

Corticoid fungi from arid and semiarid zones of the Canary Islands (Spain). Additional data. 2.

ESPERANZA BELTRÁN-TEJERA¹, J. LAURA RODRÍGUEZ-ARMAS¹, M. TERESA TELLERÍA², MARGARITA DUEÑAS²,
IRENEIA MELO³, M. JONATHAN DÍAZ-ARMAS¹, ISABEL SALCEDO⁴ & JOSÉ CARDOSO³

¹Dpto. de Biología Vegetal (Botánica), Universidad de La Laguna,
38071 La Laguna, Tenerife, Spain

²Real Jardín Botánico, CSIC, Plaza de Murillo 2, 28014 Madrid, Spain

³Jardim Botânico (MNHNC), Universidade de Lisboa/CBA-FCUL,
Rua da Escola Politécnica 58, 1250-102 Lisboa, Portugal

⁴Dpto. de Biología Vegetal y Ecología (Botánica), Universidad del País Vasco (UPV/EHU)
Apto. 644, 48080 Bilbao, Spain

* CORRESPONDENCE TO: ebeltran@ull.es

ABSTRACT — A study of the corticoid fungi collected in the arid, semiarid, and dry zones of the Canary Islands is presented. A total of eighty species, most of them growing on woody plants, was found. Nineteen species are reported for the first time from the archipelago (*Asterostroma gaillardii*, *Athelia arachnoidea*, *Botryobasidium laeve*, *Byssomerulius hirtellus*, *Candelabrochaete septocystidia*, *Corticium meridioroseum*, *Crustoderma longicystidiatum*, *Hjortstamia amethystea*, *Hyphoderma malençonii*, *Leptosporomyces mutabilis*, *Lyomyces erastii*, *Peniophora tamaricicola*, *Phanerochaete omnivora*, *Phlebia albida*, *Radulomyces rickii*, *Steccherinum robustius*, *Trechispora praefocata*, *Tubulicrinis incrassatus*, and *T. medius*). The importance of endemic plants, such as *Rumex lunaria*, *Euphorbia lamarckii*, *E. canariensis*, *Kleinia neriifolia*, *Echium aculeatum*, and *Juniperus turbinata* ssp. *canariensis*, inter alia, as substrates for corticoid fungi was analyzed. The distribution of these fungi in different types of xerophytic plant communities and bioclimatic belts are discussed, as well as their ecological implications.

KEY WORDS — Basidiomycota, Aphyllphorales s.l., biodiversity, oceanic islands, succulent plants, termophilous habitats, Macaronesian bioregion.

Introduction

The arid regions of the world are particularly fragile, and biodiversity in these areas is under threat from climate change and human development. The study and protection of these areas has been declared a priority of several international conventions (IPCC, 1995, 2001). This is the reason for our interest in studying the corticoid fungi from the arid areas in the Canary Islands.

Most of the important bibliographic information on xerophilic or xerotolerant corticoid fungi growing in arid environments is found in taxonomic and floristic catalogs and monographs. Few studies focused solely on the ecology of corticoid fungi in arid, semiarid or dry habitats. Ecological observations of aphyllphoralous fungi from different vegetation types, including semiarid and dry environments, in the Iberian Peninsula can be found in Calonge & Tellería (1980), Honrubia & Llimona (1982), Honrubia et al. (1982), Vizoso & Ortega (1992), and Ortega & Lorite (2000).

As expected, most studies on fungi of the Canary Islands were from forest ecosystems, which are more favorable for their development. However, many aphyllphoralous species (Manjón & Moreno 1982; Beltrán-Tejera & Rodríguez-Armas 1999b; Tellería et al. 2008, 2012), and myxomycetes (Lado et al. 1999, 2007; Mosquera et al. 2000, 2003; Beltrán-Tejera et al. 2010) are present in arid, semi-arid, and dry areas of this archipelago. At these lower elevations, a unique plant community of succulents, commonly called "tabaibal-cardonal", develops which includes several species of *Euphorbia* and other woody plants.

Interesting and significant results of ecological and taxonomic value were obtained from studies conducted on the archipelago. Corticoid fungi new to science were described, such as *Cerocorticium canariensis* Manjón & Moreno (1982), *Gloeodontia xerophila* Tellería et al. (2008), and *Hyphoderma macaronesicum* Tellería et al. (2012). Five new species of myxomycetes were described also (Nannenga-Bremekamp et al. 1984; Lado et al. 1999, 2007; Mosquera et al. 2000, 2003). In the myxomycetes studies, research was carried out simultaneously in arid and semi-arid zones of the Canary Islands and Mexico.

All of the sampled stations in this work are located in the lower elevations of the islands. We also sampled other habitats located in the higher elevations, such as the dry ombrotype (summit broom scrub of Tenerife and La Palma). Because of the special characteristics of bioclimatic factors and vegetation of the Supra- and Oromediterranean areas, we plan to publish these results in a future contribution.

The Canary archipelago is an island group of volcanic origin located in the Atlantic Ocean, $27^{\circ}40' - 29^{\circ}30'N$ and $13^{\circ}25' - 18^{\circ}10'W$, and approximately 100–500 km from the West African coast and the Sahara desert, at about the same latitude as Florida (USA). The archipelago is composed of seven major islands (Hierro, La Palma, La Gomera, Tenerife, Gran Canaria, Fuerteventura and Lanzarote), and a few smaller ones (Map 1). Due to their volcanic nature, the relief is abrupt with a rapid altitudinal gradient that allows many climatic changes on each island. As an example, the elevation ranges from sea level to 3718 m at the summit of Teide volcano on Tenerife.



MAP 1. Geographic location of the Canary Islands.

From a bioclimatic aspect, the Canary Islands are included in the Mediterranean macrobioclimate that globally is comprised of eight bioclimates, six thermotypes, and nine ombrotypes (Rivas-Martínez 2007). According to Del Arco et al. (2006, 2009), the Canaries have 32 bioclimatic belts, defined as successive types or groups of physical features along an altitudinal or latitudinal cliseries. In this structure, they used a combination of five thermotypes (Infra-, Thermo-, Meso-, Supra-, and Oromediterranean), three oceanic bioclimates (desertic, xeric, and pluviseasonal), and six ombrotypes (hyperarid, arid, semiarid, dry, subhumid, and humid). In addition to these factors, the presence or absence of cloud banks generated by the NE tradewinds on the windward slopes are important, too. These cloud banks or "nubs-sea" are distributed around 500–1500 m. The temperature ranges between $18-22^{\circ}C$ and the annual rainfall is about 50–300 mm in the lower levels (Inframediterranean); around $11-18^{\circ}C$ and 300–800 mm (with great differences between North and South slopes, and with a maximum of 1300 mm in the northern cloud zone) in the mid level (Thermo- and Mesomediterranean); and $3.5-11^{\circ}C$ and 500–600 mm in the upper levels (Supra- and Oromediterranean), and snow above 1800–2000 m is frequent in winter (Del Arco et al. 2010). In the ombrotypes, annual precipitation is less than 50 mm in the hyperarid areas (located only in Fuerteventura, Lanzarote and a few places of the western islands), 50–200 mm in arid, 200–350 mm in semiarid, 350–550 mm in dry, 550–800 mm in subhumid, and more than 800 mm in humid areas (Rivas-Martínez et al. 1993).

The natural vegetation of the Canary Islands is highly stratified due to the influence of climatic factors, altitude, and exposure. There are five distinct greater natural vegetation types: (1) xerophytic scrubland called "cardonal-tabaibal" (sweet and bitter spurges and cardon scrubs) composed of succulent plants and occasionally aphyllous or spiny shrubs, dominated by *Euphorbia* spp., with a high proportion of endemic species (> 50%) extending into the lower elevations, beside the coast-halophilic communities on rocky or sandy substrates, mouths of ravines, etc., from sea level to 200–400 m on northern slopes, and up to 600–1000 m on southern slopes (Infra- and Thermomediterranean zone); (2) thermo-sclerophyllous woodland in the Infra- and Thermomediterranean zones, up to 350 m on the northern slopes and 500–900 m on the southern slopes; (3) evergreen laurel forest, also called "Monteverde" or laurisilva, is a cloud forest that develops under the influence of NE tradewinds, along the Infra-Thermo and Mesomediterranean zones, with dry, subhumid and humid ombrotypes, found in the western Canaries, between 350–1500 m on the north facing slopes; (4) pine woodland in the dry-subhumid-humid Thermo- and Mesomediterranean territories, without the tradewind clouds influence, occurs between 1500–2000 m on the north and 900–2200 on the south faces; (5) summit scrub of the Meso-Supra-Oromediterranean zone, with xerophytic *Adenocarpus-Spartocytisus* vegetation, is

present only on La Palma and Tenerife, between 2000–2700 m on the north slopes and 2200–3250 m on the south slopes (Del Arco et al. 2010).

Our studies on xerophytic corticioid fungi were carried out in the Infra- and Thermomediterranean zones with arid, semiarid, and dry ombrotypes, as a continuation of the work started over a decade ago (Beltrán-Tejera & Rodríguez-Armas 1999a). The 100 sampled stations are located in the lower elevations between sea level and 500 m approximately (exceptionally up almost 1000 m high, in certain localities on southern slopes). There are at least five types of vegetative communities in the sampled areas, two natural and three disturbed habitats. The two natural communities are present in all the islands: (a) a sweet spurge scrub with *Euphorbia balsamifera* called in Spanish “tabaibal dulce” and (b) a cardon scrubland dominated by *Euphorbia canariensis* called “cardonal”. In addition, on Fuerteventura there is an exclusive endemic cardon with *Euphorbia handiensis*. In the ravine mouths near the sea, interesting halophilic plants, such as *Tamarix canariensis*, are present. Numerous endemic vascular plants are present in these communities such as *Kleinia neriifolia*, *Plocama pendula*, *Euphorbia aphylla*, *Euphorbia atropurpurea*, *Caralluma burchardii*, *Schizogyne sericea*, *Artemisia thuscula*, *Echium aculeatum*, *Echium brevirame*, and *Asteriscus intermedius*. In places where these natural communities were disturbed by human action the (c) bitter spurge or “tabaibal amargo” community in which *Euphorbia lamarckii*, *E. regis-jubae* or *E. berthelotii* flourish, dominating areas at the lower elevations. Isolated individuals of *Euphorbia balsamifera* near the sea, and of *Euphorbia canariensis* above this level, grow in these scrublands of bitter spurges. In the upper-semiarid ombrotype zone, above the “tabaibales and cardonales”, (d) the *Juniperus turbinata* ssp. *canariensis* community (thermo-sclerophilous woodlands, called “sabinares”) occurs on some islands, usually accompanied by plants from of the lower elevations. This thermophilous woodland transitions into the subhumid-humid montane belt of the forestal formations. In several places, the natural vegetation was completely replaced long ago by cultivated plots, now abandoned, and replaced by (e) an anthropic community composed of exotic species such as *Opuntia*, *Agave*, and *Eucalyptus*. Often these communities (a–e) are overlapping, and we were able to distinguish up to four intermixed vegetation complexes (a, b; a, c; b, c; c, e) (Fig. 5).

Materials & methods

All seven of the Canary Islands were surveyed at 100 localities at the lower elevations. Biotic and abiotic data were recorded, and all the localities were georeferenced by GPS (Garmin 12 XL). Most of the work was undertaken over a 15 year period (1993–2007). All potential substrates, autochthonous and introduced taxa, were sampled. We examined 482 specimens following classical methods. Thin, freehand sections were mounted in KOH (5%) and/or Melzer reagent and examined with Olympus (BH-2, BH-50 and BX-50) microscopes. For micro-measurements, a Wild (15x SK) ocular micrometer was used. The specimens were deposited in TFC (section Mycologia: TFCMic.), MA-Fungi, LISU and BIO herbaria.

The information on the vegetation and bioclimates are based on bibliographic data and our own assessment. The phrase “ecological valence” used in the discussion section expresses the ecological amplitude or variability of some species that grow in different vegetal communities, altitudes, or climatic conditions.

Sampled localities

Material was collected in localities numerically arranged by island (H: Hierro; P: La Palma; G: La Gomera; T: Tenerife; C: Gran Canaria; F: Fuerteventura; and L: Lanzarote) and geographically arranged from west to east in the archipelago (Map 2). Additional information on georeferences, bioclimatic belts (ombrotype + bioclimate + thermotype), and observed vegetation [a = “sweet spurge”; b = “cardon scrub”; c = “bitter spurge” sensu lato (western islands: *Euphorbia lamarckii*, in La Gomera also *E. berthelotii*; eastern islands: *Euphorbia regis-jubae*); d = thermo-sclerophilous woodland (“sabinares”); e = anthropic communities, with exotic species introduced such as *Opuntia* spp., *Agave* spp., *Eucalyptus* spp.; and mixed communities: a, b; a, c; b, c; c, e] are given, preceded in most cases by notes on the floristic components. Finally, indicated in brackets, the natural or potential plant community corresponding to that zone.

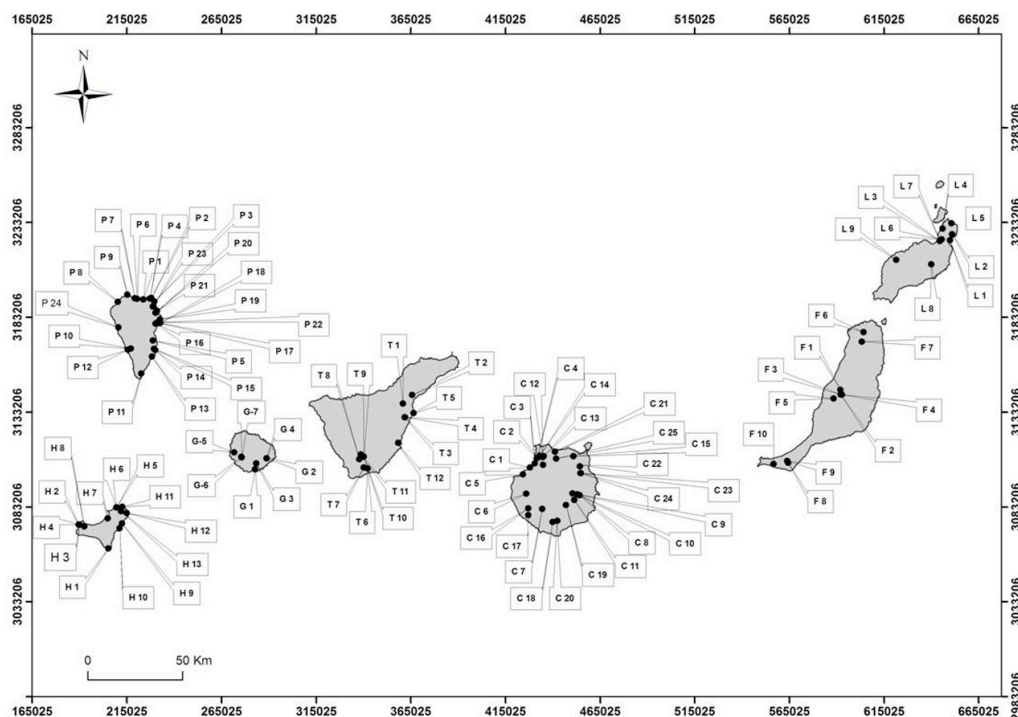
HIERRO: (H-1) El Pinar, near la Restinga, 75 msl (S), (27°38'38.23"N 17°59'12.33"W), arid desertic Inframediterranean belt; (c), [*Euphorbia balsamifera* community].

(H-2) Frontera, El Golfo, Punta de la Dehesa, 25 msl (NW), (27°45'59"N 18°7'34"W), arid desertic Inframediterranean belt; degraded *Euphorbia lamarckii* community with *Shizogyne sericea* (“iramar”), (c), [*Euphorbia balsamifera* community].

(H-3) Frontera, El Golfo, Punta de la Dehesa, near to Verodal beach, 50 msl (NW), (27°45'13"N 18°8'57"W), arid xeric Inframediterranean belt; (c), [*Euphorbia balsamifera* community].

(H-4) Frontera, 250 msl (NW), (27°45'15"N 18°8'37"W), lower-semiarid xeric Inframediterranean belt; (c), [*Euphorbia canariensis* community].

(H-5) Frontera, 350 msl (NW), (27°44'42"N 18°8'31"W), lower-semiarid xeric Inframediterranean belt; (c), [*Euphorbia canariensis* community].



MAP 2. Canary Islands: Sampled localities in all archipelago for this work.

(H-6) Frontera, El Golfo, Pozo de Las Calcosas, 50 msl (NE), (27°50'24"N 17°56'54.11"W), arid desertic Inframediterranean belt; very degraded rocky coastal halophilous community, (e), [*Frankenio-Astydamietum* community].

(H-7) Frontera, El Golfo, Las Puntas, near ancient path to Mirador de la Peña, 55 msl (N), (27°47'13"N 17°59'37"W), lower-semiarid xeric Inframediterranean belt; cultivation plots abandoned years ago, with elements of bitter spurge community, (c, e), [*Euphorbia canariensis* community].

(H-8) Frontera, El Sabinar de la Dehesa, 610 msl (NW), (27°44'43.97"N 18°7'2.01"W), upper-semiarid xeric Inframediterranean belt; thermophilous woodland of *Juniperus turbina* ssp. *canariensis* ("sabinares"), with *Euphorbia lamarckii*, *Kleinia neriifolia*, *Cistus monspeliensis*, etc. (d), [thermosclerofic woodland].

(H-9) Valverde, around Timijiraque, 50 msl (SE), (27°45'53.11"N 17°55'0.28"W), lower-semiarid xeric Inframediterranean belt; degraded *Euphorbia lamarckii* community, (c), [*Euphorbia canariensis* community].

(H-10) Valverde, Punta de Bonanza, around the tunnel of Los Roques de la Bonanza, 100 msl (SE), (27°44'28.79"N 17°55'43.27"W), lower-semiarid xeric Inframediterranean belt; degraded scrubland of bitter spurges with *Euphorbia lamarckii*, *Kleinia neriifolia*, *Rubia fruticosa*, etc., (e), [*Euphorbia canariensis* community].

(H-11) Valverde, Echedo, near Montaña de las Salinas, 80 msl (NE), (27°50'37.60"N 17°54'59.11"W), lower-semiarid xeric Inframediterranean belt; *Euphorbia balsamifera* community, with *Euphorbia canariensis*, etc., (a, b), [*Euphorbia canariensis* community].

(H-12) Valverde, near Tamaduste, 50 msl (NE), (27°48'51"N 17°53'34"W), arid desertic Inframediterranean belt; sweet spurge shrub, with *Schizogyne sericea*, *Periploca laevigata*, *Rumex lunaria*, etc., (a), [*Euphorbia balsamifera* community].

(H-13) Valverde, near Mocanal, 550 msl (NE), (27°49'21"N 17°55'25"W), upper-dry pluviseasonal Thermoterranean belt; anthropic plant communities, with *Artemisia thuscula*, *Rumex lunaria*, *Opuntia maxima*, *Agave americana*, etc., (e), [dry montev.].

LA PALMA: (P-1) Barlovento, La Palmita, end of runway, 336 msl (NE), (28°49'53"N 17°49'50"W), upper-dry pluviseasonal Inframediterranean belt; degraded bitter spurge of *Euphorbia lamarckii*, with members of thermophilous *Erica-Myrica* community, (c), [dry montev.].

(P-2) Barlovento, above the Fajana de Barlovento, Punta Corcho, 80 m (NE), (28°50'22"N 17°47'10"W), upper-semiarid xeric Inframediterranean belt; (b, c), [thermo-sclerophilous woodland].

