventriform, light brown. **Stipe** 25-30 × 5-6 mm, broadened upwards (apex 8-9 mm broad), whitish but darkening to brown in old carpophores, fibrillose. **Flesh** bitter. **Spores** 9.5-13 × 6.5-7.4 µm, amygdaliform to ellipsoid, hardly smooth to finely verrucose, epispore appressed. **Spore print** olive-brown. **Cheilocystidia** 17-35 × 4-7.3 µm, sublageniform to cylindrical, apex subcapitate 4-6 µm wide, rarely claviform. **Clamp-connections** present. **Suprapellis** filamentous, gelatinized, with 2-4 µm wide hyphae; lower layers pseudoparenchymatous, made up of polygonal cells (puzzle like) with parietal, incrusting pigment.

Specimen examined: Terricolous, 19-01-2001 (TFC Mic. 9628; Dup. in Herb. M. Bon).

Observations: Our material coincides well with the description provided by Collin (1988, as *Hebeloma pseudoamarescens)* and included by Roux (2002) in sect. *Hebeloma*, subg. *Hebeloma*, series *Versipelle* (Bon, 2002). However, we follow the recent interpretations of Boyle *et al*. (2006) who consider the taxon to be in a different lineage from *Hebeloma*, and belong to the genus *Naucoria*. It is known as a carbonicolous species but our samples in the study area were collected on a free carbonized ground, possibly denoting past forest fires.

2. Agaricales of pinar-jaral

2.1. *On wood*

Baeospora myosura (Fr.) Singer, on cones of *Pinus canariensis*, 16-12-2000 (TFC Mic. 9572); 7-11-99 (TFC Mic. 9543); 17-12-2000 (TFC Mic. 9613; 9605); ***Gymnopilus junonius*** (Fr.) P.D. Orton, on fallen trunks of *Pinus canariensis*, 28-04-2000 (TFC Mic. 11412); 26-11-2000 (TFC Mic. 9906); ***Gymnopilus sapineus*** (Fr.) Maire, on stumps, fallen branches, decayed wood, barks and cones of *Pinus canariensis*, 20-10-2001 (TFC Mic. 10690); ***Marasmius anomalus*** Lasch in Rabenhorst var. ***anomalus***, on decayed twigs and needles of *Pinus canariensis*, 7-12-2000 (TFC Mic. 9606); ***Psilocybe fasciculare*** (Huds.) Noordel., on decayed wood of *Pinus canariensis*, 16-12-2000; ***Tapinella panuoides*** (Batsch) E.-J. Gilbert, on decayed trunks of *Pinus canariensis*, 23-01-2001 (TFC Mic. 11364).

Lentinellus micheneri (Berk. & M.A. Curtis) Pegler, Kew Bull., Addit. Ser. 10: 245 (1983) (Fig. 7)
≡ *L. fabelliformis var. micheneri* (Berk. & M.A. Curtis) P.A. Moreau & P. Roux
= *L. omphallodes* (Fr.) P. Karst

Pileus 1-3 cm broad, convex, then expanded to infundibuliform, ochre-brown, smooth, hygrophanous. **Lamellae** close to subdistant, serrate, adnate to decurrent, whitish to ochre, brownish in old carpophores. **Stipe** 6-15 × 1.5-2.5 mm, central, sometimes excentric, concolorous to pileus, glabrous, longitudinal striate, base with white rhizomorphs. **Spores** 4.5-7 × 3.5-5 µm, broadly ellipsoid, hyaline, verrucose, strongly amyloid. **Pseudocystidia** 31-50 × 5-7.6 µm, emergent, guttulate or with granulose, refringent contents, subcylindrical to fusi-lageniform, tapering upwards, apex acute, sometimes mucronate. **Leptocystidia** scarce, similar to pseudocystidia but hyaline. **Pileipellis** of 2-3 µm wide hyphae, without emergent elements.

Specimen examined: On twigs of *Pinus canariensis* and *Cistus symphytifolius*, occasionally terricolous. 7-11-99 (TFC Mic. 9544).

