

Xanthoparmelia teydea, a new brown *Xanthoparmelia* (Parmeliaceae) from the Canary Islands

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ABSTRACT. *Xanthoparmelia teydea* is described as new to science. This new species was found on basaltic rocks in the high mountains of the Canary Islands, in El Teide National Park (Tenerife Island). A description of the species is given together with notes on its chemistry, distribution, ecology and taxonomy. Possible associated taxa are briefly discussed.

KEYWORDS. *Xanthoparmelia*, *Parmeliaceae*, Canary Islands, new species, taxonomy.



The lichen genus *Xanthoparmelia* (Vain.) Hale, is the largest foliose lichen genus in the world with in excess of 800 species (Blanco et al. 2004; Hale 1990), of which less than 150 species have olive-brown to brown-black upper surface (Esslinger 2002; Giordani et al. 2003). The genus shows an extraordinary chemical variation with more than 40 chemosyndromes represented (Blanco et al. 2005; Crespo et al. 2001) although the brown-group of species are more or less consistent in their production of lichen substances (Elix 2002; Esslinger 1977). It has a distinctly temperate distribution centered in the Southern Hemisphere (Blanco et al. 2004). From Africa, specially the southern areas of the continent, more than 70 brown species have been reported (Esslinger 2000). In Europe it comprises just 11 taxa (Giordani et al. 2003). It is also poorly represented in the Macaronesian Archipelagoes (Azores, Madeira,

Canary Islands and Cape Verde Islands), with just 10 species (Elix & Schumm 2003; Hafellner 1995, 1999, 2002, 2005; Hernández-Pradrón 2004, Sánchez-Pinto & Rodríguez 2005). In the present work we describe a new species from the Canary Islands, collected in El Teide National Park (Tenerife).

MATERIALS AND METHODS

The morphology of the lichen specimens was examined using a Leica ZOOM 2000 or a Zeiss Stemi 2000C stereo-microscope. Chemical constituents were identified by thin layer chromatography using solvents systems A [benzene:dioxane:acetic acid, 180:45:5], B [hexane:methyl *t*-butyl ether:formic acid, 140:72:18] and C [toluene:acetic acid, 85:15] (Culberson 1972; Culberson et al. 1981; Culberson & Johnson 1982; Elix & Ernst-Russell 1993), high performance liquid chromatography (Elix et al. 2003) and comparison with authentic samples.

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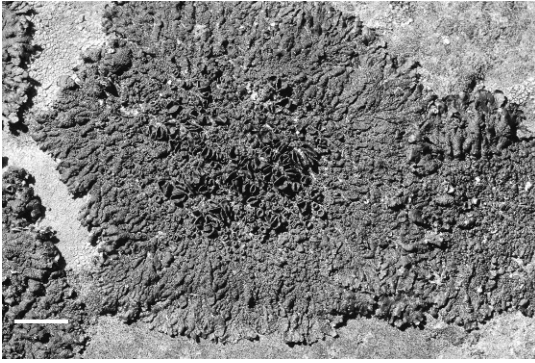


Figure 1. *Xanthoparmelia teydea*, holotype. Scale = 2 cm.

Xanthoparmelia teydea I. Pérez-Vargas, C. Hdez.-Padr. & Elix sp. nov. **Fig. 1**

Xanthoparmelia pullae similis sed thallo acidum compositio differt. Superficies superior olivacebrunneus, 5–15 cm diametro crassus, isidiis et sorediisque destitus. Superficies inferior brunnea, modice rhizinata, rhizinis simplicibus concoloribus. Apothecia frequens, sessilis vel breviter stipitata, profunde rufobrunnea, discoidea, ca. 2–4(–8) mm diametris crassa, margine thalino distincto. Asci clavati, octospori; ascosporeae unicellulares, ovoideae, ca. 7–9 × 5–6 μm magnae, hyalinae. Pycnidia numerosa, conidia bifusiformia, hyalina, ca. 5–6 × 1 μm magna. Thallus HNO₃+ caeruleus-viridis; medulla K–, C+, KC+ rosatus, PD–, UV–; acidum gyrophoricum, acidum lecanoricum, acidum stenosporicum, acidum ramalinoicum, methyl divaricatatum et methyl perlatolateum continens.

TYPE: SPAIN, TENERIFE ISLAND: “El Teide” National Park, “Sobre el Mirador de Fuente de Mesa”, UTM: 344366/ 3134162, 1975 m, on basaltic rocks, Jul 2007, C. Hdez-Padrón, P. L. Pérez de Paz & I. Pérez-Vargas (holotype: TFC LICH 8653; isotypes: CANB, TFC LICH).