- (P-3) Barlovento, Punta de Oropesa or Punta Salvaje, 100 msl, (NE), (28°49'23"N 17°46'16"W), lower-semiarid xeric Inframediterranean belt; sweet spurge scrub with *Euphorbia canariensis*, *Periploca laevigata*, (a), [*Euphorbia canariensis* community].
- (P-4) Barlovento, on ravine left of la Fajana de Barlovento, Las Paredes de Abajo, 250 msl (NE), (28°50'13.36"N 17°47'43.76"W), upper-dry pluviseasonal Inframediterranean belt; somewhat altered carbon scrubland on very steep slope, with *Artemisia thuscula*, *Periploca laevigata*, *Rumex lunaria*, etc., (b), [dry montev.].
- (P-5) Breña Baja, near La Rosa, 350 msl (E), (28°38'16.90"N 17°46'24.15"W), upper-dry pluviseasonal Inframediterranean belt; disturbed *Euphorbia lamarckii* community, (c), [dry montev.].
- (P-6) Garafía, the Fajana de Garafía, 70 msl (N), (28°50'1.63"N 17°51'48.51"W), upper-semiarid xeric Inframediterranean belt; habitat degraded with bitter spurge, (c), [*Euphorbia canariensis* community].
- (P-7) Garafía, protected natural area of El Guelguen, Barranco de Facundo near El Portal del Tablado, 190 msl (N), (28°50'9"N 17°52'39"W), upper-semiarid xeric Inframediterranean; carbon scrubland of *Euphorbia canariensis* community with bitter spurge, (b, c), [*Euphorbia canariensis* community].
- (P-8) Garafía, Santo Domingo de Garafía, 190 msl (NW), (28°49'3.47"N 17°58'4.81"W), lower-semiarid xeric Inframediterranean belt; very well preserved community of sweet spurge (*Euphorbia balsamifera*) with *Euphorbia canariensis*, *Ceropegia dichotoma*, *Echium brevirame*, (a, b), [*Euphorbia canariensis* community].
- (P-9) Garafía, Punta de Juan Adalid, ravine to the left, 45 msl (N), (28°51'7.63"N 17°55'1.74"W), upper-semiarid xeric Inframediterranean; sweet spurge (*Euphorbia balsamifera*), with *Euphorbia canariensis*, *Kleinia neriifolia*, etc., (a), [*Euphorbia canariensis* community].
- (P-10) El Paso, around town, 490 msl (W), (28°35'50.05"N 17°53'27.11"W), upper-semiarid xeric Inframediterranean; *Euphorbia lamarckii* community with abundance of *Rumex lunaria* and *Schizogyne sericea*, (c), [thermo-sclerophilous woodland].
- (P-11) Fuencaliente, around the lighthouse, 200 msl (S), (28°28'46.49"N 17°49'56.34"W), upper-semiarid xeric Inframediterranean belt; degraded scrublands of bitter spurge (*Euphorbia lamarckii*) with *Kleinia neriifolia*, *Echium brevirame*, *Rumex lunaria*, etc., (c), [thermo-sclerophilous woodland].
- (P-12) Los Llanos de Aridanes, on Puerto de Naos, 150 msl (W), (28°35'26.74"N 17°54'24.60"W), lower-semiarid xeric Inframediterranean belt; *Euphorbia lamarckii* community with abundant *Rumex lunaria* and *Schizogyne sericea*, (c), [*Euphorbia canariensis* community].
- (P-13) Villa de Mazo, Montaña del Azufre, 190 msl (SE), (28°33'40.33"N 17°46'33.50"W), lower-semiarid xeric Inframediterranean belt; *Euphorbia lamarckii* community with *Euphorbia balsamifera*, *Kleinia neriifolia*, *Echium brevirame*, etc., (c), [*Euphorbia canariensis* community].
- (P-14) Villa de Mazo, Montaña del Pocito, 135 msl (E-SE), (28°35'34.56"N 17°45'34.99"W), lower-semiarid xeric Inframediterranean belt; degraded *Euphorbia lamarckii* community with abundant *Rumex lunaria*, *Schizogyne sericea* and *Kleinia neriifolia*, (c), [*Euphorbia canariensis* community].
- (P-15) Villa de Mazo, near to San Simón, 150 msl (E-SE), (28°35'51.96"N 17°45'57.53"W), upper-dry pluviseasonal Inframediterranean belt; vine crops in degraded *Euphorbia lamarckii* community, (c), [dry montev.].
- (P-16) Barranco Seco, between the municipalities of Santa Cruz de La Palma and Puntallana, 170 msl (E), (28°43'5.87"N 17°45'39.46"W), upper-semiarid xeric Inframediterranean belt; near the bottom of cultivated plots with fruit trees, *Citrus aurantium*, *Persea americana*, etc., (e), [thermo-sclerophilous woodland].
- (P-17) Puntallana, on the way to Martín Luis-1, 150 msl (E), (28°43'19.63"N 17°44'24.7"W), upper-semiarid xeric Inframediterranean belt; (b), [*Euphorbia canariensis* community].
- (P-18) Puntallana, on the way down to Martín Luis-2, 75 msl (E), (28°43'19"N 17°44'5.77"W), upper-semiarid xeric Inframediterranean belt; degraded *Euphorbia lamarckii* community with *Phoenix canariensis*, (c), [*Euphorbia canariensis* community].
- (P-19) Puntallana, near Llanos de Amador, 280 msl (E), (28°44'20.32"N 17°44'17.44"W), upper-dry pluviseasonal Inframediterranean belt; carbon-bitter spurge community, with elements of a degraded thermo-sclerophyllous woodland and laurel forest, (b, c), [dry montev.].
- (P-20) Puntallana, Barranco del Cubo de la Galga, lower part of ravine, 240 msl (E), (28°46'10.80"N 17°45'48.01"W), upper-dry pluviseasonal Inframediterranean belt; degraded *Euphorbia lamarckii* community with elements of thermophilous *Erica-Myrica* community, (c), [dry montev.].
- (P-21) Puntallana, Barranco de La Galga, El Sabinar, upper edge of cliff, 180 msl (E), (28°46'45.15"N 17°45'19.80"W), upper-semiarid xeric Inframediterranean belt; carbon scrubland with *Globularia salicina*, *Peliploca laevigata*, etc., (b), [thermo-sclerophilous woodland].
- (P-22) Puntallana, Barranco del Agua, Fuente de Santa Lucía, 350 msl (E), (28°43'29.34"N 17°45'3.24"W), upper-semiarid xeric Inframediterranean belt; degraded *Euphorbia lamarckii* community with abundance of *Rubus ulmifolius*, *Opuntia maxima*, and *Agave americana*, (c), [thermo-sclerophilous woodland].
- (P-23) San Andrés y Los Sauces, Barranco de Los Tilos, lower part of the ravine below road, 195 msl (E-NE), (28°47'56.58"N 17°46'37.82"W), upper-dry pluviseasonal Inframediterranean belt; disturbed zone with cultivated *Musa acuminata* and elements of degraded scrubland of bitter spurges such as *Artemisia thuscula*, *Rumex lunaria*, etc., (e), [dry montev.].

- (P-24) Tijarafe, Pintado, near Punta del Jurado, 330 msl (W), (28°41'44.38"N 17°57'39.90"W), lower-semiarid xeric Inframediterranean belt; degraded *Euphorbia lamarckii* community, (c), [*Euphorbia canariensis* community].
- LA GOMERA:** (G-1) Alajeró, Playa Santiago, Barranco de Santiago, 75 msl (SE), (28°2'7.14"N 17°12'31.88"W), arid desertic Inframediterranean belt; degraded community of bitter spurge, *Euphorbia berthelotii*, (c), [*Euphorbia canariensis* community].
- (G-2) San Sebastián de La Gomera, Jerduñe, along road to Playa de Santiago, 800 msl (SE), (28°5'17.40"N 17°8'55.85"W), upper-semiarid xeric Inframediterranean belt; degraded *Euphorbia berthelotii* community with *Opuntia maxima*, *Agave americana*, etc., (c), [thermosclerofic woodland].
- (G-3) San Sebastián de La Gomera, Las Toscas, Bco. de Tejiade, along road to Playa de Santiago, 525 msl (SE), (28°3'49.10"N 17°12'11.85"W), lower-semiarid xeric Inframediterranean belt; degraded xerophitic brushwood of *Euphorbia berthelotii*, (c), [*Euphorbia canariensis* community].
- (G-4) San Sebastián de La Gomera, near Degollada de Peraza, road to Degollada de Peraza to Villa de San Sebastián, 550 msl (SE), (28°5'17.40"N 17°8'55.85"W), upper-semiarid xeric Inframediterranean belt, (c), [thermosclerofic woodland].
- (G-5) Valle Gran Rey, cliffs above town, Mirador de Granados, 510 msl (SW), (28°6'49.9"N 17°19'18.93"W), lower-semiarid xeric Inframediterranean belt; scrubland of bitter spurge, *Euphorbia berthelotii*, with *Kleinia neriifolia*, *Rubia fruticosa*, *Periploca laevigata*, etc., (c), [*Euphorbia canariensis* community].
- (G-6) Vallehermoso, Chipude, La Dehesa, on road to La Dama-1, 900 msl (SW), (28°5'33.80"N 17°17'2.27"W), upper-semiarid xeric Thermomediterranean belt; degraded scrubland of bitter spurges of *Euphorbia berthelotii*, (c), [thermosclerofic woodland].
- (G-7) Vallehermoso, Chipude, near La Dama-2, 885 msl (SW), (28°5'26.49"N 17°16'58.85"W), upper-semiarid xeric Thermomediterranean belt; degraded xerophitic brushwood with *Euphorbia berthelotii*, (c), [thermosclerofic woodland].
- TENERIFE:** (T-1) Arafo, along road to Teide, km 3.3, 683 msl (SE), (28°21'27.30"N 16°25'9.09"W), upper-semiarid xeric Thermomediterranean belt; anthropic *Euphorbia lamarckii* community with *Agave americana*, *Opuntia maxima*, etc., (c, e), [thermosclerofic woodland].
- (T-2) Candelaria, above Barranco Hondo, 622 msl (SE), (28°24'1.05"N 16°22'10.78"W), lower-dry xeric Thermomediterranean belt; degraded xerophitic brushwood of *Euphorbia lamarckii*, (c), [thermosclerofic woodland].
- (T-3) Güímar, Ladera de Güímar, 541 msl (SE, orient. NE), (28°17'33.37"N 16°24'28.14"W), upper-semiarid xeric Thermomediterranean belt; *Euphorbia canariensis* community with *Euphorbia atropurpurea*, *Rhamnus crenulata*, *Artemisia thuscula*, *Kleinia neriifolia*, etc., (b), [thermosclerofic woodland].
- (T-4) Güímar, Ladera de Güímar, near the previous location, 480 msl (SE, orient. NE), (28°17'36.39"N 16°24'25.74"W), lower-semiarid xeric Thermomediterranean belt; (b), [thermosclerofic woodland].
- (T-5) Güímar, Malpaís de Güímar, 22 msl (SE, orient. NE), (28°18'48.08"N 16°21'40.17"W), arid desertic Inframediterranean belt; sweet spurge community with *Schizogyne sericea*, *Euphorbia canariensis*, etc., (a), [*Euphorbia balsamifera* community].
- (T-6) San Miguel de Abona, Barranco de La Orquilla, road to Atogo, 100 msl (S), (28°2'51.5"N 16°36'20.16"W), arid desertic Inframediterranean belt; carbon scrubland of *Euphorbia canariensis* community with *Euphorbia balsamifera*, *Kleinia neriifolia*, and abundant *Plocama pendula*, (b), [*Euphorbia balsamifera* community].
- (T-7) San Miguel de Abona, Barranco de Los Erales, 170 msl (S), (28°3'6.30"N 16°37'29.64"W), arid desertic Inframediterranean belt; carbon scrubland with *Schizogyne sericea*, *Argyranthemum gracile*, *Plocama pendula*, *Periploca laevigata*, etc., (b), [*Euphorbia balsamifera* community].
- (T-8) San Miguel de Abona, Roque de Jama, Barranco de Jama, 424 msl (S), (28°5'29.46"N 16°39'0.14"W), lower-semiarid xeric Inframediterranean belt; carbon scrubland of *Euphorbia canariensis* with *Plocama pendula*, *Periploca laevigata*, etc., (b), [*Euphorbia canariensis* community].
- (T-9) San Miguel de Abona, Las Cuevitas-1, 690 msl (S), (28°6'11.76"N 16°37'34.33"W), lower-semiarid xeric Thermomediterranean belt; degraded *Euphorbia lamarckii* community with *Rumex lunaria*, *Opuntia maxima*, etc., among agricultural crops, (c, e), [thermosclerofic woodland].
- (T-10) San Miguel de Abona, Las Cuevitas-2, 725 msl (S), (28°6'11.07"N 16°37'37.20"W), lower-semiarid xeric Thermomediterranean belt; (c, e), [thermosclerofic woodland].
- (T-11) Vilaflor, Jama, 925 msl (S), (28°6'49.75"N 16°38'32.50"W), upper-semiarid xeric Thermomediterranean belt; anthropic zone of *Euphorbia lamarckii* with *Opuntia maxima*, *Cistus monspeliensis* and pine forest elements, (c, e), [thermosclerofic woodland].
- (T-12) Arico, road to Arico Viejo, 100 msl (S) (28°10'15"N 16°26'33"W), arid desertic Inframediterranean belt; degraded carbon scrubland of *Euphorbia canariensis* community with *Euphorbia balsamifera*, *Euphorbia lamarckii*, *Schizogyne sericea*, etc., (b), [*Euphorbia balsamifera* community].
- GRAN CANARIA:** (C-1) Agaete, Barranco de Segura, 150 msl (NW), (28°3'33"N 15°43'57"W), arid desertic Inframediterranean belt; *Euphorbia* spp. community very degraded with abundant *Pennisetum setaceum* (c, e), [*Euphorbia balsamifera* community].

- (C-2) Agaete, El Vínculo (Valle de Agaete), 300 msl (NW), (28°4'20.58"N 15°39'45.65"W), upper-dry pluvisesonal Thermomediterranean belt; vegetal community very degraded with *Eucalyptus camaldulensis*, *Agave americana*, *Pennisetum setaceum*, and several natives plants such as *Rumex lunaria*, *Euphorbia regis-jubae*, *Kleinia neriifolia*, etc., (e), [dry montev.].
- (C-3) Agaete, Barranco de Guayedra, 100 msl (NW), (28°4'45.37"N 15°42'22.82"W), lower-semiarid xeric Inframediterranean belt; with *Tamarix canariensis*, (c), [*Euphorbia canariensis* community].
- (C-4) Agaete, next to Hoya del Ventilador, 180 msl, (NW), (28°6'17"N 15°41'40"W), lower-semiarid xeric Inframediterranean belt; *Euphorbia balsamifera* community very degraded with *Euphorbia regis-jubae*, *Tamarix canariensis*, etc., (a, c), [*Euphorbia canariensis* community].
- (C-5) Aldea de San Nicolás, El Andén Verde, 550 msl (NW), (28°1'33.04"N 15°46'11.37"W), upper-semiarid xeric Inframediterranean belt; (a, b), [thermosclerofic woodland].
- (C-6) Aldea de San Nicolás, Barranco de Tasarte, 672 msl (SW), (27° 56'2.80"N 15° 45'5.71"W), lower-semiarid xeric Inframediterranean belt; (c), [*Euphorbia canariensis* community].
- (C-7) Arguineguín, La Filipina, Barranco de Arguineguín, 197 msl (SW), (27°51'47.46"N 15°39'55.99"W), arid desertic Inframediterranean belt; (c), [*Euphorbia balsamifera* community].
- (C-8) Agüímes, Barranco de Guayadeque, 410 msl (SE), (27°55'43.09"N 15°27'54.68"W), lower-semiarid xeric Inframediterranean belt; (c), [*Euphorbia canariensis* community].
- (C-9) Agüímes, Barranco de Guayadeque, 800 msl (SE), (27°56'13.63"N 15°30'14.30"W), lower-dry pluvisesonal Thermomediterranean belt; (c), [thermosclerofic woodland].
- (C-10) Agüímes, 550 msl (SE), (27°55'57"N 15°28'38"W), lower-semiarid xeric Inframediterranean belt; (c), [*Euphorbia canariensis* community].
- (C-11) Agüímes, near Temisas, 600 msl (SE), (27°54'22"N 15°29'37.90"W), lower-semiarid xeric Inframediterranean belt; (c), [*Euphorbia canariensis* community].
- (C-12) Gáldar, Agazal, 325 msl (NW), (28°6'34.31"N 15°39'47.15"W), upper-semiarid xeric Inframediterranean belt; (c), [thermosclerofic woodland].
- (C-13) Gáldar, Barranco del Llano de Los Poleos, 330 msl (NW), (28°6'45.98"N 15°39'32.86"W), upper-semiarid xeric Inframediterranean belt; (b, c), [thermosclerofic woodland].
- (C-14) Gáldar, Piso Firme, 175 msl (NW), (28°6'57"N 15°40'51"W), lower-semiarid xeric Inframediterranean belt; very degraded spurge scrubland with *Euphorbia regis-jubae* and *E. balsamifera* and abundant *Pennisetum setaceum* (a), [*Euphorbia canariensis* community].
- (C-15) Las Palmas de Gran Canaria, Barranco de Tenoya, 180 msl (NE), (28°6'49.37"N 15°29'59.64"W), arid desertic Inframediterranean belt; degraded sweet spurge (a), [*Euphorbia balsamifera* community].
- (C-16) Mogán, Barranco de Mogán, Los Navarros, 176 msl (SW), (27°51'57.16"N 15°44'24.50"W), arid desertic Inframediterranean belt; *Euphorbia balsamifera* community degraded with *Euphorbia regis-jubae*, *Euphorbia canariensis*, *Kleinia neriifolia*, etc., and *Agave americana* and *Opuntia maxima* (a, c), [*Euphorbia balsamifera* community].
- (C-17) Mogán, Barranco de Taurito, 133 msl (SW), (27°49'58.35"N 15°44'24.04"W), arid desertic Inframediterranean belt; bitter spurge community with *Plocama pendula*, *Kleinia neriifolia*, *Neochamaelea pulverulenta*, etc. (c), [*Euphorbia balsamifera* community].
- (C-18) San Bartolomé de Tirajana, Barranco de Ayagaures, 125 msl (S), (27°48'0.36"N 15°36'32.10"W), arid desertic Inframediterranean belt (a), [*Euphorbia balsamifera* community].
- (C-19) San Bartolomé de Tirajana, base of cliff of Amurga, near ravine, 400 msl (SE), (27°52'53.66"N 15°32'18.42"W), lower-semiarid xeric Inframediterranean belt; bitter spurge community with *Phoenix canariensis*, *Kleinia neriifolia*, etc., (c), [*Euphorbia canariensis* community].
- (C-20) San Bartolomé de Tirajana, Barranco de Fataga, 384 msl (S), (27°48'23"N 15°34'59"W), lower-semiarid xeric Inframediterranean belt; bitter spurge community with *Phoenix canariensis*, *Kleinia neriifolia*, etc., (c), [*Euphorbia canariensis* community].
- (C-21) Santa María de Guía, Barranco de Valerón, Cuesta de Silva, 199 msl (N), (28°8'11"N 15°36'1.03"W), arid desertic Inframediterranean belt; (a), [*Euphorbia balsamifera* community].
- (C-22) Las Palmas de Gran Canaria, Barranco de Guiniguada, next to Jardín Botánico "Viera y Clavijo", 262 msl (SE), (28°3'56"N 15°27'49"W), lower-semiarid xeric Inframediterranean belt; degraded *Euphorbia regis-jubae* community with *Kleinia neriifolia*, *Rumex lunaria*, and thermophilic species such as *Olea cerasiformis*, *Pistacia atlantica*, and *Bosea yerbamora*, (c, e), [thermosclerofic woodland].
- (C-23) Santa Brígida, Caldera de Bandama, external slope 20% to the NE side, 425 msl (NE), (28°2'2.85"N 15°27'34.98"W), upper-semiarid xeric Inframediterranean belt; (c), [thermosclerofic woodland].
- (C-24) Santa Brígida, 480 msl (NE), (28°2'2.81"N 15°27'40.49"W), upper-semiarid xeric Inframediterranean belt; *Euphorbia* spp. community very degraded with high presence of *Rumex lunaria*, *Artemisia thuscula*, etc., (c), [thermosclerofic woodland].
- (C-25) Moya, Barranco de Moya, 495 msl (N), (28°6'8"N 15°35'29"W), upper-semiarid xeric Inframediterranean belt; anthropic community, (e), [thermosclerofic woodland].