Observations: Our material coincides well with the description provided by Moreau *et al*. (1999) of this taxon belonging to section *Omphaloidei* Singer.

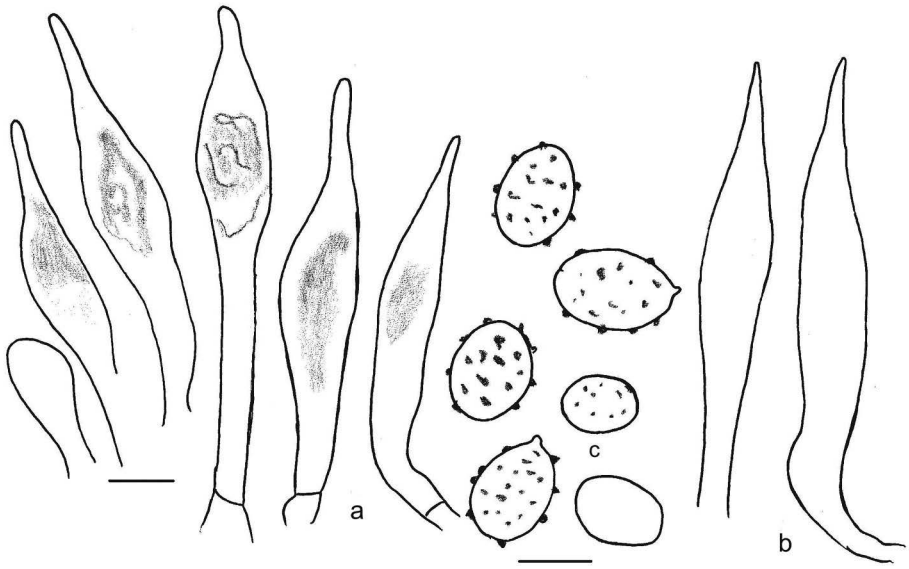

Fig. 7. *Lentinellus micheneri*. a) Pseudocystidia, b) Leptocystidia, bar = 5 µm; c) spores, bar = 4 µm.

2.2. *On soil*

Clitocybe trulliformis (Fr.) P. Karst., 24-01-2001 (TFC Mic. 10669); ***Cortinarius scobinaceus*** Malençon & Bertault, 20-01-2001 (TFC Mic. 10661; 10664); 21-12-99 (TFC Mic. 9545; 9570); 20-01-2001, among bryophytes (TFC Mic. 9623); ***Cystoderma cinnabarinum*** (Alb. & Schwein.) Fayod var. ***cinnabarinum***, 3-01-73 (TFC Mic. 361); 12-05-2001 (TFC Mic. 11343); ***Galerina hypnorum*** (Schrank) Kühner, sensu Smith & Singer, 20-01-2001, among bryophytes (TFC Mic. 10683); ***Hebeloma cistophilum*** Maire, 20-01-2001 (TFC Mic. 10660); 20-01-2001 (TFC Mic. 10659, 10678); 20-01-2001 (TFC Mic. 10687); ***Inocybe geophylla*** (Pers.) P. Kumm. var. ***geophylla***, 20-12-99 (TFC Mic. 9559); ***Lactarius deliciosus*** (L.) Gray var. ***deliciosus***, 20-12-99 (TFC Mic. 9555); ***Lactarius tesquorum*** Malençon, under *Cistus cymphytifolius* and *C. monspeliensis*, 23-01-2001 (TFC Mic. 10676); 20-01-2001 (TFC Mic. 10682); ***Lyophyllum conglobatum*** (Vittad.) Bon var. ***albidopallidum*** Bañares & Bon, 16-12-2000 (TFC Mic. 9538); 20-01-2001 (TFC Mic. 9622, 10680); ***Lyophyllum semitale*** (Fr.) Kühner, on slopes with bryophytes, 20-01-2001 (TFC Mic. 10684); ***Marasmius anomalus*** Lasch in Rabenhorst var**.** ***anomalus***, 17-12-2000 (TFC Mic. 9610); ***Marasmius wynnei*** Berk. & Broome, 20-10-2001 (TFC Mic. 10667); ***Mycena amicta*** (Fr.) Quél., 16-12-2000; ***Mycena capillaripes*** Peck, 17-12-2000 (TFC Mic. 9607); ***Mycena pura*** (Pers.) P. Kumm., 4-01-73 (TFC Mic. 320); ***Myxomphalia maura*** (Fr.) Hora, 21-12-99 (TFC Mic. 9568); among bryophytes, 20-12-99 (TFC Mic. 9549); ***Russula aurea*** Pers., 12-05-2001 (TFC Mic. 11344); ***Suillus bellinii*** (Inzenga) Watling, 20-12-99 (TFC Mic. 9547); 17-2-2000 (TFC Mic. 9602); 21-12-99 (TFC Mic. 9556); 17-12-2000 (TFC Mic. 9600); ***Suillus collinitus*** (Fr.) Kuntze, 20-10-2001 (TFC Mic. 10553); ***Suillus granulatus*** (L.) Roussel, 20-12-99 (TFC Mic. 9564); 17-12-2000 (TFC Mic. 9612);