Description. Thallus foliose, adnate to loosely adnate, saxicolous, 5–15 cm wide; lobes subirregular, flat to somewhat convex or concave, narrow and elongate, crenate, 2–4 mm wide at apices, contiguous to sparingly imbricate; upper surface olive–brown, ± smooth, flat and shiny at the lobe apices, becoming dull and wrinkled in the older, central parts of the thallus, without soredia, isidia or pseudocyphellae; medulla white; lower surface dark brown to black, moderately rhizinate. Rhizines simple, concolorous

with the lower surface, to 1 mm long. Apothecia common, to 2–4(–8) mm wide, often crowded in the thallus center, sessile or more frequently short stipitate; disc dark brown, concave at first but becoming undulate–distorted and ultimately convex; margin smooth and entire to weakly crenate; asci clavate, 8-spored; ascospores ellipsoid, hyaline, simple, 7–9 × 5–6 μm. Pycnidia rather common, immersed; conidia more or less bifusiform 5–6 × 1 μm.

Chemistry. Upper surface HNO₃+ blue-green; medulla K–, C+ and KC+ pink-reddish, PD–, UV– or faint whitish; containing gyrophoric acid (major), lecanoric acid (minor), methyl divaricatate (minor), stenosporic acid (minor), homoscrobiculin (minor) and methyl perlatolate (minor).

Etymology. The specific epithet *teydea* is derived from the name of the Mountain where this species was collected.

Habitat and distribution. *Xanthoparmelia teydea* occurs on solid basaltic rocks, in “retamar” (a shrub-like community of the high mountains of the Canary Islands with *Spartocytisus supranubius*, *Pteroccephalus lasiopermus*) with pine (*Pinus canariensis*) reafforestation in El Teide National Park. It is quite frequent in the studied area where it could be locally abundant. It is better developed in locations exposed to the NE where it occurs together with *Lecanora rupicola*, *L. muralis* and other crustose species of *Acarospora*, *Aspicilia*, *Caloplaca* and *Rhizocarpon*.

Remarks. This new species is characterized by the olive-brown upper surface, the adnate to loosely adnate thallus, the dark brown to black lower surface, the presence of apothecia, the absence of isidia, soredia and pseudocyphellae and by the presence of gyrophoric acid as major component in the medulla together with lecanoric acid, methyl divaricatate, stenosporic acid, homoscrobiculin and methyl perlatolate. *Xanthoparmelia teydea* belongs to the *X. pulla* group of species. The members of this group show remarkable morphological plasticity, and as a consequence, the species were segregated mainly on the basis of their secondary chemistry (Elix 2002; Esslinger 1977). A number of species have recently been described in this group (Elix 1999, 2002; Esslinger 2000), including one from the Canary Islands (Elix & Schumm 2003). *Xanthoparmelia pulla* (Ach.) O. Blanco, A. Crespo, Elix, D. Hawksw. &

Lumbsch is a similar and widespread species known from temperate Europe, Asia Minor, North Africa, Canary Islands, Australia and New Zealand. It has a wide spectrum of morphological variation but invariably contains stenosporic and divaricatic acids as the main medullary components (Elix 2002). *Xanthoparmelia pulloides* (Essl.) O. Blanco, A. Crespo, Elix, D. Hawksw. & Lumbsch is a similar saxicolous species known only from Israel and the Canary Islands. It is morphologically similar to *X. teydea* but the lobes are narrower and shorter. It may contain accessory gyrophoric acid, but the major components are the fatty acids, constipatic, protoconstipatic, dehydroconstipatic and dehydroprotoconstipatic acids. Further, the two species show different ecological preferences, since *X. pulloides* prefers maritime localities in the Canary Islands (Esslinger 1977). Another member of the *X. pulla* group present in the Canary Islands is *X. delisei* (Duby) O. Blanco, A. Crespo, Elix, D. Hawksw. & Lumbsch but it can distinguished from *X. teydea* by the paler and more yellowish thalli, the maculate lobes and secondary chemistry (glomelliferic and glomellic acids). *Xanthoparmelia glabrans* (Nyl.) O. Blanco, A. Crespo, Elix, D. Hawksw. & Lumbsch is a common species in the high mountain of the Canary Islands, especially in El Teide National Park. It is a well-known species readily distinguished by the medullary alectoronic acid (UV+ strong blue-white).

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