- FUERTEVENTURA:** (F-1) Betancuria, around village, 450 msl (W), (28°25'41"N 14°3'38"W), lower-semiarid xeric Inframediterranean belt; (e), [*Euphorbia canariensis* community].
- (F-2) Betancuria, Aula de la Naturaleza "Parra Medina", 340 msl (W), (28°24'17.29"N 14°3'37.11"W), lower-semiarid xeric Inframediterranean belt; degraded *Euphorbia regis-jubae* community, (c), [*Euphorbia canariensis* community].
- (F-3) Betancuria, 357 msl (W), (28°24'16.05"N 14°3'26.12"W), lower-semiarid xeric Inframediterranean belt; (c), [*Euphorbia canariensis* community].
- (F-4) Betancuria, 392 msl (W), (28°24'15.67"N 14°3'10.46"W), lower-semiarid xeric Inframediterranean belt; (c), [*Euphorbia canariensis* community].
- (F-5) Betancuria, Vega de Río Palma, 258 msl (W), (28°23'10.05"N 14°5'53.22"W), lower-semiarid xeric Inframediterranean belt; *Tamarix canariensis* and *Phoenix canariensis* community along little ravine, (c), [*Euphorbia canariensis* community].
- (F-6) La Oliva, Malpaís del Cotillo, 125 msl (N), (28°42'2.14"N 13°56'0.08"W), arid desertic Inframediterranean belt; degraded *Euphorbia regis-jubae* community with *Lycium intricatum*, *Suaeda* sp., etc., (c), [*Euphorbia balsamifera* community].
- (F-7) La Oliva, near to Los Lajares, 131 msl (N), (28°39'20.40"N 13°56'36.83"W), arid desertic Inframediterranean belt; (c), [*Euphorbia balsamifera* community].
- (F-8) Pájara, Jandía, Barranco de Vinamar-1, 220 msl (S), (28°4'57.41"N 14°20'41.92"W), arid desertic Inframediterranean belt; degraded *Euphorbia regis-jubae* community, (c), [*Euphorbia balsamifera* community].
- (F-9) Pájara, Barranco de Vinamar-2, 355 msl (SW), (28°5'26.36"N 14°20'57.13"W), XE, lower-semiarid xeric Inframediterranean belt; (b), [*Euphorbia canariensis* community].
- (F-10) Pájara, Valle de Los Mosquitos, 99 msl (S), (28°4'36.11"N 14°25'23.21"W), arid desertic Inframediterranean belt; *Euphorbia handiensi* community with *Kleinia neriifolia*, (b), [*Euphorbia balsamifera* community].
- LANZAROTE:** (L-1) Haría, Arrieta, 27 msl (NE), (29°8'0.58"N 13°27'34.32"W), arid desertic Inframediterranean belt; *Euphorbia balsamifera* community with *Caralluma burchardii*, *Kleinia neriifolia*, *Asteriscus intermedius*, *Euphorbia regis-jubae*, etc., (a), [*Euphorbia balsamifera* community].
- (L-2) Haría, near Jameos del Agua, Malpaís de la Corona, 80 m, (NE), (29°9'44.45"N 13°26'50.70"W), arid desertic Inframediterranean belt; vegetation similar to above, (a), [*Euphorbia balsamifera* community].
- (L-3) Haría, Barranco de Temisa, 500 msl (NE), (29°7'47.36"N 13°30'52.40"W), lower-semiarid xeric Thermomediterranean belt; degraded *Euphorbia regis-jubae* community, (c), [*Odontospermum intermedii-Euphorbia balsamifera* community].
- (L-4) Haría, Volcan de la Corona near Ye village, 380 msl, (N), (29°11'24"N 13°29'54"W), lower-semiarid xeric Thermomediterranean belt; degraded *Euphorbia regis-jubae* community with *Agave americana*, etc., (c), [*Odontospermum intermedium-Euphorbia balsamifera* community].
- (L-5) Haría, Órzola, 30 msl, (N), (29°12'54.50"N 13°27'3.92"W), arid desertic Inframediterranean belt; sweet spurge community, (a), [*Euphorbia balsamifera* community].
- (L-6) Haría, along the road up the Mirador de los Helechos o de Haría-1, 300 msl, (N-NE), (29°8'22"N 13°30'16"W), lower-semiarid xeric Thermomediterranean belt; degraded *Euphorbia regis-jubae* community with *Kleinia neriifolia*, *Asteriscus intermedius*, *Tamarix canariensis*, etc., (c), [*Odontospermum intermedium-Euphorbia balsamifera* community].
- (L-7) Haría, ascent along road up the Mirador de los Helechos o de Haría-2, 535 msl (N-NE), (29°7'51.23"N 13°30'52.70"W), lower-semiarid xeric Thermomediterranean belt; degraded *Euphorbia regis-jubae* community, with *Kleinia neriifolia*, *Asteriscus intermedius*, *Aeonium lancerottensis*, etc., (c), [*Odontospermum intermedium-Euphorbia balsamifera* community].
- (L-8) Teguisse, Vega de Tahiche, 150 msl, (SE), (29°1'12.27"N 13°33'45.44"W), arid desertic Inframediterranean belt; anthropic communities with *Euphorbia regis-jubae*, *Tamarix canariensis*, etc., (e), [*Euphorbia balsamifera* community].
- (L-9) Tinajo, National Park of Timanfaya, near Montaña Bermeja, 114 msl, (W), (29° 2'38.86"N 13°45'8.66"W), arid desertic Inframediterranean belt; scrubland of *Nicotiana glauca*, *Launaea arborescens*, *Suaeda vera*, etc., on old lavic malpais, in the territory of bitter spurge, (c), [*Euphorbia balsamifera* community].

Results

Annotated catalogue

The present annotated catalogue includes 80 species. Genera and species are listed alphabetically. For each specimen we include location, substrate, collection date, and herbarium number. The initials IM are those of I. Melo and J. Cardoso (in LISU Herbarium), MD of M. Dueñas, Tell. of M.T. Telleria (in MA-Fungi), IS of I. Salcedo (in BIO), and TFCMic of E. Beltrán-Tejera and J.L. Rodríguez-Armas. First records to the Canary Islands are marked with an asterisk (*) together to the species name.

In addition for each species we point the previous records to the Canary Islands, as well as the plant community in which it was registered, to express the ecological variability of that taxon in the archipelago. The expression "laurel forest" or "evergreen laurel forest," is a broad term that includes the more humid and protected laurel forest, and the substitutional shrubby of *Erica-Myrica*, nowadays occupying most of the unfavorable places (steep slopes, ridges, vented peaks, etc.).

Aphanobasidium canariense (Manjón & G. Moreno) Boidin & H. Michel

[*Cerocorticium canariense* Manjón & G. Moreno]

SPECIMENS EXAMINED— **Gran Canaria (C-10; c)**, on dry leaves of *Phoenix canariensis*— 08 December 2006, *TFCMic16883, 16884*.

OBSERVATIONS— Taxon described by Manjón & Moreno (1982) from low areas of Gran Canaria on *Phoenix canariensis* and Spain (Castellón, on *P. canariensis*; Toledo on *P. dactylifera*). It is known only from Gran Canaria, although the substrate is common throughout the archipelago. Its distribution is confined to the Mediterranean and Macaronesian regions and is reported from the Balearic Islands, Menorca (Telleria et al. 1997), Portugal, France and Italy (Bernicchia & Gorjón 2010). These last authors added *Cycas* sp. as a new substrate for this species.

****Asterostroma gaillardii*** Pat.

SPECIMENS EXAMINED— **El Hierro (H-10; c)**, on *Kleinia neriifolia*— 28 January 2005, *TFCMic14976*. **La Palma (P-11; c)**, on *Echium brevirame*— 06 April 1998, *TFCMic8897*. **(P-13; c)**, on *Ficus carica*— 08 April 1998, *TFCMic8951*. **(P-14; c)**, on *Euphorbia lamarckii*— 10 April 1998, *TFCMic8992*. **La Gomera (G-2; c)**, on *Euphorbia berthelotii*— 18 December 2004, *TFCMic15894*. **Tenerife (T-1; c,e)**, on inflorescence remains of *Agave americana*— 30 October 2002, *TFCMic15992*. **Lanzarote (L-2; a)**, on *Launaea arborescens*— 14 January 2005, *TFCMic14930*. **(L-7; c)**, on *Asteriscus intermedius*— 15 January 2005, *TFC Mic14938*.

OBSERVATIONS— The spore width of the Canarian material (4.8–6.5 μm ; tubercles around 0.8–1.6 μm) is slightly smaller than the values given by Boidin et al. (1997). The type species was described from material of the northern Africa. Telleria et al. (1997) reported this taxon from Mallorca and Menorca and compared it with *A. cervicolor* (Berk. & M.A. Curtis) Masee. Additionally, it is known from Spain (Dueñas et al. 2009) and other European countries such as France, Germany, Switzerland, and Italy (Bernicchia & Gorjón 2010).

Asterostroma ochroleucum Bres. ex Torrend

SPECIMENS EXAMINED— **El Hierro (H-8; d)**, on *Euphorbia lamarckii*— 26 January 2007, *9904IM, 9913IM, TFCMic17666*.

OBSERVATIONS— New record for Hierro. Spores measures are in the ranges given by Boidin et al. (1997), [5.2–6.7 μm in diameter; and tubercles are spaced, around (1.6–)1.9–2.0–2.3 μm long].

Hallenberg (1985), considered *A. ochroleucum* and *A. medium* Bres., described from Europe, synonyms of *A. cervicolor*, which was originally described from North America. The three taxa differs in spore size and arrangement of the tubercles. Because the internal variation within each specimen is great, Hallenberg concluded that "a separation of the three species does not seem to be justifiable at the moment... unless compatibility tests are performed and their results can be justify another viewpoint". Later, Boidin et al. (1997) published a thorough morphological work on *Asterostroma* using spore size, ornamentation variability, and geographic distribution to differentiate the taxa. They recognized *A. ochroleucum* and *A. medium* as distinct from *A. cervicolor*. We follow Boidin et al. (1997), especially considering the geographic distribution of the taxa presented in this paper.

Asterostroma cervicolor [in the sense of Hallenberg (1985)] was reported from the Canary Islands by Rodríguez-Armas et al. (1992), from the evergreen laurel forest of Tenerife, the low elevations of La Palma and Lanzarote (Beltrán-Tejera & Rodríguez-Armas 1999a), and pine forest of the National Park of la Caldera de Taburiente of La Palma (Beltrán-Tejera et al. 2004). All material of *Asterostroma* previously cited from the Canary Islands should be re-examined to confirm their identity.

****Athelia arachnoidea*** (Berk.) Jülich

SPECIMEN EXAMINED— **Lanzarote (L-7; c)**, on leaf remains of *Aeonium* sp.— 15 January 2005, *TFCMic14944*.

Athelia bombacina (Link) Pers.

SPECIMENS EXAMINED— **Fuerteventura (F-7; c)**, on *Suaeda* cf. *vermiculata*— 04 December 2007, *TFCMic18702, 18703, 18704*.

OBSERVATIONS— New record for Fuerteventura. Previously reported from La Palma (Dähncke 1998) without locality nor ecological information.

Botryobasidium candicans J. Erikss.

SPECIMEN EXAMINED— **Fuerteventura (F-4; c)**, on *Eucalyptus* sp.— 04 December 1994, *TFCMic7111*.

OBSERVATIONS— The specimen corresponds to the anamorph *Oidium candicans* (Sacc.) Linder, which is known from the laurel forest of La Gomera and semiarid zones of Fuerteventura (Rodríguez-Armas & Beltrán-Tejera 1995; Beltrán-Tejera & Rodríguez-Armas 1999a). The teleomorph, *Botryobasidium candicans*, is reported from the laurel forests of La Palma, La Gomera and Tenerife (Rodríguez-Armas & Beltrán-Tejera 1995).

****Botryobasidium laeve*** (J. Erikss.) Parmasto

SPECIMEN EXAMINED— **La Palma (P-19; b,c)**, on *Euphorbia lamarckii*— 07 April 2006, *TFCMic16186*.

Byssomerulius corium (Pers.) Parmasto

SPECIMENS EXAMINED— **La Palma (P-17; b)**, on unidentified wood— 10 April 1998, *TFCMic9017*. **(P-6; c)**, on *Echium strictum*— 09 April 1998, *TFCMic9038*. **La Gomera (G-7; c)**, on inflorescence remains of *Agave americana*— 04 February 2007, *TFCMic18227*; SAME LOCALITY, on *Echium aculeatum*— 04 February 2007, *TFCMic18230*; SAME LOCALITY, on *Rumex lunaria*— 04 February 2007, *11756MD*. **Tenerife (T-9; c,e)**, on *Rumex lunaria*— 29 December

2002, *TFCMic14995*. (T-10; c,e), on *Rumex lunaria*— 23 November 2002, *TFCMic16107*; SAME LOCALITY, on the same substrate— 31 October 2004, *TFCMic16106*.

OBSERVATIONS— Reported from low areas of Gran Canaria (García-Manjón & Moreno 1981) and Lanzarote (Beltrán-Tejera & Rodríguez-Armas 1999a); very common in laurel and pine forests, reported from Hierro, La Palma, La Gomera, Tenerife, and Gran Canaria (Rodríguez-Armas & Beltrán-Tejera 1995).

**Byssomerulius hirtellus* (Burt) Parmasto

SPECIMEN EXAMINED— Tenerife (T-6; b), on treated, unidentified wood— 08 November 1997, *TFCMic8942*.

**Candelabrochaete septocystidia* (Burt) Burds.

SPECIMEN EXAMINED— La Palma (P-13; c), on *Kleinia neriifolia*— 8 April 1998, *TFCMic8947*.

OBSERVATIONS— *Candelabrochaete septocystidia* is similar to *C. macaronesica* Dueñas, Tellería & Melo, recently described from Azores and Madeira by Dueñas et al. (2008) and differing in the size and shape of the spores. They are allantoid and 4–5(–6) × 1.5–2 µm in the specimen above and cylindrical to narrowly ellipsoid, 5–6.5 × 2–3 µm in *C. macaronesica*.

Ceraceomyces eludens (Bres.) K.H. Larss.

[*Ceraceomyces sublaevis* (Bres.) Jülich]

SPECIMEN EXAMINED— El Hierro (H-8; d), on *Juniperus turbinata* ssp. *canariensis*— 26 January 2007, 9890IM.

OBSERVATIONS— New record to Hierro. Previously reported from La Palma, in the burned pine forest of Fuencaliente and pine forest of National Park of La Caldera de Taburiente (Beltrán-Tejera et al. 2003, 2004, as *Ceraceomyces sublaevis*).

Coniophora arida (Fr.) P. Karst.

SPECIMENS EXAMINED— El Hierro (H-8; d), on *Juniperus turbinata* ssp. *canariensis*— 26 January 2007, 11405MD, 9888IM, 9889IM. La Gomera (G-2; c), on *Chamaecytisus proliferus*— 18 December 2004, *TFCMic15891*.

OBSERVATIONS— New record for Hierro. Previously reported from the pine forest of Gran Canaria (García-Manjón & Moreno 1981), the laurel forests of Tenerife (Rodríguez-Armas et al. 1989), La Gomera and La Palma (Rodríguez-Armas & Beltrán-Tejera 1995) and the *Adenocarpus* dry summit scrub and pine forest mixed with *Erica-Myrica* elements in the National Park of La Caldera de Taburiente in La Palma [Beltrán-Tejera et al. 2004, as *C. arida* var. *arida*, and *C. arida* var. *suffocata* (Peck) Ginns.].

Coniophora puteana (Schwach.) P. Karst.

SPECIMEN EXAMINED— Gran Canaria (C-21; a), on *Euphorbia regis-jubae*— 14 February 2006, *TFCMic15844*.

OBSERVATIONS— Widespread in the Canary Islands, recorded from the pine forest of La Palma, the laurel forest of La Gomera (Ryvarden 1976), the *Erica-Myrica* community of Gran Canaria (Beltrán-Tejera & Rodríguez-Armas 1993), the laurel forest of Tenerife (Rodríguez-Armas et al. 1989), the *Adenocarpus* dry summit scrubs of the National Park of La Caldera de Taburiente of La Palma (Beltrán-Tejera et al. 2004), and the plantations of *Castanea sativa* of Tenerife (Beltrán-Tejera et al. 2009).

**Corticium meridioroseum* Boidin & Lanq.

SPECIMEN EXAMINED— Gran Canaria (C-6; c), on *Euphorbia regis-jubae*— 06 December 2007, *TFCMic18753*.

OBSERVATIONS— *Corticium meridioroseum* was described by Boidin & Lanquetin (1983). It is similar to *C. roseum* Pers., differing by its sporulation at the end of winter, more Northern distribution, the substrates it colonizes (*Salix*, *Populus*, etc.), its likely homothallism, and larger size of its basidiospores. The authors (op.cit) stated that *C. roseum* is commonly mistaken for *C. meridioroseum* in France and reports of *C. roseum* from Spain, Italy and North Africa probably correspond also to *C. meridioroseum*. Due to its southern distribution, we compared our sample based on the original description of Boidin & Lanquetin (op.cit.) and used the *Corticium* key of Duhem & Michel (2006). The Canary specimen has a resupinate basidioma with a membranous, soft, and irregular hymenophore, grayish pink (in herbarium material), and no defined margin. Its spores, 9.4–11.6 × 6.2–6.9(–7) µm, are slightly smaller and narrower than those described for *C. meridioroseum*, (9–)12(–14) × 7–9 µm; basidia size, 48–61.5(–72) × 5–7.8(–8) µm, more similar to that for *C. roseum*, 40–60(–70) × 5–7 µm (s. Eriksson & Ryvarden 1976), than for *C. meridioroseum*, 70–90 × 8–10 µm (s. Boidin & Lanquetin 1983). Boidin & Lanquetin (op.cit) consider the geographical distribution an important character to separate these two taxa. The southern distribution of *C. meridioroseum* should be taken into account, given the geographical location of the Canary Islands. However, information on the typical substrates of this species is not helpful given the unusual flora of the Canarian archipelago. Based on a single sample, we decided to assign the Canarian material to *C. meridioroseum*, based mainly on distribution and spores characters. It is necessary to review all the records of *C. roseum* reported from the Canaries [Ryvarden (1976), as *Laeticorticium roseum*, from mixed pine forest with *Erica-Myrica* community in Tenerife; Karasch et al. (2004), on *Chamaecytisus proliferus*, in Tenerife; and from pine forest of the National Park of La Caldera de Taburiente of La Palma (Beltrán-Tejera et al. 2004), as *Laeticorticium roseum*]. Meanwhile, we do not rule out the presence of *C. roseum* in the archipelago.

**Crustoderma longicystidiatum* (Litsch.) Nakasone

SPECIMENS EXAMINED— El Hierro (H-8; d), on *Juniperus turbinata* ssp. *canariensis*— 26 January 2007, 9896IM;

SAME LOCALITY, on *Cistus monspeliensis*— 26 January 2007, 9900IM.

Globulicium hiemale (Laurila) Hjortstam

SPECIMEN EXAMINED— La Gomera (G-7; c), on decayed trunk of *Erica arborea* transported from another location— 04 February 2007, *TFCMic18222*.

OBSERVATIONS— Recorded from the low zones of Tenerife and Gran Canaria (Beltrán-Tejera & Rodríguez-Armas 1999a). Reported from other habitats such as the evergreen laurel forest and pine forest mixed with *Erica-Myrica* community; reported from Hierro, La Palma, La Gomera, Tenerife, and Gran Canaria (Beltrán-Tejera 2010).

Gloeodontia xerophila Tellería, M. Dueñas, Rodríguez-Armas, Beltrán-Tej. & Melo

OBSERVATIONS— Xerophilous species described by Tellería et al. (2008), from material collected in La Palma (P-3-9), and Tenerife (T-2). Up to now known only from the Canary Islands, from zones with semiarid and dry ombrotypes. The number of samples and species-substrates of collections were accounted for in the overall analyzes (Tellería et al. 2008).

****Hjortstamia amethystea*** (Hjortstam & Ryvarde) Boidin & Gilles

[*Porostereum amethysteum* Hjortstam & Ryvarde]

SPECIMEN EXAMINED— **Gran Canaria (C-18; a)**, on *Kleinia nerifolia*— 12 February 2006, *TFCMic15804*.

Hymenochaete corrugata (Fr.) Lév.

SPECIMEN EXAMINED— **Tenerife (T-4; b)**, on *Cistus monspeliensis*— 25 October 2002, *TFCMic15982*.