7-11-99 (TFC Mic. 9566); 6-11-99 (TFC Mic. 9565); ***Tricholoma batschi*** Gulden ex M. Chr. & Noordel., 20-01-2001 (TFC Mic. 10665).

Tricholoma striatum (Schaeff.) Sacc., Syll. Fung. (Abellini) 25 (1915), *sensu* Bies., Bon, Riva

Pileus 5-11 cm broad, soon plano-convex, robust, reddish-brown, sometimes darker towards centre, weakly viscid when moist, distinctly innately fibrillose when dry; margin sometimes costulate. **Lamellae** white, with reddish tinge or with red dots. **Stipe** 5-7 × 1-2 cm, cylindrical, attenuate downwards, usually distinctly bicolour, apex white, concolorous to pileus downwards; annuliform zone brownish, fibrillose, very distinct in young carpophores. **Smell** absent or somewhat farinose. **Spores** 5.1-7.4 × 4-6 µm, subglobose, with distinct apiculus. **Pileipellis** an ixotrichoderm, made up of usually thin, cylindrical elements, 2.6-3.5 (6) µm wide, with apex obtuse; pigment minutely incrusting; subpellis made up of progressively enlarged elements.

Specimens examined: Terricolous, 21-12-99 (TFC Mic. 9562); 20-01-2001 (TFC Mic. 9624); 17-12-2000 (TFC Mic. 9604).

Observations: Our material coincides well with the descriptions provided by Riva (1988) and Bon (1991) of this taxon belonging to sect. *Albobrunnea* (Konrad & Maubl.) Bon. It was previously reported for the Canary Islands by Bañares *et al.* (1992). According to Noordeloos & Christensen (1999) it is close to or conspecific with *T. batschi* Gulden ex M. Chr. & Noordel. The latter taxon, however, is also present in the study area and can be differentiated from *T. striatum* by the more viscid pileus when moist, lacking a costulate margin and turning typically bright sericeous when dry.

We share the opinion of Noordeloos & Christensen (*op. cit.*) and also Riva (*op. cit.*) that *T. striatum* is clearly different from *T. albobrunneum* (Pers.) P. Kumm. The true *T. albobrunneum* has a weakly bicoloured stipe, a strongly farinose smell and ellipsoid, narrow 3-4 µm wide spores. This taxon has been commonly reported for the Canaries without any description being probably confused with *T. striatum.*

2.3. *Carbonicolous*

Myxomphalia maura (Fr.) Hora, among bryophytes, 20-01-2001 (TFC Mic. 10685).

3. Agaricales of summit shrub formations

3.1. *On wood*

Gymnopilus sapineus (Fr.) Maire, on decayed wood, 16-12-2000 (TFC Mic. 9591).

