



A new species in the lichen genus *Vahliella* from the Canary Islands, including a key to *Vahliellaceae*, *Pannariaceae*, and *Coccocarpiaceae* in Macaronesia

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Abstract

Vahliella isidioidea, found on consolidated soil in the laurel forest from the Canary Islands is described as new to science. A description of the species is given together with notes on its chemistry, distribution, ecology and taxonomy. Possible related lichen taxa are discussed briefly and a key to the Macaronesian species of *Vahliella* and morphologically related species is also provided.

Key words: Canary Islands, biodiversity, taxonomy, *Vahliellaceae*

Introduction

The genus *Vahliella* P. M. Jørg. was recently described to accommodate the subgenus *Micropannaria* P. M. Jørg. of *Fuscopannaria* P. M. Jørg. (Jørgensen 2008). Currently, the genus *Vahliella* includes eight species in the Northern Hemisphere, centered in North America but also found in Europe and India (Jørgensen 2009), and it is characterized by: a squamulose, mainly greyish-brownish thallus; sessile apothecia with variable thalline exciple, in some apothecia not at all developed, and with a likewise variable but always present proper margin; a hemiamyloid hymenium, unbranched, septate paraphyses with pigmented apices; 8-spored asci with sheet-like apical structures that are persistently I+ blue-green; and non-septate, ellipsoid ascospores, lacking epispore but often with internal oil droplets (Jørgensen 2008). Molecular studies have shown that *Vahliella* differs so much from *Fuscopannaria* that it cannot even be placed in the *Pannariaceae*, and the family *Vahliellaceae* was recently segregated (Wedin *et al.* 2011). The distinctiveness of *Fuscopannaria* from the other genera in the *Pannariaceae* has been proved, as well the integration of *Moelleropsis nebulosa* (Hoffm.) Gyeln. into *Fuscopannaria* (Ekman & Jørgensen 2002, Ekman *et al. in prep*). We support the proposal to conserve the name *Fuscopannaria* against *Moelleropsis* (Jørgensen *et al.* 2013).

Vahliellaceae is barely represented in Macaronesia. According to Sánchez-Pinto & Rodríguez (2005), there is no species of the family in Cape Verde. In the checklist for the Azores, only *Vahliella atlantica* (P. M. Jørg. & P. W. James) P. M. Jørg. and *V. leucophaea* (Vahl) P. M. Jørg. are cited (Flores Rodríguez & Aptroot 2005; Hafellner 1995, 2008). From Madeira there is only one species published, *V. leucophaea* (Carvalho *et al.* 2008; Hafellner 1995, 2008), but *V. atlantica* is present in this archipelago (Jørgensen *com. pers.*). From the Canary Islands, only *V. saubinetii* (Mont.) P. M. Jørg. and *V. atlantica* are reported with certainty (Schumm 2008; Jørgensen *com. pers.*). The presence of *V. leucophaea* in the Canaries is very doubtful (Hafellner 2008).

The Macaronesian Region is characterized by high biodiversity and endemism in a vast array of organisms (Juan *et al.* 2000) and forms part of one of the 25 world biodiversity hotspots (Myers *et al.* 2000). The Canary Islands play a key role within this region (Médail & Quézel 1997, 1999). The most recent revision of the lichen and lichenicolous biota of the Canaries lists more than 1600 species for an area of just 7447 km² (Hernández Padrón & Pérez-Vargas 2010). Nevertheless, new records arise and new species continue to be described from this region (Giralt & van den Boom 2011; van den Boom & Ertz 2012; Pérez-Vargas *et al.* 2012, 2013; Pérez-Vargas & Pérez-Ortega 2014),

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