OBSERVATIONS— Known from the laurel forest from Hierro, La Palma, La Gomera and Tenerife (Rodríguez-Armas & Beltrán-Tejera 1995).

Hyphoderma macaronesticum Tellería, Dueñas, Beltrán-Tej., Rodríguez-Armas & M.P. Martín

OBSERVATIONS— A common, xerophilous species recently described by Tellería et al. (2012) from the arid and semiarid zones of the Canary Islands [Hierro (H-1-2-3-9-10); La Palma (P-13-14-17); La Gomera (G-4-5); Tenerife (T-3-5-6-7-11-12); Gran Canaria (C-1-14-18-20-21-22-24); and Fuerteventura (F-2-8)]. Also reported from Azores Archipelago (Faial) where it is rare. Presently, its distribution is confined to the Macaronesian Region. The number of samples and species-substrates of all collections were accounted for in the overall analyzes (Tellería et al. 2012).

****Hyphoderma malençonii*** (Manjón & G. Moreno) Manjón, Moreno & Hjortstam

SPECIMEN EXAMINED— **El Hierro (H-8; d)**, on *Juniperus turbinata* ssp. *canariensis*— 26 January 2007, *17045Tell*.

Hyphoderma medioburiense (Burt) Donk

SPECIMENS EXAMINED— **La Palma (P-2; b,e)**, on *Ficus carica*— 09 April 1998, *TFCMic8976*. **Gran Canaria (C-19; c)**, on dry leaf base of *Phoenix canariensis*— 06 December 2006, *TFCMic16776*.

OBSERVATIONS— New record for Gran Canaria. Previously reported from semiarid zones of Fuerteventura (Beltrán-Tejera & Rodríguez-Armas 1999a), laurel forest of Tenerife and La Gomera (Rodríguez-Armas & Beltrán-Tejera 1995; Beltrán-Tejera et al. 2008), and from the pine forest of the National Park of La Caldera de Taburiente of La Palma (Beltrán-Tejera et al. 2004).

Hyphoderma setigerum (Fr.) Donk

SPECIMENS EXAMINED— **El Hierro (H-8; d)**, on *Euphorbia lamarckii*— 26 January 2007, *TFCMic17644*, *17647*. **La Palma (P-9; a)**, on *Euphorbia lamarckii*— 10 April 2006, *TFCMic16383*.

OBSERVATIONS— New record for Hierro. Previously known from the laurel forest of La Palma (Rodríguez-Armas et al. 1992) and the low zones of Tenerife (Beltrán-Tejera & Rodríguez-Armas 1999a).

Hyphodermella corrugata (Fr.) J. Erikss. & Ryvarde

SPECIMEN EXAMINED— **Gran Canaria (C-6; c)**, on *Salvia canariensis*— 06 December 2007, *TFCMic18749*.

OBSERVATIONS— Previously reported from the pine forest of La Palma [Ryvarde, 1976, as *Odontia corrugata* (Fr.) Bourdot & Galzin] and the *Adenocarpus* dry summit community, pine forest, hydrophitic and anthropic plant communities of the National Park of La Caldera de Taburiente on the same island (Beltrán-Tejera et al. 2004); from the laurel forest of Gran Canaria (Beltrán-Tejera & Rodríguez-Armas 1993); and mid-elevation (560 msl), anthropised areas of Tenerife (Beltrán-Tejera & Rodríguez-Armas 1999b).

Hyphodermella rosea (Bres.) Nakasone, a species very close to *H. corrugata*, has not been found in the Canary Islands. Macroscopically both species are similar but differing in the larger basidia and spores in *H. corrugata* (Tellería et al. 2010). It is possible that both species occur in the Canaries as *H. rosea* occurs in the Mediterranean region.

Hyphodontia arguta (Fr.) J. Erikss.

SPECIMEN EXAMINED— **La Palma (P-23; e)**, on unidentified wood— 08 April 2006, *TFCMic16255*.

OBSERVATIONS— Previously recorded from the laurel forest, pine forest and mixed pine forest with *Erica-Myrica* community of La Palma, La Gomera and Tenerife (Ryvarde 1976) and the burned pine forest of Fuencaliente of La Palma (Beltrán-Tejera et al. 2003).

****Leptosporomyces mutabilis*** (Bres.) Krieglst.

[*Athelia mutabilis* (Bres.) Donk]

SPECIMENS EXAMINED— **El Hierro (H-5; c)**, on *Euphorbia lamarckii*— 29 January 2005, *TFCMic15012*. **La Gomera (G-7; c)**, on *Opuntia maxima*— 04 February 2007, *11759MD*; SAME LOCALITY, on *Kleinia nerifolia*— 04 February 2007, *11758MD*.

****Lyomyces erastii*** (Saaren. & Kotir.) Hjortstam & Ryvarde

[*Hyphodontia erastii* Saaren. & Kotir.]

SPECIMENS EXAMINED— **Tenerife (T-1; c,e)**, on inflorescence remains of *Agave americana*— 30 October 2002, *TFCMic15988*. **Gran Canaria (C-24; c)**, on *Rumex lunaria*— 13 February 2006, *TFCMic15814*. **(C-15; a)**, on dry leaves of *Agave americana*— 13 February 2006, *TFCMic15842*.

OBSERVATIONS— The material from Tenerife (*TFCMic15988*) is closely related to the *H. erastii* complex, although slight differences were observed.

Lyomyces sambuci (Pers.) P. Karst.

[*Hyphodontia sambuci* (Pers.) J. Erikss.]

SPECIMENS EXAMINED— **El Hierro (H-2; c)**, on *Schizogyne sericea*— 29 January 2005, *TFCMic15022*, *15002*. **(H-8; d)**, on *Rumex lunaria*— 26 January 2007, *11416MD*, *17040Tell*; SAME LOCALITY, on *Bituminaria bituminosa*— 26 January 2007, *TFCMic17626*; SAME LOCALITY, on *Cistus monspeliensis*— 26 January 2007, *17036Tell*; SAME LOCALITY, on *Echium aculeatum*— 26 January 2007, *TFCMic17630*, *17631*, *17729*; **(H-6; e)**, on *Astydamia latifolia*—

25 January 2007, *TFCMic17622*. **La Palma (P-8; a,b)**, on *Periploca laevigata*— 10 April 1998, *TFCMic8838*. **(P-3; a)**, on *Rumex lunaria*— 09 April 2006, *TFCMic16260*. **(P-21; c)**, on *Bosea yervamora*— 09 April 1998, *TFCMic8881*. **(P-2; b,c)**, on *Rubia fruticosa*— 09 April 1998, *TFCMic8969*. **(P-6; c)**, on unidentified wood— 09 April 1998, *TFCMic9027*. **La Gomera (G-7; c)**, on inflorescence remains of *Agave americana*— 04 February 2007, *12007IS*; SAME LOCALITY, on *Rumex lunaria*— 04 February 2007, *10223IM*. **Gran Canaria (C-6; c)**, on *Salvia canariensis*— 06 December 2007, *TFCMic18761*. **Fuerteventura (F-2; c)**, on *Launaea arborescens*— 06 February 2005, *TFCMic15113*. **(F-8; c)**, on *Euphorbia regis-jubae*— 08 February 2005, *TFCMic15178*. **Lanzarote (L-3; c)**, on *Asteriscus intermedius*— 16 January 1994, *TFCMic7096, 7097*. **(L-7; c)**, on *Asteriscus intermedius*— 15 January 2005, *TFCMic14935, 14940, 14945*; SAME LOCALITY, on dry leaves of *Aeonium sp.*— 15 January 2005, *TFCMic14936*. **(L-5; a)**, on *Salsola cf. divaricata*— 02 December 2007, *TFCMic18681*.

OBSERVATIONS— New record for Hierro, Gran Canaria, and Fuerteventura. Reported from low elevations of Tenerife and Lanzarote (Beltrán-Tejera & Rodríguez-Armas 1999a), pine forest mixed with *Erica-Myrica* community of La Palma (Ryvarden 1976), laurel forest of Tenerife (Beltrán-Tejera & Rodríguez-Armas 1993), laurel forest and anthropic communities in the National Park of Garajonay of La Gomera (Beltrán-Tejera et al. 2008), and plantations of *Castanea sativa* of Tenerife (Beltrán-Tejera et al. 2009). All the records as *Hyphodontia sambuci*.

Peniophora boidinii D.A. Reid

SPECIMENS EXAMINED— **El Hierro (H-7; c,e)**, on *Kleintia neriifolia*—29 January 2005, *TFCMic15023*. **(H-12; a)**, on *Rumex lunaria*— 30 January 2005, *TFCMic15046, 15050*. **La Palma (P-10; c)**, on *Rumex lunaria*— 07 April 1998, *TFCMic8848*. **(P-11; c)**, on *Echium brevirame*— 06 April 1998, *TFCMic8896, 8898*. **(P-5; c)**, on *Hypericum canariensis*— 07 April 1998, *TFCMic8911, 8916*. **(P-15; c)**, on unidentified wood— 06 April 1998, *TFCMic8936*. **(P-13; c)**, on *Periploca laevigata*— 08 April 1998, *TFCMic8956*. **(P-24; c)**, on *Rumex lunaria*— 10 April 1998, *TFCMic8962*. **(P-6; c)**, on *Rumex lunaria*— 09 April 1998, *TFCMic9032, 9034*. **(P-8; a,b)**, on *Echium aculeatum*— 10 April 1998, *TFCMic8844*. **(P-21; c)**, on *Rhamnus crenulata*— 09 April 1998, *TFCMic8869, 8870*; SAME LOCALITY, on *Hypericum canariensis*— 09 April 1998, *TFCMic8864*. **Tenerife (T-3; b)**, on *Rumex lunaria*— 25 October 2002, *TFCMic15977*. **Gran Canaria (C-23; c)**, on *Rumex lunaria*— 08 December 1995, *TFCMic15405*. **(C-24; c)**, on *Rumex lunaria*— 13 February 2006, *TFCMic15815, 15820, 15826*; SAME LOCALITY, on *Echium onosmifolium*— 13 February 2006, *TFCMic15827*; SAME LOCALITY, on *Periploca laevigata*— 13 February 2006, *TFCMic15855*.

OBSERVATIONS— New record for Hierro and Gran Canaria. Reported from low elevations of Tenerife (Beltrán-Tejera & Rodríguez-Armas 1999a). Previously reported from a humid laurel forest of La Palma (Rodríguez-Armas et al. 1992), and anthropic substitutional scrub of the National Park of Garajonay of La Gomera (Beltrán-Tejera et al. 2008).

Taking into account its altitudinal distribution, the variety of substrates on which it grows, and the vegetation communities it is found, this species has a wide ecological amplitude in the Canary Islands. It can be considered as both a thermophilic and xerotolerant species.

Peniophora cinerea (Pers.) Cooke

SPECIMENS EXAMINED— **HIERRO (H-8; d)**, on *Cistus monspeliensis*— 26 January 2007, *TFCMic17660, 17664*. **La Gomera (G-7; c)**, on *Euphorbia berthelotii*— 04 February 2007, *12012IS*.

OBSERVATIONS— Recorded from the low zones of La Palma (Beltrán-Tejera & Rodríguez-Armas 1999a). Frequent in the Canary Islands, known from laurel forest, pine forest, and pine forest mixed with *Erica-Myrica* community, also from the *Adenocarpus* dry summit scrubs of the National Park of La Caldera de Taburiente of La Palma (Beltrán-Tejera et al. 2004); reported from Hierro, La Palma, La Gomera, Tenerife and Gran Canaria (Beltrán-Tejera 2010).

Peniophora incarnata (Pers.) P.Karst.

SPECIMENS EXAMINED— **El Hierro (H-8; d)**, on *Rumex lunaria*— 26 January 2007, *TFCMic17670*. **La Gomera (G-7; c)**, on *Rumex lunaria*— 04 February 2007, *TFCMic18233*. **Fuerteventura (F-4; c)**, on *Pinus canariensis*— 04 December 1994, *TFCMic7131*.

OBSERVATIONS— New record for Hierro. Reported from the low elevations of Fuerteventura and pine plantations (Beltrán-Tejera & Rodríguez-Armas 1999a). Previously known from forest communities of La Palma, La Gomera, Tenerife, and Gran Canaria (Rodríguez-Armas & Beltrán Tejera 1995).

Peniophora lycii (Pers.) Höhn. & Litsch.

SPECIMENS EXAMINED— **El Hierro (H-8; d)**, on *Rumex lunaria*— 26 January 2007, *11411MD*; SAME LOCALITY, on *Kleintia neriifolia*— 26 January 2007, *TFCMic17654, Tell17032, 17033Tell*; SAME LOCALITY, on *Euphorbia lamarckii*— 26 January 2007, *TFCMic17649, 9891IM, 9899IM, 9905IM, 11399MD, 17030Tell*; SAME LOCALITY, on *Echium aculeatum*— 26 January 2007, *TFCMic17632, 17633, 17635, 9917IM, 11395MD, 11396MD*; SAME LOCALITY, on *Artemisia thuscula*— 26 January 2007, *TFCMic17624, 17050Tell*; SAME LOCALITY, on *Juniperus turbinata* ssp. *canariensis*— 26 January 2007, *9901IM, 9906IM*; SAME LOCALITY, on *Cistus monspeliensis*— 26 January 2007, *17039Tell, 11390MD*; SAME LOCALITY, on unidentified wood— 26 January 2007, *17034Tell, 11389MD*. **La Palma (P-10; c)**, on *Rumex lunaria*— 07 April 1998, *TFCMic8884*. **(P-5; c)** on *Hypericum canariensis*— 07 April 1998, *TFCMic8905, 8915*; SAME LOCALITY, on *Eucalyptus camaldulensis*— 07 April 1998, *TFCMic8921*. **(P-15; c)**, on *Kleintia neriifolia*— 06 April 1998, *TFCMic8930*; NEAR THE PREVIOUS LOCATION, on *Rumex lunaria*— 06 April 1998, *TFCMic8938*. **(P-14; c)**, on *Schizogyne sericea*— 07 April 1998, *TFCMic8982*; SAME LOCALITY, on *Echium brevirame*— 08 April 1998, *TFCMic8988*. **(P-18; c)**, on *Phoenix canariensis*— 08 April 1998, *TFCMic9006*; SAME LOCALITY, on *Periploca laevigata*— 08 April 1998, *TFCMic9022*; SAME LOCALITY, on unidentified wood— 08 April 1998, *TFCMic9012*. **(P-6; c)**, on unidentified wood— 09 April 1998, *TFCMic9028*; SAME LOCALITY, on *Castanea sativa*— 09 April 1998, *TFCMic9029*; SAME LOCALITY, on *Echium strictum*— 09 April 1998, *TFCMic9039, 9040*. **(P-8; a,b)**, on *Periploca laevigata*— 10 April 1998, *TFCMic8839*; SAME LOCALITY, on *Echium sp.*— 10 April 1998, *TFCMic8845, 8851, 8852*. **(P-21; c)**, on *Globularia salicina*— 09 April 1998, *TFCMic8860*; SAME LOCALITY, on

unidentified wood— 09 April 1998, *TFCMic8862*; SAME LOCALITY, on *Ricinus communis*— 9 April 1998, *TFCMic8879*. (**P-16**; **e**), on *Citrus aurantium*— 07 April 2006, *TFCMic16126*, *16128*. (**P-20**; **c**), on *Jasminum odoratissimum*— 08 April 2006, *TFCMic16192*. (**P-1**; **c**), on *Kleinia neriifolia*— 09 April 2006, *TFCMic16315*. **La Gomera (G-7; c)**, on *Rumex lunaria*— 04 February 2007, *TFCMic18235*, *10225IM*; SAME LOCALITY, on *Kleinia neriifolia*— 04 February 2007, *10220IM*. **Tenerife (T-10; c,e)**, on *Rumex lunaria*— 31 October 2004, *TFCMic9354,16105*; SAME LOCALITY and substrate— 13 March 2005, *TFCMic16111*, *16611*. (**T-1**; **c,e**), on *Rumex lunaria*— 30 October 2002, *TFCMic15990*. **Gran Canaria (C-3; c)**, on *Rumex lunaria*— 02 April 1999, *TFCMic8829*. (**C-12**; **c**), on *Cistus monspeliensis*— 05 December 2004, *TFCMic15021*; SAME LOCALITY, on *Euphorbia canariensis*— 5 December 2004, *TFCMic15447*, *15448*. (**C-13**; **b,c**), on *Echium onosmifolium*— 01 May 1999, *TFCMic15381*, *15387*, *15388*, *15393*; SAME LOCALITY, on *Withania aristata*— 01 May 1999, *TFCMic15386*; SAME LOCALITY, on *Kleinia neriifolia*— 01 May 1999, *TFCMic15392*. (**C-9**; **c**), on *Rumex lunaria*— 8 December 1995, *TFCMic15397*. (**C-23**; **c**), on *Rumex lunaria*— 8 December 1995, *TFCMic15406*. (**C-24**; **c**), on *Artemisia thuscula*— 13 February 2006, *TFCMic15818*; SAME LOCALITY, on leaf remains of *Agave americana*— 13 February 2006, *TFCMic15821*; SAME LOCALITY, on leaf remains of *Aeonium arboreum*— 13 February 2006, *TFCMic15823*; SAME LOCALITY, on *Euphorbia rejis-jubae*— *TFCMic15859*. (**C-17**; **c**), on *Plocama pendula*— 11 February 2006, *TFCMic15376*, *15777*. (**C-6**; **c**), on *Salvia canariensis*— 06 December 2007, *TFCMic18759*. **Fuerteventura (F-1; e)**, on *Agave americana*— 06 February 2005, *TFCMic15110*; SAME LOCALITY, on *Eucalyptus sp.*— 06 February 2005, *TFCMic7105*. (**F-2**; **c**), on *Launaea arborescens*— 06 February 2005, *TFCMic15112*; SAME LOCALITY, on *Acacia ciclops*— 06 February 2005, *TFCMic15117*; SAME LOCALITY, on *Arundo donax*— 06 February 2005, *TFCMic15118*; SAME LOCALITY, on *Acacia ciclops*— 04 December 2007, *TFCMic18707*, *18708*, *18709*, *18710*. (**F-5**; **c**), on *Tamarix canariensis*— 7 February 2005, *TFCMic15141*. (**F-8**; **c**), on *Nicotiana glauca*— 8 February 2005, *TFCMic15163*. **Lanzarote (L-3; c)**, on *Asteriscus intermedius*— 16 January 1994, *TFCMic7099*. (**L-7**; **c**), on *Asteriscus intermedius*— 15 January 2005, *TFCMic14937*, *14939*.

OBSERVATIONS— Very frequent in the Canary Islands, prefers laurel forests but also in pine forests, reported from all islands (Hallenberg 1991; Rodríguez-Armas et al. 1992; Beltrán-Tejera & Rodríguez-Armas 1999a; Rodríguez-Armas & Beltrán Tejera 1995; Beltrán-Tejera et al. 2003; Beltrán-Tejera et al. 2009; Beltrán-Tejera 2010). In the Canary Islands, *P. lycii* is found in almost all the bioclimatic belts, from sea level to summit communities, on a variety of substrates in almost all the habitats. This species is ecologically adaptable and can be considered a thermophilic and xerotolerant species.

Peniophora meridionalis Boidin

SPECIMENS EXAMINED— **La Palma (P-5; c)**, on *Eucalyptus camaldulensis*— 07 April 1998, *TFCMic8918*. **Gran Canaria (C-23; c)**, on *Rumex lunaria*— 08 December 1995, *TFCMic15404*.

OBSERVATIONS— Recorded from the low elevations of Lanzarote (Beltrán-Tejera & Rodríguez-Armas 1999a). Previously reported from laurel forest and pine forest mixed with *Erica-Myrica* community of Hierro, La Gomera, La Palma, and Tenerife (Hallenberg 1991; Rodríguez-Armas et al. 1992) and Hierro, La Palma, La Gomera, Tenerife, Gran Canaria, and Lanzarote (Beltrán-Tejera 2010).

This species can be considered as thermophilous and xerotolerant.

Peniophora nuda (Fr.) Bres.