Resupinatus applicatus (Batsch) Gray, Nat. Arr. Brit. Pl. (London) 1: 617 (1821) (Fig. 8)

= *Resupinatus striatulus* (Pers.) Murrill; *Resupinatus trichotis* (Pers.) Singer; *Pleurotus rhacodius* (Berk. & M.A. Curtis) Sacc.

Pileus up to 12 mm, sessile, attached dorsally or laterally to the substrate, cupulate, flabelliform to almost applanate, dark greyish (plumb colour), glabrous but densely tomentose-strigose downwards; margin incurved. **Lamellae** 10-20 (lamellulae 5-10), free, thick, convergent towards centre, greyish to blackish-grey, margin whitish. **Spores** 4.2-5.7 µm, globose, shortly apiculate. **Basidia** tetrasporic.

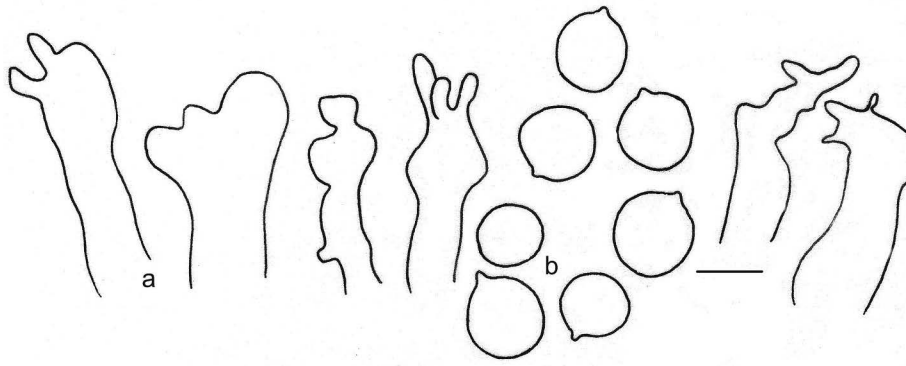

Fig. 8. *Resupinatus applicatus*. a) Cheilocystidia, b) Spores, bar = 4 µm.

Cheilocystidia 11.5-15.3 × 3.8-8.4 µm, hyaline, thin walled, irregularly coralloid, undulate, torulose, apex cuspidate by a long sterigma-like appendage, resembling abnormal basidia. **Context of pileus** made up of 2-3.5 µm wide, cylindrical, gelatinized hyphae. **Pileipellis** a cutis with transitions to a trichoderm, composed of 1.8-5.5 µm wide, not gelatinized, entangled, cylindrical hyphae, provided with short, single digitations; pigments brown, intracellular and parietal. **Clamp-connections** abundant.

Specimen examined: On debris of *Adenocarpus viscosus* ssp. *spartioides*, 20-10-2001 (TFC Mic. 10679).

Observations: Our material coincides well with the descriptions provided by Malençon & Bertault (1975) and Noordeloos (1995).

4. Agaricales of hygrophytic communities

4.1. *On wood*

Lentinellus flabelliformis (Bolton) S. Ito, Mycol. Fl. Japan 2 : 151 (1959) (Fig. 9)
≡ *Lentinus omphallodes* Fr. var. *flabelliformis* (Bolton) Pilát

Pileus 1-2.5 cm broad, convex to plano-convex with margin usually incurved, smooth, ochre-brown. **Lamellae** close to subdistant, serrate, decurrent, clay coloured. **Stipe** lateral, small 3-4 × 2-3 mm but sometimes enlarged, as long as diameter of pileus, longitudinal striate by the decurrent lamellae. **Spores** 4.3-6.5 × 3.2-4.7 µm, broadly ellipsoid, hyaline, verrucose, strongly amyloid. **Pseudocystidia** 27.5-35 × 4-8 µm, frequent, cylindrical to broadly cylindrical, narrowly utriform, undulate-flexuous, sometimes ventricose, subcapitate or appendiculate, with refringent contents. **Leptocystidia** 28-38 × 5-7.5 µm, scarce, emergent, differently shaped to pseudocystidia, acutely fusoid, hyaline. **Pileipellis** of 3-4 µm wide hyphae and emerging utriform to subcylindrical elements, sometimes ramified below.