SPECIMENS EXAMINED— **El Hierro (H-9; c)**, on *Artemisia thuscula*— 28 January 2005, *TFCMic14962*. (**H-8**; **d**), on *Artemisia thuscula*— 26 January 2007, *17049Tell*. **La Palma (P-12; c)**, on *Schizogyne sericea*— 07 April 1998, *TFCMic8925*; SAME LOCALITY, on *Rumex lunaria*— 07 April 1998, *TFCMic8927*. (**P-24**; **c**), on *Euphorbia lamarckii*— 10 April 1998, *TFCMic8964*, *8966*, *8967*. (**P-6**; **c**), on *Kleinia neriifolia*— 09 April 1998, *TFCMic9031*. **La Gomera (G-2; c)**, on *Cistus monspeliensis*— 18 December 2004, *TFCMic15888*, *15889*; SAME LOCALITY, on *Echium aculeatum*— 18 December 2004, *TFCMic15890*, *15892*. (**G-3**; **c**), on *Echium aculeatum*— 18 December 2004, *TFCMic15893,15895*; SAME LOCALITY, on *Opuntia maxima*— 18 December 2004, *TFCMic15896*. (**G-1**; **e**), on *Plocama pendula*— 18 December 2004, *TFCMic15898,15899,15900*; SAME LOCALITY, on *Argyranthemum frutescens*— 18 December 2004, *TFCMic15902*, (**G-6**; **c**), on *Rumex lunaria*— 19 December 2004, *TFCMic15909*. LOCALITY NEXT TO ABOVE, on *Rumex lunaria*— 04 February 2007, *11755MD*, *11757MD*. (**G-5**; **e**), on *Argyranthemum frutescens*— 19 December 2004, *TFCMic15916*, *15919*; SAME LOCALITY, on *Todaroa aurea*— 19 December 2004, *TFCMic15921*. **Tenerife (T-7; b)**, on *Plocama pendula*— 8 November 1997, *TFCMic8873*, *8877*. (**T-8**; **b**), on *Euphorbia lamarckii*— 22 November 1997, *TFCMic21355*; SAME LOCALITY, on *Plocama pendula*— 22 November 1997, *TFCMic21356*; SAME LOCALITY, on *Chamaecytisus proliferus*— 22 November 1997, *TFCMic21357*. (**T-9**; **c,e**), on unidentified wood— 29 December 2002, *TFCMic15936*, *15937*. (**T-11**; **c,e**), on *Rumex lunaria*— 29 December 2002, *TFCMic9476*; SAME LOCALITY and substrate— 17 April 2004, *TFCMic14943*. (**T-5**; **a**), on *Plocama pendula*— 19 Marzo 2005, *TFCMic15507*. (**T-3**; **b**), on *Rumex lunaria*— 25 Octubre 2002, *TFCMic15979,15980*; (**T-4**; **b**) LOCALITY NEXT TO ABOVE, on *Ferula linckii*— 25 Octubre 2002, *TFCMic15985*. (**T-1**; **c,e**), on leaf remains of *Agave americana*— 30 October 2002, *TFCMic15991,15994*. **Gran Canaria (C-24; c)**, on *Artemisia thuscula*— 13 February 2006, *TFCMic15380*. (**C-13**; **b,c**), on *Echium onosmifolium*— 01 May 1999, *TFCMic15389*, *15391*. (**C-8**; **c**), on *Rumex lunaria*— 08 December 1995, *TFCMic15395*, *15401*; SAME LOCALITY, on unidentified wood— 08 December 1995, *TFCMic15399*; SAME LOCALITY, on *Hypericum reflexum*— 08 December 1995, *TFCMic15400*. (**C-17**; **c**), on *Plocama pendula*— 11 February 2006, *TFCMic15774*; SAME LOCALITY, on *Bituminaria bituminosa*— 11 February 2006, *TFCMic15781*. (**C-16**; **a,c**), on *Plocama pendula*— 11 February 2006, *TFCMic15791*. (**C-7**; **c**), on *Artemisia ramosa*— 11 February 2006, *TFCMic15793,15798,15799*. (**C-15**; **a**), on dry leaf base of *Agave americana*— 13 February 2006, *TFCMic15840*. (**C-11**; **c**), on dry leaf base of *Agave americana*— 06 December 2006, *TFCMic16747*.

(C-14; a), on inflorescence remains of *Agave americana*— 05 December 2004, *TFCMic15449, 15450*; SAME LOCALITY, on *Launaea arborescens*— 05 December 2004, *TFCMic15451*. (C-6; c), on *Launaea arborescens*— 06 December 2007, *TFCMic18748*; SAME LOCALITY, on *Euphorbia regis-jubae*— 06 December 2007, *TFCMic18755*.
OBSERVATIONS— New record for Hierro, La Gomera, and Gran Canaria. Reported from low elevations of Tenerife (Beltrán-Tejera & Rodríguez-Armas 1999a), La Palma but without locality nor ecological data (Dähnecke 1998), burned pine forest of Fuencaliente (Beltrán-Tejera et al. 2003), and *Chamaecytisus proliferus* plantations (Karasz et al. 2004).

Peniophora rufomarginata (Pers.) Bourdot & Galzin

SPECIMEN EXAMINED— **La Gomera (G-7; c)**, on *Rumex lunaria*— 04 February 2007, *11757bisMD*.

OBSERVATIONS— Previously reported from the laurel forest of Tenerife (Hallenberg 1991), the very humid laurel forest of the National Park of Garajonay of La Gomera and La Palma, Los Tiles (Rodríguez-Armas et al. 1992), and the *Adenocarpus* dry summit scrub and pine forest of the National Park of la Caldera de Taburiente (Beltrán-Tejera et al. 2004).

****Peniophora tamaricicola*** Boidin & Malençon

SPECIMENS EXAMINED— **Gran Canaria (C-4; a,c)**, on *Tamarix canariensis*— 09 December 1995, *TFCMic15412, 15415, 15417*. (C-3; c), on *Tamarix canariensis*— 02 April 1999, *TFCMic8747, 8818, 8821, 8822*; SAME LOCALITY, on *Euphorbia regis-jubae*— 02 April 1999, *TFCMic8830*. **Lanzarote (L-8; e)**, on *Tamarix canariensis*— 01 February 1993, *TFCMic6929*. (L-6; c), on *Tamarix canariensis*— 01 February 1993, *TFCMic6928,6930*; SAME LOCALITY, and substrate— 03 December 1994, *TFCMic 7086*.

Peniophora versicolor (Bres.) Sacc. & P. Syd.

SPECIMENS EXAMINED— **El Hierro (H-8; d)**, on *Echium aculeatum*— 26 January 2007, *11391MD*; SAME LOCALITY, on *Rumex lunaria*— 26 January 2007, *TFCMic17668*; SAME LOCALITY, on *Euphorbia* (?)— 26 January 2007, *11393MD*.

OBSERVATIONS— New record for Hierro. Previously reported from the laurel forest of Tenerife and La Gomera (Hallenberg 1991), La Palma, from the pine forest of the National Park of la Caldera de Taburiente (Beltrán-Tejera et al. 2004), and burned pine forest of Fuencaliente (Beltrán-Tejera et al. 2003).

Peniophorella praetermissa (P. Karst.) K.H. Larss.

SPECIMENS EXAMINED— **El Hierro (H-8; d)**, on *Euphorbia lamarckii*— 26 January 2007, *9912IM, TFCMic17648*; SAME LOCALITY, on *Kleinia neriifolia*— 26 January 2007, *TFCMic17656*; SAME LOCALITY, on *Juniperus turbinata* ssp. *canariensis*— 26 January 2007, *TFCMic17733*; SAME LOCALITY, on *Rumex lunaria*— 26 January 2007, *11414MD*; SAME LOCALITY, on unidentified wood— 26 January 2007, *11394MD*; SAME LOCALITY, on *Echium aculeatum*— 26 January 2007, *11415MD*. (P-14; c), on *Schizogyne sericea*— 10 April 1998, *TFCMic8981*; SAME LOCALITY, on *Euphorbia lamarckii*— 10 April 1998, *TFCMic8995, 8997*. (P-22; c), on *Euphorbia lamarckii*— 07 April 2006, *TFCMic16173*. **La Gomera (G-7; e)**, on *Opuntia maxima*— 04 February 2007, *17369Tell*. **Gran Canaria (C-1; c,e)**, on *Lycium intricatum*— 05 December 2004, *TFCMic15445*. (C-12; c), *Euphorbia regis-jubae*— 05 December 2004, *TFCMic15454*; SAME LOCALITY, on *Euphorbia canariensis*— 05 December 2004, *TFCMic15453*. (C-5; a,b), on *Euphorbia regis-jubae*— 05 December 2004, *TFCMic15452*. (C-24; c), on *Rumex lunaria*— 13 February 2006, *TFCMic15816*; SAME LOCALITY, on *Euphorbia regis-jubae*— 13 February 2006, *TFCMic15854*. (C-19; c), on dry leaf base of *Phoenix canariensis*— 06 December 2006, *TFCMic16775*. **Lanzarote (L-4; c)**, on *Rumex lunaria*— 14 January 2005, *TFCMic14932, 14933*.

OBSERVATIONS— New record for Hierro and Lanzarote. This species was reported from low elevations of Gran Canaria, La Palma, Tenerife, and Fuerteventura (García-Manjón & Moreno 1981; Beltrán-Tejera & Rodríguez-Armas 1999a), the pine forest of Gran Canaria (García-Manjón & Moreno 1981), and forest communities of La Palma, La Gomera, Tenerife, and Gran Canaria (Ryvarden 1976; Rodríguez-Armas et al. 1989; Beltrán Tejera & Rodríguez-Armas 1993).

Peniophorella pubera (Fr.) P.Karst.

[*Hyphoderma puberum* (Fr.) Wallr.]

SPECIMENS EXAMINED— **HIERRO (H-8; d)**, on *Rumex lunaria*— 26 January 2007, *11410MD, 11412MD*.

OBSERVATIONS— Reported from laurel forest and mixed pine forest with *Erica-Myrica* community elements from Hierro, La Palma and Tenerife (Ryvarden 1976, as *Hyphoderma puberum*).

Phanerochaete andreae Burds., Beltrán-Tej. & Rodríguez-Armas

SPECIMEN EXAMINED— **Lanzarote (L-1; a)**, on *Kleinia neriifolia*— 02 December 2007, *TFCMic18675*.

OBSERVATIONS— Reported from the low zones of Lanzarote (Beltrán-Tejera, & Rodríguez-Armas 1999a). This species was described from material collected in the laurel forest of the National Park of Garajonay of La Gomera (Burdsall et al. 1995). It is, thus far, only known from the Canary Islands.

Phanerochaete aurata (Bourdot & Galzin) Burds.

SPECIMEN EXAMINED— **El Hierro (H-8; d)**, on *Cistus monspeliensis*— 26 January 2007, *TFCMic17650*.

OBSERVATIONS— New record for Hierro. Previously reported from the very humid *Erica*-community, located on the ridge crests enveloped by clouds in the National Park of Garajonay of La Gomera (Beltrán-Tejera & Rodríguez-Armas 1999b).

Phanerochaete bubalina Burds.

SPECIMENS EXAMINED— **Lanzarote (L-9; c)**, on *Nicotiana glauca*— 03 December 2007, *TFCMic18695, 18701*.

OBSERVATIONS— New record for Lanzarote. This species was described from material collected in the pine forest of Tenerife (Burdsall, 1985). So far, known only from the Canary Islands.

Phanerochaete jose-ferreirae (D.A.Reid) D.A.Reid

SPECIMEN EXAMINED— **La Gomera (G-7; c)**, on *Rumex lunaria*— 04 February 2007, *10224IM*.

OBSERVATIONS— New record for La Gomera. Previously reported from anthropic substitutional scrub of the National Park of la Caldera de Taburiente of La Palma (Beltrán-Tejera et al. 2004).

***Phanerochaete omnivora** (Shear) Burds. & Nakasone

SPECIMEN EXAMINED— **El Hierro (H-8; d)**, on *Schizogyne sericea*— 26 January 2007, 98921M.

OBSERVATIONS— According to Burdsall (1985), this species grows in arid regions of the southwest United States and probably northern Mexico. In Europe, it was reported from Italy (Calabria Region) by Bernicchia & Gorjón (2010).

Phanerochaete sordida (P. Karst.) J. Erikss. & Ryvardeen

SPECIMENS EXAMINED— **El Hierro (H-13; e)**, on inflorescence remains of *Agave americana*— 31 January 2005, TFCMic15082. **La Palma (P-13; c)**, on *Kleinia neriifolia*— 08 April 1998, TFCMic8948. **(P-18; c)**, on *Phoenix canariensis*— 10 April 1998, TFCMic9002; SAME LOCALITY, on *Euphorbia lamarckii*— 10 April 1998, TFCMic9009. **La Palma (P-1; c)**, on *Kleinia neriifolia*— 09 April 2006, TFCMic16309. **La Gomera (G-2; c)**, on *Cistus monspeliensis*— 18 December 2004, TFCMic15887. **Tenerife (T-2; c)**, on unidentified wood— 15 April 2004, TFCMic15944.

OBSERVATIONS— Recorded from the low elevations of Lanzarote (Beltrán-Tejera & Rodríguez-Armas 1999a), Hierro, La Palma, La Gomera, Tenerife and Gran Canaria, the laurel forest, pine forest and pine forest mixed with *Erica-Myrica* community (Beltrán-Tejera 2010), and burned pine forest of Fuencaliente of La Palma (Beltrán-Tejera et al. 2003).

Phanerochaete tuberculata (P. Karst.) Parmasto

SPECIMENS EXAMINED— **La Palma (P-3; a)**, on *Euphorbia balsamifera*— 09 April 2006, TFCMic18558. **(C-11; c)**, on dry basal leaves of *Agave americana*— 06 December 2006, TFCMic16748. **Gran Canaria (C-19; c)**, on *Kleinia neriifolia*— 06 December 2006, TFCMic16763. **(C-6; c)**, on *Salvia canariensis*— 06 December 2007, TFCMic18760. **Fuerteventura (F-2; c)**, on *Launaea arborescens*— 06 February 2005, TFCMic15114. **(F-8; c)**, on *Euphorbia regis-jubae*— 08 February 2005, TFCMic15157; SAME LOCALITY, on *Nicotiana glauca*— 08 February 2005, TFCMic15162, 15166, 15168; **(F-9; b)**, on *Kleinia neriifolia*— 08 February 2005, TFCMic15171.

OBSERVATIONS— New record for Gran Canaria and Fuerteventura. Reported from the low zones of Tenerife (Beltrán-Tejera & Rodríguez-Armas 1999a), the laurel forest of Hierro (Beltrán-Tejera & Rodríguez-Armas 1993), the *Adenocarpus* dry summit scrubs of the National Park of la Caldera de Taburiente of La Palma (Beltrán-Tejera et al. 2004), and substitutional scrubs of the National Park of Garajonay of La Gomera (Beltrán-Tejera et al. 2008).

Phanerochaete xerophila Burds.

SPECIMENS EXAMINED— **El Hierro (H-10; c)**, on *Kleinia neriifolia*— 28 January 2005, TFCMic14979. **(H-9; c)**, on *Kleinia neriifolia*— 28 January 2005, TFCMic14967. **(H-1; c)**, on *Schizogyne sericea*— 30 January 2005, TFCMic15028. **(H-8; d)**, on *Pericallis murrayi*— 26 January 2007, 11400MD. **La Palma (P-14; c)**, on *Echium brevirame*— 08 April 1998, TFCMic8989. **(P-18; c)**, on dry leaf base of *Phoenix canariensis*— 08 April 1998, TFCMic9001,9004. **(P-24; c)**, on *Ficus carica*— 10 April 1998, TFCMic8959. **Tenerife (T-1; c,e)**, on inflorescence remains of *Agave americana*— 30 October 2002, TFCMic15989. **Gran Canaria (C-6; c)**, on *Euphorbia regis-jubae*— 06 December 2007, TFCMic18762. **Fuerteventura (F-8; c)**, on *Nicotiana glauca*— 08 February 2005, TFCMic15160. **(F-10; b)**, on *Lycium intricatum*— 05 December 2007, TFCMic18741. **Lanzarote (L-1; a)**, on *Kleinia neriifolia*— 02 December 2007, TFCMic18677, 18678.

OBSERVATIONS— New record for Gran Canaria, Fuerteventura and Lanzarote. Reported from the low zones of Tenerife (Beltrán-Tejera & Rodríguez-Armas 1999a, see taxonomic remarks and distribution therein) and the *Adenocarpus* dry summit scrubs of the National Park of la Caldera de Taburiente of La Palma (Beltrán-Tejera et al. 2004). The species is known from southwestern United States, Sonoran Desert, a similar habitat (Burdsall 1985).

***Phlebia albida** H.Post

SPECIMENS EXAMINED— **Tenerife (T-10; c,e)**, on *Nicotiana glauca*— 13 March 2005, TFCMic16108, 16109; SAME LOCALITY, on *Rumex lunaria*— 13 March 2005, TFCMic16110.

Phlebia deflectens (P. Karst.) Ryvardeen

SPECIMENS EXAMINED— **La Gomera (G-7; c)**, on *Kleinia neriifolia*— 04 February 2007, 102211M. **Gran Canaria (C-19; c)**, on *Olea cerasiformis*— 06 December 2006, TFCMic16768. **Fuerteventura (F-8; c)**, on *Euphorbia regis-jubae*— 08 February 2005, TFCMic15156. **(F-3; c)**, on *Euphorbia regis-jubae*— 04 December 2007, TFCMic18716; SAME LOCALITY, on *Acacia cyclops*— 04 December 2007, TFCMic18718, 18721.

OBSERVATIONS— New record for La Gomera, Gran Canaria, and Fuerteventura. Previously reported from laurel forest and mixed pine forest with *Erica-Myrica* community of La Palma and Tenerife (Rodríguez-Armas et al. 1992).

Phlebia livida (Pers.) Bres.

SPECIMEN EXAMINED— **La Palma (P-9; a)**, on *Euphorbia lamarckii*— 10 April 2006, TFCMic16380.

OBSERVATIONS— Previously recorded from the laurel forest and pine forest of Tenerife and La Gomera (Ryvardeen 1976) and laurel forest of La Palma (Rodríguez-Armas et al. 1994).

Phlebia queletii (Bourdot & Galzin) M.P. Christiansen

SPECIMENS EXAMINED— **Tenerife (T-7; b)**, on *Plocama pendula*— 8 November 1997, TFCMic8866, 8871.

OBSERVATIONS— Reported from the laurel forest of Tenerife (Rodríguez-Armas & Beltrán-Tejera 1995) and La Gomera (Beltrán-Tejera et al. 2008).

Phlebia rufa (Pers.) M.P. Chirst.

SPECIMENS EXAMINED— **La Palma (P-8; a,b)**, on *Echium aculeatum*— 10 April 1998, TFCMic8850. **(P-22; c)**, on *Euphorbia lamarckii*— 07 April 2006, TFCMic16171.

OBSERVATIONS— Previously recorded from the mixed pine forest with *Erica-Myrica* community of La Palma (Ryvarden 1976) and laurel forest of Tenerife and Gran Canaria (Beltrán-Tejera & Rodríguez-Armas 1993).

Phlebiopsis gigantea (Fr.) Jülich

SPECIMENS EXAMINED— **La Palma (P-5; c)**, on *Eucalyptus camaldulensis*— 07 April 1998, *TFCMic8904*, 8920, 8923; SAME LOCALITY, on *Hypericum canariensis*— 07 April 1998, *TFCMic8907*, 8913; SAME LOCALITY, on unidentified wood— 07 April 1998, *TFCMic8917*.

OBSERVATIONS— Previously recorded from pine forest of La Palma and Tenerife (Ryvarden 1976) and laurel forest of the National Park of Garajonay of La Gomera (Beltrán-Tejera & Rodríguez-Armas 1993).

Phlebiopsis ravenelii (Cooke) Hjortstam

SPECIMENS EXAMINED— **La Palma (P-23; e)**, on unidentified wood— 08 April 2006, *TFCMic16256*; SAME LOCALITY, on *Erica arborea*— 08 April 2006, *TFCMic16258*. **Tenerife (T-8; b)**, on *Euphorbia canariensis*— 22 November 1997, *TFCMic14906*.

OBSERVATIONS— Very common in the Canary Islands, recorded from the low zones of Tenerife, in the laurel forest, pine forest and mixed pine forest with *Erica-Myrica* community, substitutional scrub, hydrophitic willow community of *Salix canariensis*, etc. (Beltrán-Tejera & Rodríguez-Armas 1999a; Ryvarden 1976; Rodríguez-Armas et al. 1989; Rodríguez-Armas & Beltrán-Tejera 1995; Beltrán-Tejera et al. 2004); also reported from Hierro, La Palma, La Gomera, Tenerife, and Gran Canaria (Beltrán-Tejera 2010).

Porostereum spadiceum (Pers.) Hjortstam & Ryvarden

[*Lopharia spadicea* (Pers.) Boidin]

SPECIMENS EXAMINED— **La Palma (P-12; c)**, on *Rumex lunaria*— 07 April 1998, *TFCMic 8929*. **Tenerife (T-2; c)**, on *Castanea sativa*— 15 April 2004, *TFCMic15947*.

OBSERVATIONS— New record for Tenerife. Reported from the laurel forest of La Palma (Rodríguez-Armas et al. 1992, as *Lopharia spadicea*).

****Radulomyces rickii*** (Bres.) M.P. Christ.

SPECIMEN EXAMINED— **Gran Canaria (C-24; c)**, on *Rumex lunaria*— 13 February 2006, *TFCMic15829*.

Scytinostroma alutum Lanq.

SPECIMEN EXAMINED— **El Hierro (H-3; c)**, on *Schizogyne sericea*— 29 January 2005, *TFCMic15000*.

OBSERVATIONS— New record for Hierro. Previously reported from the laurel forest of La Palma and La Gomera (Rodríguez-Armas et al. 1992)

Scytinostroma hemidichophyticum Pouzar

SPECIMENS EXAMINED— **El Hierro (H-9; c)**, on *Kleinia neriifolia*— 28 January 2005, *TFCMic14956*. **Lanzarote (L-5; a)**, on *Lycium intricatum*— 02 December 2007, *TFCMic18683*.

OBSERVATIONS— New record for Hierro and Lanzarote. Previously recorded from the laurel forest of La Palma, La Gomera, and Tenerife (Rodríguez-Armas & Beltrán-Tejera 1995).

Sistotrema diademiferum (Bourdot & Galzin) Donk

SPECIMEN EXAMINED— **La Gomera (G-4; c)**, on *Euphorbia berthelotii*— 18 December 2004, *TFCMic15905*.

OBSERVATIONS— New record for La Gomera. Previously recorded from the laurel forest, pine forest and mixed pine forest with *Erica-Myrica* community of Tenerife and La Palma (Ryvarden 1976), the burned pine forest of Fuencaliente of La Palma (Beltrán-Tejera et al. 2003).

Sistotrema octosporum (J. Schröt. ex Höhn. & Litsch.) Hallenb.

SPECIMEN EXAMINED— **Gran Canaria (C-24; c)**, on *Euphorbia regis-jubae*— 13 February 2006, *TFCMic15851*.

OBSERVATIONS— Previously recorded from pine forest of Gran Canaria (García-Manjón & Moreno 1981), laurel forest of Tenerife (Beltrán-Tejera & Rodríguez-Armas 1993), the burned pine forest of Fuencaliente (Beltrán-Tejera et al. 2003), the *Adenocarpus* dry summit scrubs and pine forest of the National Park of la Caldera de Taburiente of La Palma (Beltrán-Tejera et al. 2004), and laurel forest of the National Park of Garajonay of La Gomera (Beltrán-Tejera et al. 2008).

Sistotrema porulosum Hallenb.

SPECIMEN EXAMINED— **La Palma (P-8; a,b)**, on *Euphorbia balsamifera*— 10 April 1998, *TFCMic8843*.

OBSERVATIONS— New record for La Palma. Previously reported from Tenerife plantations of *Castanea sativa* on rachis of *Pteridium aquilinum* (Beltrán-Tejera et al. 2009).

Steccherinum ochraceum (Pers.) Gray

SPECIMENS EXAMINED— **Gran Canaria (C-19; c)**, on *Kleinia neriifolia*— 06 December 2006, *TFCMic16764*; SAME LOCALITY, on *Olea cerasiformis*— 06 December 2006, *TFCMic16769*; SAME LOCALITY, on dry leaf base of *Phoenix canariensis*— 06 December 2006, *TFCMic16773*.

OBSERVATIONS— Recorded from the laurel forest of La Gomera, Tenerife, Hierro and La Palma (Ryvarden 1976; Beltrán-Tejera & Rodríguez-Armas 1993) and pine forest of Gran Canaria (García-Manjón & Moreno 1981).

****Steccherinum robustius*** (J. Erikss. & S. Lundell) J. Erikss.

SPECIMEN EXAMINED— **Tenerife (T-1; c,e)**, on *Opuntia maxima*— 30 October 2002, *TFCMic15993*.

Subulicystidium perlongisporum Boidin & Gilles

SPECIMEN EXAMINED— **Fuerteventura (F-6; c)**, on *Euphorbia regis-jubae*— 06 February 2005, *TFCMic15108*.

OBSERVATIONS— New record for Fuerteventura. Previously reported from plantations of *Castanea sativa* of Tenerife (Beltrán-Tejera et al. 2009).

Trechispora cohaerens (Schwein.) Jülich & Stalpers

SPECIMEN EXAMINED— **El Hierro (H-8; d)**, on *Rubia fruticosa*— 26 January 2007, *TFCMic17623*.

OBSERVATIONS— New record for Hierro. Previously reported for Tenerife from pine forest (Ryvarden 1976), laurel forest (Rodríguez-Armas & Beltrán-Tejera 1995), plantations of *Castanea sativa* (Beltrán-Tejera et al. 2009), and La Palma from the *Adenocarpus* dry summit scrubs and pine forest of the National Park of La Caldera de Taburiente (Beltrán-Tejera et al. 2004).

Trechispora farinacea (Pers.) Libertia

SPECIMENS EXAMINED— **El Hierro (H-8; d)**, on *Cistus monspeliensis*— 26 January 2007, *TFCMic17037Tell*; SAME LOCALITY, on *Euphorbia lamarckii*— 26 January 2007, *TFCMic17029Tell*, *TFCMic17031Tell*; SAME LOCALITY, on *Echium aculeatum*— 26 January 2007, *TFCMic17627*, *TFCMic17628*; SAME LOCALITY, on *Rumex lunaria*— 26 January 2007, *TFCMic17041Tell*. **La Palma (P-3; a)**, on *Rumex lunaria*— 09 April 2006, *TFCMic16259*. **(P-4; b)**, on *Rumex lunaria*— 09 April 2006, *TFCMic16283*. **La Gomera (G-6; c)**, on remains of *Hyparrhenia hirta*— 18 December 2004, *TFCMic15907*. **Tenerife (T-5; a)**, on *Euphorbia canariensis*— 19 Marzo 2005, *TFCMic15511*.

OBSERVATIONS— New record for Hierro. Reported from the low zones of Tenerife (Beltrán-Tejera & Rodríguez-Armas 1999a), laurel forest and pine forest mixed with *Erica-Myrica* community of La Palma, La Gomera, and Tenerife (Ryvarden 1976), and *Erica-Myrica* community of Gran Canaria (Beltrán-Tejera & Rodríguez-Armas 1993).

Trechispora microspora (P.Karst.) Libertia

SPECIMEN EXAMINED— **Lanzarote (L-1; a)**, on *Kleinia neriifolia*— 02 December 2007, *TFCMic18676*.

OBSERVATIONS— New record for Lanzarote. Previously reported from the laurel forest of Hierro (Rodríguez-Armas et al. 1992), the *Adenocarpus* dry summit scrubs of the National Park of La Caldera de Taburiente of La Palma (Beltrán-Tejera et al. 2004), the very humid *Erica*-community on the ridge crests under the influence of trade-wind clouds of the National Park of Garajonay of La Gomera (Beltrán-Tejera et al. 2008).

Trechispora nivea (Pers.) K.H. Larss.

SPECIMENS EXAMINED— **El Hierro (H-11; a,b)**, on *Kleinia neriifolia*— 31 January 2005, *TFCMic15080*. **(H-8; d)**, on *Rubia fruticosa*— 26 January 2007, *TFCMic17053Tell*; SAME LOCALITY, on *Echium aculeatum*— 26 January 2007, *TFCMic17052Tell*; *TFCMic17667*, *TFCMic17672*, *TFCMic9897IM*, *TFCMic9898IM*, *TFCMic9916IM*, *TFCMic11409MD*; SAME LOCALITY, on *Juniperus turbinata* ssp. *canariensis*— 26 January 2007, *TFCMic9895IM*; SAME LOCALITY, on *Euphorbia lamarckii*— 26 January 2007, *TFCMic9910IM*, *TFCMic11392MD*; SAME LOCALITY, on *Schizogyne sericea*— 26 January 2007, *TFCMic9893IM*; SAME LOCALITY, on unidentified wood— 26 January 2007, *TFCMic11394bisMD*. **La Palma (P-3; a)**, on *Rumex lunaria*— 09 April 2006, *TFCMic16261*.

OBSERVATIONS— New record for Hierro and La Palma. This species was reported from Gran Canaria and Tenerife by Larsson (1995).

****Trechispora praefocata*** (Bourdot & Galzin) Libertia

SPECIMENS EXAMINED— **La Palma (P-4; b)**, on dry leaves of *Aeonium canariense*— 09 April 2006, *TFCMic16273*. **(P-1; c)**, on *Rumex lunaria*— *TFCMic16302*.

Trechispora stellulata (Bourdot & Galzin) Libertia

SPECIMENS EXAMINED— **El Hierro (H-8; d)**, on *Echium aculeatum*— 26 January 2007, *TFCMic11408MD*. **La Gomera (G-7; c)**, on remains of *Hyparrhenia hirta*— 04 February 2007, *TFCMic18223*.

OBSERVATIONS— New record for Hierro. Previously reported from the laurel forest of Tenerife (Rodríguez-Armas et al. 1989), mixed pine forest with *Erica-Myrica* community of the National Park of la Caldera de Taburiente of La P (Beltrán-Tejera et al. 2004), and laurel forest of the National Park of Garajonay of La Gomera (Beltrán-Tejera et al. 2008).

Tubulicrinis calothrix (Pat.) Donk

SPECIMEN EXAMINED— **La Palma (P-9; a)**, on *Euphorbia lamarckii*— 10 April 2006, *TFCMic16381*. **Gran Canaria (C-18; a)**, on *Kleinia neriifolia*— 12 February 2006, *TFCMic15807*.

OBSERVATIONS— New record for Gran Canaria. Previously reported from pine forest of La Palma (Ryvarden 1976), pine forest and pine forest mixed with *Erica-Myrica* community, and anthropic substitutional scrubs of the National Park of la Caldera de Taburiente of La Palma (Beltrán-Tejera et al. 2004).

Tubulicrinis glebulosus (Fr.) Donk

[*Tubulicrinis gracillimus* (Ellis & Everh. ex D.P. Rogers & H.S. Jacks.) G. Cunn.]

SPECIMENS EXAMINED— **El Hierro (H-8; d)**, on *Juniperus turbinata* ssp. *canariensis*— 26 January 2007, *TFCMic9909IM*; SAME LOCALITY, on *Cistus monspeliensis*— 26 January 2007, *TFCMic17663*. **La Palma (P-5; c)**, on *Eucalyptus camaldulensis*— 07 April 1998, *TFCMic8902*. **(P-9; a)**, on *Echium breviflorum*— 10 April 2006, *TFCMic16368*. **(P-15; c)**, on unidentified wood— 06 April 1998, *TFCMic8933*. **(P-18; c)**, on *Euphorbia lamarckii*— 10 April 1998, *TFCMic9008*, *TFCMic9023*, *TFCMic9024*. **(P-4; b)**, on *Rumex lunaria*— 09 April 2006, *TFCMic16279*.

OBSERVATIONS— New record for Hierro. Reported from the low zones of Tenerife (Beltrán-Tejera & Rodríguez-Armas 1999a), laurel forest, pine forest mixed with *Erica-Myrica* community from La Palma, La Gomera and Tenerife (Rodríguez-Armas & Beltrán-Tejera 1995), as *Tubulicrinis gracillimus*.

****Tubulicrinis incrassatus*** Hallenb.

SPECIMEN EXAMINED— **La Gomera (G-4; c)**, on *Euphorbia berthelotii*— 18 December 2004, *TFCMic15904*.

****Tubulicrinis medius*** (Bourdot & Galzin) Oberw.

SPECIMENS EXAMINED— **Tenerife (T-10; c,e)**, on *Rumex lunaria*, 13 March 2005, *TFCMic16110bis*. **Gran Canaria (C-24; c)**, on *Kleinia neriifolia*— 13 February 2006, *TFCMic15852*.

Xylodon asperus (Fr.) Hjortstam & Ryvarden

[*Hyphodontia aspera* (Fr.) J. Erikss.]

SPECIMENS EXAMINED— **La Palma (P-4; b)**, on *Rumex lunaria*— 09 April 2006, *TFCMic16278*, *TFCMic16284*, *TFCMic16286*. **(P-7; b,c)**, on *Echium breviflorum*— 10 April 2006, *TFCMic16343*. **Gran Canaria (C-25; c)**, on *Rumex lunaria*— 14 February 2006, *TFCMic15865*.

OBSERVATIONS— Known from laurel forest, pine forest, pine forest mixed with *Erica-Myrica* community of La Palma, La Gomera, Tenerife, and from other non-native community with allochthonous elements such as *Quercus suber*, *Ceratonia siliqua*, etc., of Gran Canaria (Rodríguez-Armas & Beltrán-Tejera 1995), the burned pine forest of Fuencaliente of La Palma (Beltrán-Tejera et al. 2003), and plantations of *Castanea sativa* of Tenerife (Beltrán-Tejera et al. 2009). All the records as *Hyphodontia aspera*.

Xylodon brevisetus (P. Karst.) Hjortstam & Ryvarden

[*Hyphodontia breviseta* (P. Karst.) J. Erikss.]

SPECIMEN EXAMINED— **El Hierro (H-8; d)**, on *Juniperus turbinata* ssp. *canariensis* — 26 January 2007, *TFCMic17639*.

OBSERVATIONS— New record for Hierro. Previously reported from pine forest and pine forest mixed with *Erica-Myrica* community of La Palma and Tenerife (Ryvarden 1976, as *Hyphodontia breviseta*).

Xylodon bugellensis (Ces.) Hjortstam & Ryvarden

[*Hyphodontia bugellensis* (Ces.) J. Erikss.]

SPECIMEN EXAMINED— **Lanzarote (L-5; a)**, on *Lycium intricatum*— 02 December 2007, *TFCMic18682*.

OBSERVATIONS— New record for Lanzarote. Previously reported from the laurel forest of La Gomera (Ryvarden 1976) and in *Chamaecytisus proliferus* plantations from La Palma (Karasch et al. 2004).

Xylodon crustosus (Pers.) Chevall.

[*Hyphodontia crustosa* (Pers.) J. Erikss.]

SPECIMEN EXAMINED— **El Hierro (H-8; d)**, on *Juniperus turbinata* ssp. *canariensis*— 26 January 2007, *9894IM*.

OBSERVATIONS— New record for Hierro. Previously reported from the mountain cliffs of Fuerteventura (Pico del Mocán, Península de Jandía), at 750 msl, of the dry ombrotype habitat (Beltrán-Tejera 2005, as *Hyphodontia crustosa*).

Xylodon juniperi (Bourdot & Galzin) Hjortstam & Ryvarden

[*Hyphodontia juniperi* (Bourdot & Galzin) J. Erikss. & Hjortstam]

SPECIMENS EXAMINED— **El Hierro (H-8; d)**, on *Juniperus turbinata* ssp. *canariensis*— 26 January 2007, *17042Tell.*, *17043Tell.*, *17046Tell.*, *11403MD*, *11404MD*, *TFCMic17634*, *17636*, *17637*, *17651*, *17652*, *17653*.

OBSERVATIONS— New record for Hierro. Previously reported from *Erica-Myrica* community in Tenerife (Rodríguez-Armas et al. 1992, as *Hyphodontia juniperi*).

Xylodon spathulatus (Schrad.) Kunze

[*Hyphodontia spathulata* (Schrad.) Parmasto]

SPECIMENS EXAMINED— **El Hierro (H-8; d)**, on *Cistus monspeliensis*— 26 January 2007, *9914IM*. **La Palma (P-21; c)**, on *Euphorbia lamarckii*— 09 April 1998, *TFCMic8874*.

OBSERVATIONS— New record for Hierro. Previously reported from the laurel forest of La Gomera and Tenerife (Rodríguez-Armas et al. 1992) and the pine forest of the National Park of la Caldera de Taburiente of La Palma (Beltrán-Tejera et al. 2004). All the records as *Hyphodontia spathulata*.

Discussion

Corticoid diversity, frequency and abundance

We have identified 80 species of which 19 species are cited for the first time for the Canary Islands (*Asterostroma gaillardii*, *Athelia arachnoidea*, *Leptosporomyces mutabilis*, *Botryobasidium laeve*, *Candelabrochaete septocystidia*, *Corticium meridioroseum*, *Crustoderma longicystidiatum*, *Hjortstamia amethystea*, *Hyphoderma malençonii*, *Lyomyces erastii*, *Byssomerulius hirtellus*, *Peniophora tamaricicola*, *Phanerochaete omnivora*, *Phlebia albida*, *Radulomyces rickii*, *Steccherinum robustius*, *Trechispora praefocata*, *Tubulicrinis incrassatus*, and *Tubulicrinis medius*). In addition, 28 new species are reported for Hierro, 7 for La Palma, 6 for La Gomera, 7 for Tenerife, 14 for Gran Canaria, 6 for Fuerteventura, and 9 for Lanzarote (Fig. 1).

According to Beltrán-Tejera (2010), 215 species of corticoid fungi were previously recorded from the Canary Islands. With this study, the number rises to 234 species (increase of 8.8%), (Table 1). The most significant additions were for Lanzarote (9 spp; increase of 100%) and Hierro (28 spp; 93.3%), since only 9 and 30 corticoid species, respectively, were known previously. Similarly, the increase in species richness for Fuerteventura (6; 75%) and Gran Canaria (14; 41.1%) is notable.

The species studied are distributed among 33 genera (Fig. 2), and two are reported for the first time from these islands (*Candelabrochaete* and *Hjortstamia*). *Peniophora* and *Hyphodontia* s.l. (*Hyphodontia* s.s., *Lyomyces* and *Xylodon*) have the greatest representation with 9 species each followed by *Phanerochaete* (8), *Trechispora* (6), *Phlebia* (5), *Hyphoderma* and *Tubulicrinis* (4 each), *Sistotrema* (3), and *Asterostroma*, *Athelia*, *Botryobasidium*, *Byssomerulius*, *Coniophora*, *Peniophorella*, *Phlebiopsis*, *Scytinostroma* and *Steccherinum* (2 each). Somewhat less than half of the genera registered (15) is represented by a single species.

Regarding the exsiccata obtained (482), the island of Hierro produced the best results (Fig. 1) with 123 samples that corresponded to 33 species, collected in 13 locations, followed by La Palma (112, 31, 24), and Gran Canaria (96, 24, 25).

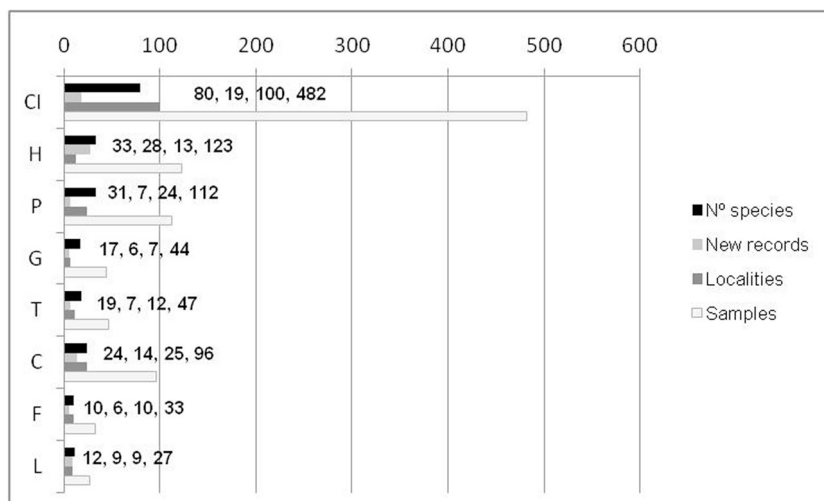


FIG. 1. Xerophilous corticioid fungi: Species number, new records, localities prospected, and number of samples in total of the archipelago, and per each particular island (CI: Canary Islands; H: El Hierro; P: La Palma; G: La Gomera; T: Tenerife; C: Gran Canaria; F: Fuerteventura; L: Lanzarote). In the graph, the numerical values are arranged in that order.