Specimen examined: On twigs, occasionally terricolous, 17-12-2000 (TFC Mic. 9614).

Observations: Our material coincides well with the description provided by Moreau *et al.* (1999) of this taxon belonging to section *Omphaloidei* Singer.

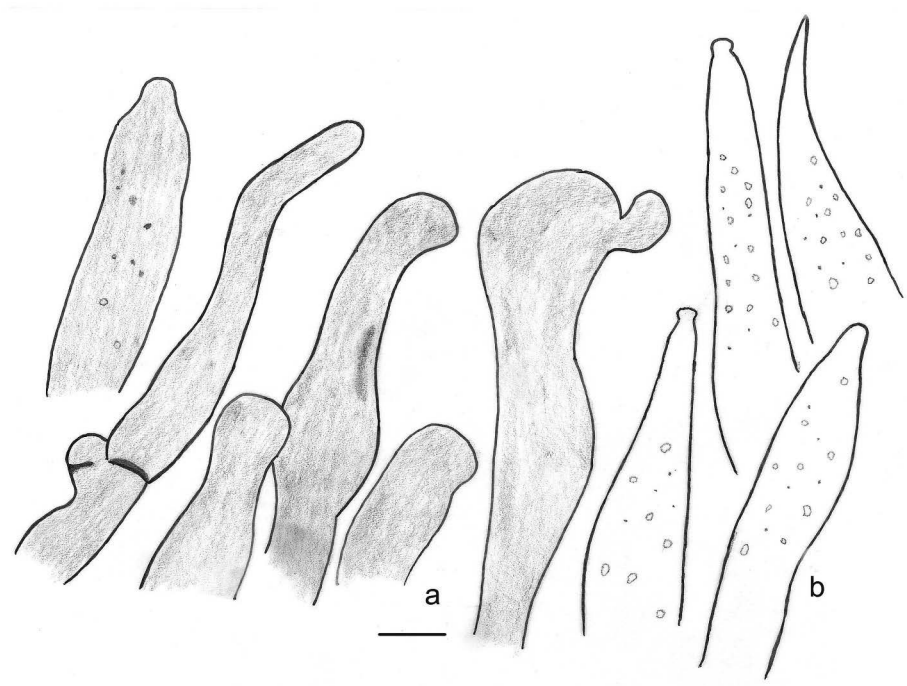

Fig. 9. *Lentinellus flabelliformis*. a) Pseudocystidia, b) Leptocystidia, bar = 4 µm.

4.2. *On soil*

Inocybe leptocystis G.F. Atk., 26-01-2001 (TFC Mic. 10671); ***Suillus bellinii*** (Inzenga) Watling, 21-12-1999; ***Suillus granulatus*** (L.) Roussel, 6-11-1999.

5. Agaricales of anthropic communities

5.1. *On soil*

Agaricus campestris L., 17-12-2000 (TFC Mic. 9603); ***Cortinarius scobinaceus*** Malençon & Bertault, 19-01-2001 (TFC Mic. 9616); ***Inocybe heimii*** Bon, 20-10-2001 (TFC Mic. 10668); 21-12-99 (TFC Mic. 9567); ***Lactarius deliciosus*** (L.) Gray var. ***deliciosus***, 20-1-2001; ***Marasmius anomalus*** Lasch in Rabenhorst var. ***anomalus***, 17-12-2000 (TFC Mic. 9609); ***Marasmius wynnei*** Berk. & Broome, 19-1-2001; ***Suillus bellinii*** (Inzenga) Watling, 20-10-2001; ***Suillus granulatus*** (L.) Roussel, 20-12-1999; ***Volvariella gloiocephala*** (DC.) Boekhout & Enderle, 23-01-2001 (TFC Mic. 10677).