With regard to the number of samples per species, 33 were found once (a single sample). These are rare species in the study area (Fig. 3). Fifteen species were found twice, ten species were collected three times, and three species were found four times. A group of nineteen species were collected five or more times, the highest frequency of occurrence and ecological amplitude. These species are shown in Fig. 4, among which *Peniophora lycii* (91 samples), *Peniophora nuda* (60), *Hyphoderma macaronesicum* (33), *Lyomyces sambuci* (27), *Peniophora boidinii* (24), and *Peniophorella praetermissa* (21) stand out.

TABLE 1. Biodiversity of corticioid fungi of the Canary Islands: Data from 2010 and increasing by the new records of this paper (for archipelago and each island, respectively).

	Actually Total	Beltrán-Tejera (2010)	Treated here	New	Incr %
Canary Islands	234	215	80	19	8.8
Hierro	58	30	33	28	93.3
La Palma	166	159	31	7	4.4
Gomera	108	102	17	6	5.9
Tenerife	159	152	19	7	4.6
Gran Canaria	48	34	24	14	41.1
Fuerteventura	14	8	10	6	75.0
Lanzarote	18	9	12	9	100.0

In our first contribution to the knowledge of the xerophilous Aphylophorales s.l. from the lower elevations of the Canary Islands (Beltrán-Tejera & Rodríguez-Armas 1999a), only 25 corticioid species were recorded, including 21 that are also present in this work [*Botryobasidium candicans* (*Oidium candicans*), *Byssomerulius corium*, *Globulicium hiemale*, *Hyphoderma medioburiense*, *Hyphoderma setigerum*, *Lyomyces sambuci*, *Peniophora boidinii*, *P. cinerea*, *P. incarnata*, *P. lycii*, *P. meridionalis*, *P. nuda*, *Peniophorella praetermissa*, *Phanerochaete andreae*, *P. sordida*, *P. tuberculata*, *P. xerophila*, *Phlebiopsis ravenelii*, *Trechispora farinacea*, *Tubulicrinis glebulosus* and *Asterostroma ochroleucum* (as *Asterostroma cervicolor*)]. *Amphinema byssoides*, recorded in 1999a (op. cit) was not included in this study because of the poor condition of the material collected in dry areas of Gran Canaria (C-2). *Acanthophysium minor* (Pilát) Telleria, *Ceraceomyces tessulatus* (Cooke) Jülich, and *Phanerochaete martelliana* (Bres.) J. Erikss. & Ryvarden, also included in our first contribution (op.cit.), was not recovered in this present study.

Substrate-species relationships

The analysis of the substrates was based on 482 identified samples collected on 60 vascular plant species, 48 have woody biotypes (29 are endemic) and 12 succulents (7 endemic) (Table 2).

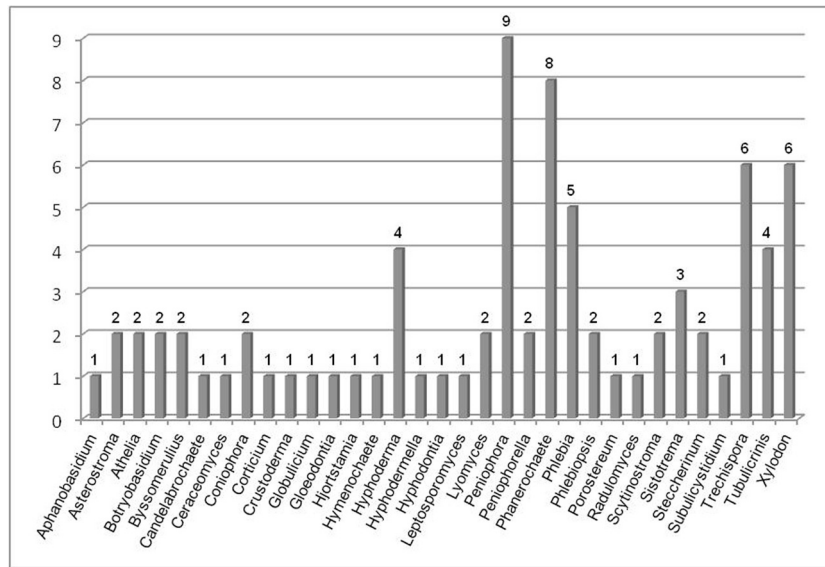


FIG. 2. Genera treated (33) and number of species registered per each one.

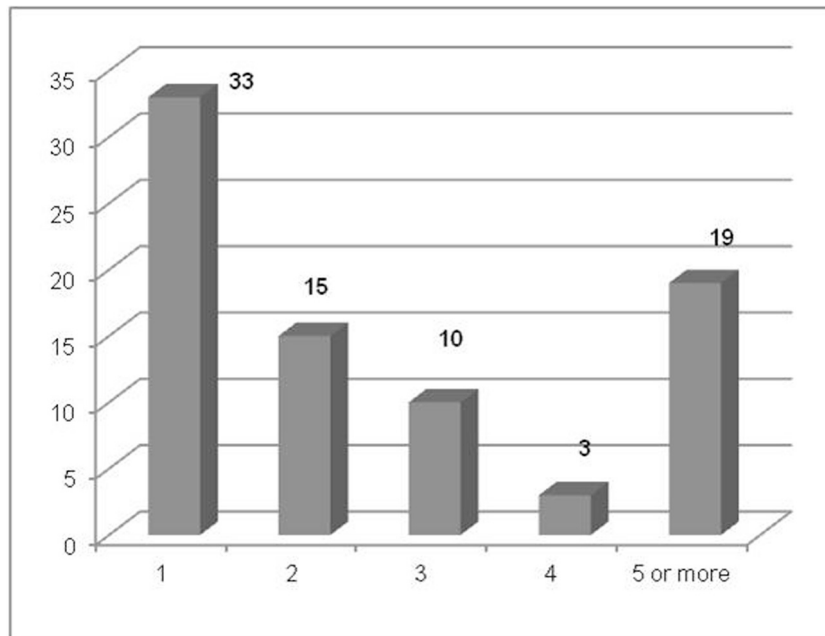


FIG. 3. Number of species with 1, 2, 3, 4, and 5 or more samples, respectively.

We carefully examined all living plants and decaying wood in sampled localities and observed that corticioid fungi prefer woody substrates over succulent substrates. Unsurprisingly, 338 samples (70.1%) were collected on woody substrates, while 144 (29.9%) on succulent plants. However, in analyzing the fungal species and their preferences, we found that the number of fungi which prefer woody substrates is only slightly greater than those that prefer succulent, or both substrate types. Thus, 36 corticioid species were recorded on decaying woody plants, 20 on succulent plant remains, and 24 on both types. Because these 20 corticioid species are only occasionally found on succulent plant remains, they should be considered facultative succulenticolous. Many of these species are typically lignicolous in other geographical areas. Examples of some of the species include *Asterostroma ochroleucum*, *Coniophora puteana*, *Corticium*

meridioroseum, *Hyphoderma setigerum*, *Phanerochaete andreae*, *Phlebia livida*, *Sistotrema diademiferum*, *Sistotrema octosporum*, *Sistotrema porulosum*, *Subulicystidium perlongisporum*, *Trechispora microspora*, and *Tubulicrinis calothrix*. Similarly, new fungal records for the archipelago on succulent plants (*Athelia arachnoidea*, *Botryobasidium laeve*, *Candelabrochaete septocystidia*, *Hjortstamia amethystea*, *Leptosporomyces mutabilis*, *Steccherinum robustius*, and *Tubulicrinis incrassatus*) are lignicolous in other parts of the world as reported in the literature. *Gloeodontia xerophila*, known only from Canarian material and on succulents, is the only taxon that could be classified as a succulenticolous corticioid.

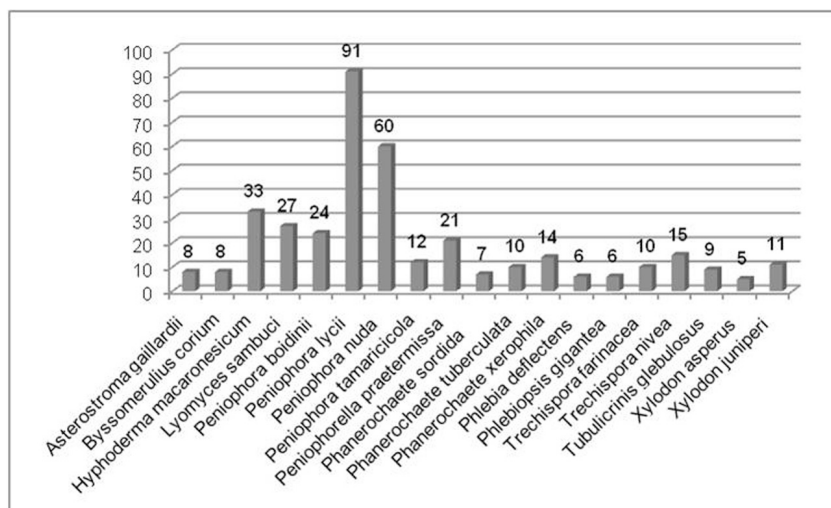


FIG. 4. Corticioid species with 5 or more samples.

A list of all substrates and the number of fungal samples and fungal species collected on each is presented in Table 2. Over 20 samples were obtained from five substrates: *Rumex lunaria* (65 samples represented by 22 corticioid species), *Euphorbia lamarckii* (47 and 22 species), *Kleinia neriifolia* (40 and 22 species), *Echium aculeatum* (30 and 10 species), and *Juniperus turbinata* ssp. *canariensis* (24 and 11 species). It is noteworthy that the endemic, succulent species *E. lamarckii* and *K. neriifolia* are in second and third place. This may be partially explained by their abundance and wide distribution on the islands. However, the samples were fewer on other succulents, for example on some *Euphorbia* species with lower density and distribution: *E. regis-jubae* (13 samples), *E. canariensis* (8), *E. berthelotii* (6), and *E. balsamifera* (2), (Table 2).

The most fungal species, 22 taxa, were recovered from substrates from which the most samples were obtained (*Rumex lunaria*, *Euphorbia lamarckii* and *Kleinia neriifolia*). By dividing the number of fungal species by the number of samples per substrate, we were able to identify what substrates supported the most mycodiversity. Values approaching one indicated greater mycodiversity. For example, *Lycium intricatum* (1.0), *Schizogyne sericea* (0.9), and *Echium brevirame* (0.87) supported more fungal diversity than *R. lunaria* (0.33) and *E. lamarckii* (0.46); see Table 2. In contrast, *Tamarix canariensis* (0.16) was the least diverse, with 12 samples represented by only 2 species — *Peniophora tamaricicola* (11) and *Peniophora lycii* (1).

Corticioid fungi diversity in different vegetal communities

The bitter spurge scrub community (c), (with *Euphorbia lamarckii*, *E. regis-jubae* or *E. berthelotii*) occupies a wide area in the low zones, and most of the sampling stations, 52, are located here. The other xerophytic communities are restricted in area (Fig. 5). As expected, nearly half of the samples (49.4%) were obtained from the bitter spurge scrub communities (c). For each of the main vegetation communities (a, b, c, d), the relationship between the number of sampled locations in that community and samples collected is approximately similar, except in the *Juniper* community (Hiero, H-8, d) where 99 samples (20.5%) were collected in one locality. This site is located in the upper-semiarid zone, subjected to the trade winds, and inhabited by 11 vascular species, including rockrose scrub (*Cistus monspeliensis*), enriched with species of the "tabaibal-cardonal". The diverse substrates probably increased the potential for supporting a number of corticioid fungi. The five most important hosts were: *Juniperus turbinata* ssp. *canariensis* (24 samples, hosting 11 corticioid species); *Echium aculeatum* (21, 7); *Euphorbia lamarckii* (19, 8); *Cistus monspeliensis* (10, 8); and *Rumex lunaria* (9, 7). The corticioid species most frequently recovered were: *Peniophora lycii*

(24 samples), *Trechispora nivea* (13), *Xylodon juniperi* (12), *Lyomyces sambuci* (7), *Peniophorella praetermissa* (7), and *Trechispora farinacea* (6).

TABLE 2. The total number of samples, and corticioid species recorded on sampled substrates (60).

Woody substrates (48/29*)	Samp.	Spp. cortic.	Spp/ Samp.	Woody substrates (cont.)	Samp.	Spp. cortic.	Spp/ Samp.
<i>Acacia cyclops</i>	7	2	0.28	* <i>Pericallis murrayi</i>	1	1	1.0
* <i>Argyranthemum frutescens</i>	3	1	0.33	<i>Periploca laevigata</i>	6	4	0.66
* <i>Artemisia ramosa</i>	3	1	0.33	* <i>Phoenix canariensis</i>	9	7	0.77
* <i>Artemisia thuscula</i>	8	3	0.37	* <i>Pinus canariensis</i>	1	1	1.0
<i>Arundo donax</i>	1	1	1.0	<i>Pistacia atlantica</i>	2	1	0.5
* <i>Asteriscus intermedius</i>	9	3	0.33	* <i>Ploclama pendula</i>	15	4	0.26
<i>Bituminaria bituminosa</i>	2	2	1.0	* <i>Rhamnus crenulata</i>	2	1	0.5
* <i>Bosea yerbabuena</i>	1	1	1.0	<i>Ricinus communis</i>	1	1	1.0
<i>Castanea sativa</i>	2	2	1.0	* <i>Rubia fruticosa</i>	3	3	1.0
* <i>Chamaecytisus proliferus</i>	2	2	1.0	* <i>Rumex lunaria</i>	65	22	0.33
<i>Cistus monspeliensis</i>	16	12	0.75	<i>Salsola cf divaricata</i>	1	1	1.0
<i>Citrus aurantium</i>	2	2	1.0	* <i>Salvia canariensis</i>	4	4	1.0
* <i>Echium aculeatum</i>	30	10	0.33	* <i>Schizogyne sericea</i>	10	9	0.9
* <i>Echium breviramen</i>	8	7	0.87	<i>Suaeda cf vermiculata</i>	3	1	0.33
* <i>Echium onosmifolium</i>	8	4	0.5	* <i>Tamarix canariensis</i>	12	2	0.16
* <i>Echium strictum</i>	3	2	0.66	* <i>Todaroa aurea</i>	1	1	1.0
<i>Erica arborea</i>	2	2	1.0	* <i>Withania aristata</i>	1	1	1.0
<i>Eucalyptus camaldulensis</i>	2	2	1.0	Unidentified wood	21	13	-
				Total woody substrates	338		
<i>Eucalyptus sp.</i>	6	4	0.66	Succulent substrates (12/7*)	Samp.	Spp. cortic.	Spp/ Samp.
* <i>Ferula linckii</i>	1	1	1.0	* <i>Aeonium arboreum</i>	2	2	1.0
<i>Ficus carica</i>	3	3	1.0	* <i>Aeonium canariense</i>	2	2	1.0
* <i>Globularia salicina</i>	1	1	1.0	* <i>Aeonium sp.</i>	2	2	1.0
<i>Hyparrhemia hirta</i>	2	2	0.1	<i>Agave americana</i>	17	10	0.58
* <i>Hypericum canariensis</i>	7	3	0.42	<i>Astydamia latifolia</i>	1	1	1.0
* <i>Hypericum reflexum</i>	1	1	1.0	<i>Euphorbia balsamifera</i>	2	2	1.0
* <i>Jasminum odoratissimum</i>	1	1	1.0	* <i>Euphorbia berthelotii</i>	6	5	0.83
* <i>Juniperus turbinata ssp. canariensis</i>	24	11	0.45	* <i>Euphorbia canariensis</i>	8	6	0.75
<i>Launaea arborescens</i>	7	6	0.85	* <i>Euphorbia lamarckii</i>	47	22	0.46
<i>Lycium intricatum</i>	5	5	1.0	<i>Euphorbia regis-jubae</i>	13	9	0.69
<i>Nicotiana glauca</i>	11	6	0.54	* <i>Kleinia neriifolia</i>	40	22	0.55
* <i>Olea cerasiformis</i>	2	2	1.0	<i>Opuntia maxima</i>	4	4	1.0
*Canarian endemisms				Total succ. substrates	144		

Corticioid fungi in different bioclimatic belts

Table 3 shows the sampled localities, cumulative species and samples collected in different bioclimatic belts. The highest number of sampling places were in the lower semiarid xeric Inframediterranean (30), arid desertic Inframediterranean (26), and upper semiarid xeric Inframediterranean (21), representing 77% of all explored localities. The most cataloged species (49; 61.2%) were found in the upper semiarid xeric Infra- and Thermomediterranean belts. Finally, two bioclimatic belts with the most samples were the upper semiarid

xeric Inframediterranean with 187 samples and the lower semiarid xeric Inframediterranean with 120 samples (Table 3, Fig. 6).

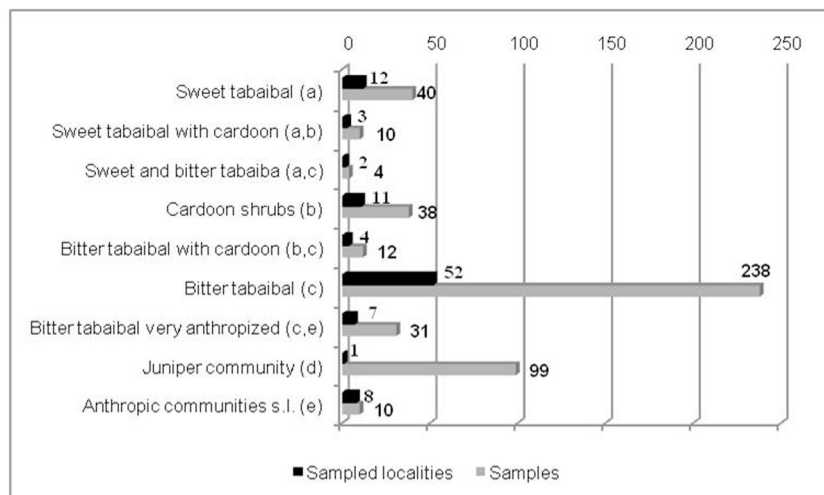


FIG. 5. Number of sampled localities in each type of vegetative community, and number of fungi samples in each type of vegetative community (Total localities: 100; Total samples: 482).

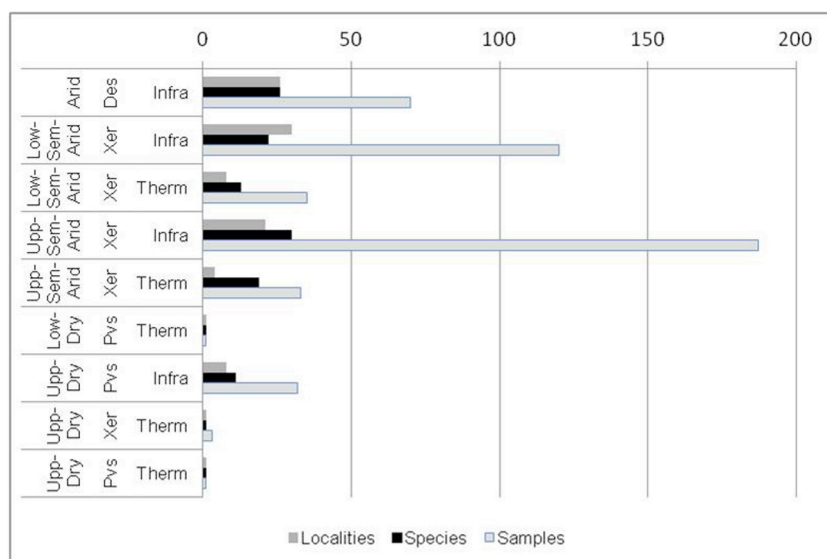


FIG. 6. Number of sampled localities, cumulative species and samples collected in each bioclimatic belt.