Tricholoma scalpturatum (Fr.) Quél. var. ***meleagroides*** (Bon) Bañares & Bon, Bol. Soc. Micol. Madrid 20: 321 (1995)

Pileus 3.5-7 cm broad, plano-convex, slightly mammilate, blackish-grey, fibrillose-subsquamulose when young. **Lamellae** adnate, slightly emarginate, white, not staining yellow. **Stipe** 4-6 × 1-1.4 cm, cylindrical, slightly fibrillose,

whitish with dark nuances, having a distinct blackish annuliform zone. **Smell** farinose. **Spores** 6-8.1 × 3.5-4.3 µm (Q= 1.5-2.2), elongate, oblong to subcylindrical, hyaline, smooth, not amyloid. **Basidia** tetrasporic. **Lamellae edge** sterile, with basidiole-like cells, apex 4.5-7 µm wide. **Pilleipellis** a cutis, made up of parallel, cylindrical, dark brown hyphae, terminal elements almost claviform; pigment membranal, strongly incrustant; subpellis pseudoparenchymatous, made up of hyaline, subisodiametric elements. **Clamp-connections** absent.

Specimen examined: Terricolous, 21-12-99 (TFC Mic. 9558).

Observations: Our material coincides well with the original description of this rare taxon, apparently only known for the Canary Islands. Following Bon (1991), it belongs to subsect. *Terreina* (Konrad & Maublanc) Bon, between stirps *Terreum* and *Scalpturatum*. Following Noordeloos & Christensen (1999), *T. scalpturatum* var. *meleagroides* differs from the type variety by its lamellae never yellowish, subpellis of subisodiametric hyphae and its differently shaped spores. According to Obrevo (1989), it is close to *T. myomyces* (regarded as conspecific with *T. terreum* by the dutch authors), another species present in the study area, by the presence of an annuliform zone and the structure of the subpellis, but the current taxon has narrower and more elongated spores and a farinose smell.

5.2. *Carbonicolous*

Hebeloma cistophilum Maire, 21-12-99 (TFC Mic. 9598); ***Pholiota highlandensis*** (Peck) A.H. Sm. & Hesler, 21-12-99 (TFC Mic. 9546).

CONCLUSIONS

The actual fungal catalogue of Taburiente National Park consists of 293 taxa, with Aphyllophorales being the most important group (118 taxa), followed by Agaricales (75 taxa) and then Myxomycetes (67 taxa) (Beltrán & *et al*., 2004).

Previous collections of Agaricales in the National Park were reported by Beltrán & Wildpret (1975), Höiland (1979) and Dähncke (1998). From the total 59 species mentioned in this contribution, 51 of them are quoted for the first time for this protected area, 13 are new to La Palma island, and 8 are new to the Canary Islands: *Clitocybe pruinosa* (Lasch) P. Kümm., *Cystoderma jasonis* (Cooke & Massee) Harmaja, *Naucoria pseudoamarescens* (Kühner & Romagn.) Kühner & Romagn., *Melanoleuca nigrescens* (Bres.) Bon, *Mycena sylvae-nigrae* Maas Geest. & Schwöbel, *Phaeomarasmius erinaceus* (Pers.) Scherf. ex Romagn., *Resupinatus kavinii* (Pilát) M.M. Moser and *Tricholoma batschi* Gulden ex M. Chr. & Noordel.

Collections made through the 5 different vegetation types explored in the study area, revealed that Agaricales are mainly associated to the mesohygrophytic type "Mixed Pine Forest" (40 species), followed by the "Pinar-Jaral" formations (29). On the other hand, Aphyllophorales and Myxomycetes are represented mainly in the latter vegetation type, characterized by more xeric conditions.

Regarding substrates, most of the Agaricales are terricolous (47), followed by 15 lignicolous and 3 carbonicolous species; Aphyllophorales and Myxomycetes were maily collected on wood.

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