In Figure 7, the cumulative species number recorded in 1, 2, 3 and 4 ombrotypes is presented. Only three species (*Peniophora boidinii*, *P. lycii* and *Trechispora farinacea*) were found in all ombrotypes. This may indicate that they have the greatest ecological amplitude. In comparison, most species (51) have a more restrictive distribution, appearing in just one ombrotype (11 species in the arid, 35 in the semiarid s.l., and 5 in zones with dry s.l. ombrotype). Nevertheless, when analyzing the environmental performance of most of these species in all ecosystems of the Canary Islands, a number of species were found to span several ecological zones. For example, 11 species listed in the unfavorable arid-desert environments are known in other zones of the Canary Islands of the dry, subhumid and humid ombrotypes. Some of these species (e.g., *Coniophora puteana*, *Phanerochaete andreae*, *Phlebia queletii*, *Scytinostroma aluta*, *Trechispora microspora*, *Xylodon bugellensis*) also occur in the laurel forest, pine forest, and summit communities.

Few strictly xerophilic corticioid species are known from the study area. Examples include *Gloeodontia xerophila* and *Hypoderma macaronesticum*, which are known only from the low elevations and

thermophilous zones in the Canary Islands. *Peniophora tamaricola* and *Phanerochaete xerophila* are also known from similar habitats in other parts of the world. *Peniophora boidinii*, *P. lycii*, and *Trechispora farinea* can be added because its xerotolerance and ecological amplitude, and *Coniophora arida*, *C. puteana*, *Hyphodermella corrugata*, *Peniophora rufomarginata*, *Trechispora cohaerens*, and *Trechispora nivea* which occur in the *Adenocarpus* scrub-summit of La Palma (Beltrán-Tejera et al. 2004). Additionally, *Acanthophysium minor*, *Ceraceomyces tessulatus*, and *Phanerochaete martelliana* should be included in this list, for they were noted earlier by Beltrán-Tejera & Rodríguez-Armas (1999a).

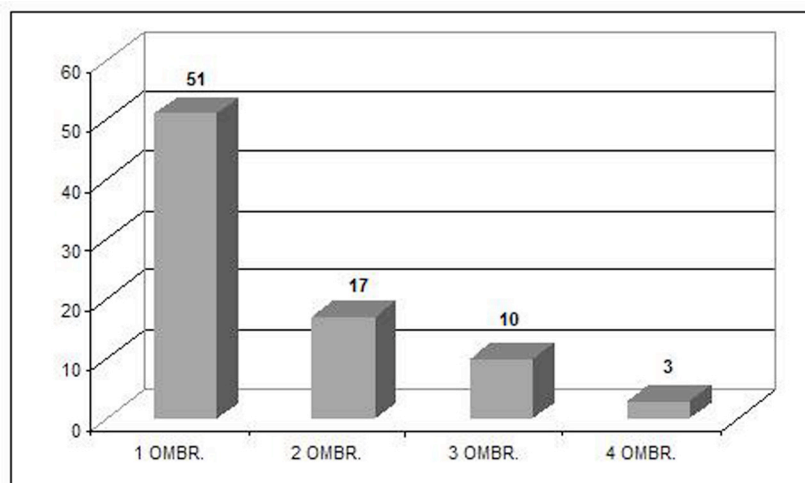


FIG. 7. Species number represented in one, two, three, and four ombrotypes.

The semiarid zones (Table 3) supported the most cumulative species (84, 42 exclusive to this ombrotype), and samples (375). Species with 5 or more samples include, 1) All in the semiarid: *Byssomerulius corium* (8), *Trechispora nivea* (15), *Xylodon asperus* (5), *X. juniperi* (11); and 2) In semiarid and other ombrotypes: *Asterostroma gaillardii* (6), *Hyphoderma macaronesicum* (16), *Lyomyces sambuci* (23), *Peniophora boidinii* (18), *P. lycii* (80), *P. nuda* (45), *P. tamaricola* (11), *Peniophorella praetermissa* (20), *Phanerochaete tuberculata* (6), *P. xerophila* (9), *Phlebia deflectens* (5), *Trechispora farinea* (7), and *Tubulicrinis glebulosus* (6).

Table 3. Sampled localities, cumulative species number, and number of samples collected in the nine different bioclimatic belts explored (I+T: Species number in the both Inframediterranean and Thermomediterranean of their respective ombrotypes).

OMBROT	BIOCLIM	THERMOT	LOC	N° Spp	I+T	SAMPLES
ARID	DES	INFRAMED	26	26	0	70
LOW-SEM-ARI	XER	INFRAMED	30	22		120
LOW-SEM-ARI	XER	THERMOMED	8	5	8	35
UPP-SEM-ARI	XER	INFRAMED	21	30		187
UPP-SEM-ARI	XER	THERMOMED	4	6	13	33
LOW-DRY	PVS	THERMOMED	1	1		1
UPP-DRY	PVS	INFRAMED	8	10		32
UPP-DRY	XER	THERMOMED	1	2	1	3
UPP-DRY	PVS	THERMOMED	1	1		1
			100		125	482

Finally, from our data, we note that the four genera with highest representation in this study are: *Peniophora*, with 9 species, 200 samples, collected from 60 localities, found in the 9 types of plant communities, and distributed in 6 bioclimatic belts, followed by *Hyphodontia* s.l. (9, 52, 23, 8, 6), *Phanerochaete* (8, 37, 23, 6, 7), and *Trechispora* (6, 31, 10, 5, 5); see Fig. 8.

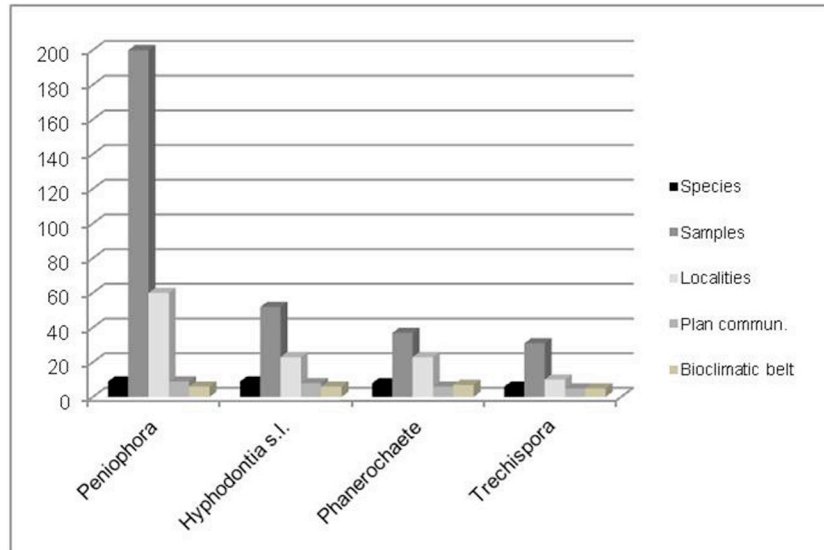


FIG. 8. The four genera with highest representation in this study, with graphic expression of the number of species, samples, localities, types of vegetation and bioclimatic belts, in which there have been registered (*Hyphodontia* s.l. includes *Hyphodontia* s.s., *Lyomyces* and *Xylodon* species).

Acknowledgments

Financial support was given by different projects: Ref. 180206926-ULL and Ref. 1802069932-ULL (Ministry of Environment, Spain); DGI CGL2005-01192/BOS and CGL2012-35559. Our thanks are due to Dr Hallenberg, Dr Ryvarden and Dr Karen Nakasone, for pre-submission review of the manuscript. We thank our colleague Dr Del Arco, for his assistance in preparing bioclimatic belt data of all localities included in this paper, and Dr Víctor Garzón-Machado, for his assistance in the transformation of geographical coordinates and generating the map of localities. We want recognize our friend Julio Leal Pérez, for his indispensable help in field work during many years, since the 1990s.

Literature cited

- Beltrán-Tejera E. 2005. Hongos. In Rodríguez Delgado, O. (Coord./Ed.): Patrimonio Natural de Fuerteventura (Islas Canarias). Cab. Insular de Fuerteventura & Centro de la Cultura Popular Canaria, Santa Cruz de Tenerife, pp. 215-228.
- Beltrán-Tejera E. 2010. Fungi. In Arechavaleta, M., S. Rodríguez, N. Zurita & A.García (Coord.): Lista de especies silvestres de Canarias. Hongos, plantas y animales terrestres. 2009. Gobierno de Canarias, pp. 25-70.
- Beltrán-Tejera E, Mosquera J, Lado C. 2010. Myxomycete diversity from arid and semiarid zones of the Canary Islands (Spain). *Mycotaxon* 113: 439-462.
- Beltrán-Tejera E, Rodríguez-Armas JL. 1993. Aphylophorales (Basidiomycotina) de las Islas Canarias. *Novedades corológicas. I. Estudios Canarios. Anuario Inst. Est. Canar.* 36/37: 9-39.
- Beltrán-Tejera E, Rodríguez-Armas JL. 1999a. Aphylophorales (Basidiomycotina) of arid habitats of the Canary Islands. Preliminary data. *Mycotaxon* 70: 111-125.
- Beltrán-Tejera E, Rodríguez-Armas JL. 1999b. Aphylophorales (Basidiomycotina) de las Islas Canarias. *Novedades corológicas. II. Rev. Acad. Canar. Cienc.* XI (3-4): 223-243.
- Beltrán-Tejera E, Rodríguez-Armas JL, Bañares Baudet Á. 2003. Observaciones sobre la sucesión fúngica en los pinares después de un incendio: Pinares de Fuencaliente (La Palma, Islas Canarias). *Bol. Soc. Micol. Madrid* 27: 101-147.
- Beltrán-Tejera E, Rodríguez-Armas JL, Bañares Baudet Á, Barrera Acosta J, Lado C. 2004. Hongos. In Beltrán Tejera, E. (Ed.): Hongos líquenes y briófitos del Parque Nacional de la Caldera de Taburiente. O.A. de Parques Nacionales (La Palma, Islas Canarias). Serie Técnica. Ministerio de Medio Ambiente. Madrid, pp. 55-232.
- Beltrán-Tejera, E, Rodríguez-Armas JL, Bañares Baudet Á, Lado C. 2008. Hongos. In Beltrán Tejera, E. (Ed.): Hongos, líquenes y briófitos del Parque Nacional de Garajonay (Gomera, Islas Canarias). Org. Autónomo de Parques Nacionales, Serie Técnica. Ministerio de Medio Ambiente. Madrid, pp. 41-390.
- Beltrán Tejera E, Rodríguez-Armas J L, Quijada L, Gutiérrez Peraza J, Díaz J, Bañares Á. 2009. Contribución al estudio de la micobiota de los castaños del Norte de Tenerife (Islas Canarias. España). II. In Beltrán-Tejera E, Afonso-Carrillo J, García Gallo A, Rodríguez Delgado O (Eds.): Homenaje al Profesor Wolfredo Wildpret de la Torre. Instituto de Estudios Canarios. La Laguna (Tenerife. Islas Canarias). Monografía LXXVIII, pp.453-458.
- Bernicchia A, Gorjón SP. 2010. Fungi Europaei. Corticiaceae s.l. Edizioni Candusso. Italia. 1008 pp.
- Boidin J, Lanquetin P. 1983. Les genres *Vuilleminia* et *Corticium* sensu stricto (Basidiomycètes) en France. *Bull. Soc. Mycol. Fr.* 99(3): 269-275.

- Boidin J, Lanquetin P, Gilles G. 1997. Contribution à la connaissance du genre *Asterostroma* Massee 1889 (Basidiomycotina). Bull. Soc. Mycol. France 113: 269-301.
- Burdsall HH. 1985. A Contribution to the Taxonomy of the Genus *Phanerochaete* (Corticaceae, Aphyllphorales). Mycol. Mem. 10: 1-165.
- Burdsall HH, Beltrán-Tejera E, Rodríguez-Armas JL. 1995. *Phanerochaete andreae* nov. sp. (Aphyllphorales, Basidiomycotina), from the Canary Islands. Mycotaxon 54: 295-298.
- Calonge F de Diego, Tellería, MT. 1980. Introducción al conocimiento de los hongos de Doñana (Huelva, España). Lazaroa 2: 271-326.
- Dähncke RM. 1998. Las setas / Die Pilze en La Palma. Excmo. Cabildo Insular de La Palma & Caja General de Ahorros de Canarias. La Palma.
- Del Arco MJ, González-González R, Garzon-Machado V, Pizarro-Herández B. 2010. Actual and potential natural vegetation on the Canary Islands and its conservation status. Biodivers. Conserv. 19: 3089-3140, doi: 10.1007/s10531-9881-2.
- Del Arco M.J, Pérez-de-Paz PL, Acebes JR, González-Mancebo JM, Reyes-Betancort JA, Bermejo JA, De Armas S, González-González R. 2006. Bioclimatology and climatophilous vegetation of Tenerife (Canary Islands). Ann. Bot. Fenn. 43: 176-192.
- Del Arco MJ, Rodríguez-Delgado O, Acebes JR, García-Gallo A, Pérez-de-Paz PL, González-Mancebo JM, González-González R, Garzón-Machado V. 2009. Bioclimatology and climatophilous vegetation of Gomera (Canary Islands). Ann. Bot. Fenn. 46: 161-191.
- Dueñas M, Tellería MT, Melo I. 2009. The Aphyllphorales (Basidiomycota) of a Mediterranean biodiversity "hotspot" — "Cazorla, Segura & Las Villas" Natural Park (Spain). Mycotaxon 109: 465-468.
- Dueñas M, Tellería MT, Melo I, Rodríguez-Armas JL, Beltrán-Tejera E. 2008. A new species of *Candelabrochaete* (Polyporales, Basidiomycota). Mycotaxon 103: 299-305.
- Duhem B, Michel H. 2006. Une nouvelle espèce de *Corticium* de la Région Méditerranéenne. Clé du genre *Corticium* sensu stricto. Bull. Soc. Mycol. France 122 (2-3): 145-160.
- Eriksson J, Ryvarde L. 1976. The Corticaceae of North Europe. Vol. 4 Fungiflora, Oslo.
- García-Manjón JL, Moreno G. 1981. Estudio sobre Basidiomycetes II (Notas sobre algunos hongos de la isla de Gran Canaria, Islas Canarias). Bot. Macaronés. 8-9: 71-78.
- Hallenberg N. 1991. Pairing tests with species of Aphyllphorales (Basidiomycetes) from two phytogeographically isolated areas. Mycotaxon 42: 355-386.
- Hallenberg N, Eriksson J. 1985. The Lachnocladiaceae and Coniophoraceae of North Europe. Fungiflora, Oslo.
- Honrubia M, Alcaraz F, Gracia E, Llimona X. 1982. El componente fúngico de las principales comunidades vegetales del SE de España. Lazaroa 4: 313-325.
- Honrubia M, Llimona X. 1982. Aportación al conocimiento de los hongos del SE de España VIII. Afiloforales (Basidiomycetes). Collect. Bot. (Barcelona) 13 (2): 491-532.
- IPCC. 1995. Climate change 1995. WMO/UNEP Intergovernmental Panel on Climate Change, 2nd assessment report. Cambridge: Cambridge University Press.
- IPCC. 2001. Climate change 2001: the scientific basis. WMO/UNEP intergovernmental Panel on Climate Change, 3rd assessment report. Vol. I. Cambridge: Cambridge University Press.
- Karasch P, Dämmrich F, Dämon W. 2004. Beiträge zur Pilzflora der Kanaren-Insel La Palma. Bemerkenswerte Pilzfunde auf *Chamaecytisus proliferus*. Österr. Z. Pilzk. 13:109-118.
- Lado C, Mosquera J, Beltrán-Tejera E. 1999. *Cribraria zonatispora*, development of a new myxomycete with unique spores. Mycologia 91 (1): 157-165.
- Lado C, Mosquera J, Estrada-Torres A, Beltrán-Tejera E, Wrigley De Basanta D. 2007. Description and culture of a new succulenticolous *Didymium* (Myxomycetes). Mycologia 99 (4): 602-611.
- Larsson KH. 1995. Taxonomy of *Trechispora* farinacea and proposed synonyms I. Species with a grandinoid or hydroid hymenophore. Symb. Bot. Upsal. 30: 101-118.
- Manjón JL, Moreno G. 1982. *Ceroorticum canariense* sp.nov. (Corticaceae). Bot. Macaronés. 10: 27-32.
- Mosquera J, Lado C, Estrada-Torres A, Beltrán-Tejera E. 2000. *Trichia perichaenoides*, a new myxomycete associated with decaying succulent plants. Mycotaxon 75: 319-328.
- Mosquera J, Lado C, Estrada-Torres A, Beltrán-Tejera E, Wrigley De Basanta D. 2003. Description and cultura of a new myxomycete, *Licea succulenticola*. Anales Jard. Bot. Madrid 60 (1): 3-10.
- Nannenga-Bremekamp NE, Lado C, Moreno G. 1984. A new species of *Physarum* (Myxomycetes) from the Canary Islands. Mycology C 87 (1): 91-94.
- Ortega A, Lorite J. 2000. Síntesis de los Aphyllphorales s.l. lignícolas (Basidiomycota, Macrofungi) presentes em las comunidades vegetales de Andalucía. Acta Bot. Malac. 25: 61-72.
- Rivas-Martínez S. 2007. Mapa de series, geoserias y geopermaseries de vegetación de España (Memoria del mapa de vegetación potencial de España). Parte I. Itin. Geobot. 17: 1-436.
- Rivas-Martínez S, Wildpret de la Torre W, Díaz González TE, Pérez-de-Paz PL, del Arco M, Rodríguez-Delgado O. 1993. Excursion guide. Outline vegetation of Tenerife Island (Canary Islands). Itin. Geobot. 7: 5-167.
- Rodríguez-Armas JL, Beltrán-Tejera E. 1995. Contribución al estudio de los Aphyllphorales (Basidiomycotina) del monteverde de las Islas Canarias. Bibliotheca Mycologica Band 160:1-456.
- Rodríguez-Armas JL, Beltrán-Tejera E, Bañares Baudet A. 1994. Estudio micológico de la Reserva de la Biosfera "El Canal y Los Tiles" (La Palma, Islas Canarias). I. Aphyllphorales (Basidiomycotina). Doc. Mycol. 23 (92): 21-38.
- Rodríguez-Armas JL, Beltrán-Tejera E, Bañares Baudet A, Losada Lima A, Leon Arencibia MC. 1989. Contribución al estudio de la flora micológica del Monte de Aguas y Pasos (Los Silos, Tenerife). IV. Aphyllphorales. Doc. Mycol. 29 (76): 59-70.
- Rodríguez-Armas JL, Ryvarde L, Hallenberg N, Beltrán-Tejera E. 1992. New and noteworthy species of Aphyllphorales (Basidiomycotina) from the Canary Islands. Mycotaxon 45: 433-447.

- Ryvarden L. 1976. Studies in the Aphyllophorales of the Canary Islands. 3. Some species from the western islands. Cuad. Bot. Canaria. 26/27: 29-40.
- Telleria MT, Dueñas M, Beltrán-Tejera E, Rodríguez-Armas JL, Martín MP. 2012. A new species of Hyphoderma (Meruliaceae, Polyporales) and its discrimination from closely related taxa. Mycologia 104(5): 1121-1132, doi: 10.3852/11-344.
- Telleria MT, Dueñas M, Melo I. 2010. Morphological and molecular studies of Hyphodermella in the Western Mediterranean area. Mycol. Progress 9: 585-596, doi 10.1007/s11557-010-0666-5.
- Telleria MT, Dueñas M, Rodríguez-Armas JL, Beltrán-Tejera E, Melo I. 2008. Gloeodontia xerophila, a new species with corticioid basidioma from the Canary Islands. Mycologia 100 (4): 673-676, doi: 10.3852/07-200R1.
- Telleria MT, Melo I, Dueñas M. 1997. An annotated list of the Aphyllophorales of the Balearic Islands. Mycotaxon 65: 353-377.
- Vizoso MT, Ortega A. 1992. Notes on Palm-growing macromycetes. Doc. Mycol. 22 (86): 31-40.