

## New bryophyte records from the Balearic Islands

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**Abstract** – Eleven moss taxa, *Didymodon umbrosus* (Müll. Hal.) R. H. Zander, *Fissidens rivularis* Bruch & Schimp., *Orthotrichum hispanicum* F. Lara, Garilleti & Mazimpaka, *O. pallens* Brid., *O. pumilum* Sw., *O. striatum* Hedw., *Protobryum bryoides* (Dicks.) J. Guerra & M.J. Cano, *Schistidium atrofusum* (Schimp.) Limpr., *Syntrichia handelii* (Schiffn.) S. Agnew & Vondr., *S. subpapillosissima* (Bizot & R.B. Pierrot ex W.A. Kramer) M.T. Gallego & J. Guerra., and *Tortella tortuosa* var. *fragilifolia* (Jur.) Limpr. are reported for Majorca and constitute new records for the bryophyte flora of the Balearic archipelago.

**Mosses / floristics / chorology / Majorca / Balearic Islands / Spain**

**Resumen** – Se da a conocer la localización en Mallorca de once taxones, *Didymodon umbrosus* (Müll. Hal.) R. H. Zander, *Fissidens rivularis* Bruch & Schimp., *Orthotrichum hispanicum* F. Lara, Garilleti & Mazimpaka, *O. pallens* Brid., *O. pumilum* Sw., *O. striatum* Hedw., *Protobryum bryoides* (Dicks.) J. Guerra & M.J. Cano, *Schistidium atrofusum* (Schimp.) Limpr., *Syntrichia handelii* (Schiffn.) S. Agnew & Vondr., *S. subpapillosissima* (Bizot & R.B. Pierrot ex W.A. Kramer) M.T. Gallego & J. Guerra., y *Tortella tortuosa* var. *fragilifolia* (Jur.) Limpr. Todos ellos constituyen novedades para la flora briológica de las Islas Baleares.

**Musgos / florística / corología / Mallorca / Islas Baleares / España**

### INTRODUCTION

The bryological flora of the Balearic archipelago has received considerable interest for at least two centuries. The check-list of the Balearic flora compiled by Vives (1976) proved to be premature, since new findings were added shortly after its publication through extensive fieldwork or after the revision of herbarium specimens (e.g. Cano *et al.*, 2001, and earlier references therein; Cros *et al.*, 2005; Sáez *et al.*, 2002; Sáez *et al.*, 2006a; Sáez *et al.*, 2006b). Although the bryophyte flora of the Balearic Islands has recently been estimated to be composed of 308 taxa (Sáez *et al.*, 2006a), a thorough exploration of suitable habitats will likely increase significantly this number. In this work we provide the most relevant results of an extensive fieldwork focused on mosses and conducted in Majorca.

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## METHODS

Sampling was made at four sites, of which one was included in a urban environment. The three other sites are located on littoral scrub (Marina de Lluçmajor) and mountain areas (Font de s'Olla, Puig Major de Torrella). The geographical situation of the studied localities is given in Figure 1. Abbreviations of author names follow Brummit & Powell, 1992. Voucher specimens are deposited in the herbarium of the University of Valencia (VAB-Brief), and duplicates at the private herbarium of the author.

Sampled localities:

1. **Majorca:** Escorca, Puig Major de Torrella, 31SDE8206, 1330-1380 m
2. **Majorca:** Sóller, Font de s'Olla, 31SDE7501, 60 m
3. **Majorca:** Palma de Mallorca, gardens of the Cultural Centre of s'Escorxador, 31SDD6981, 40 m
4. **Majorca:** Lluçmajor, Marina de Lluçmajor, 31SDD8661, 75 m

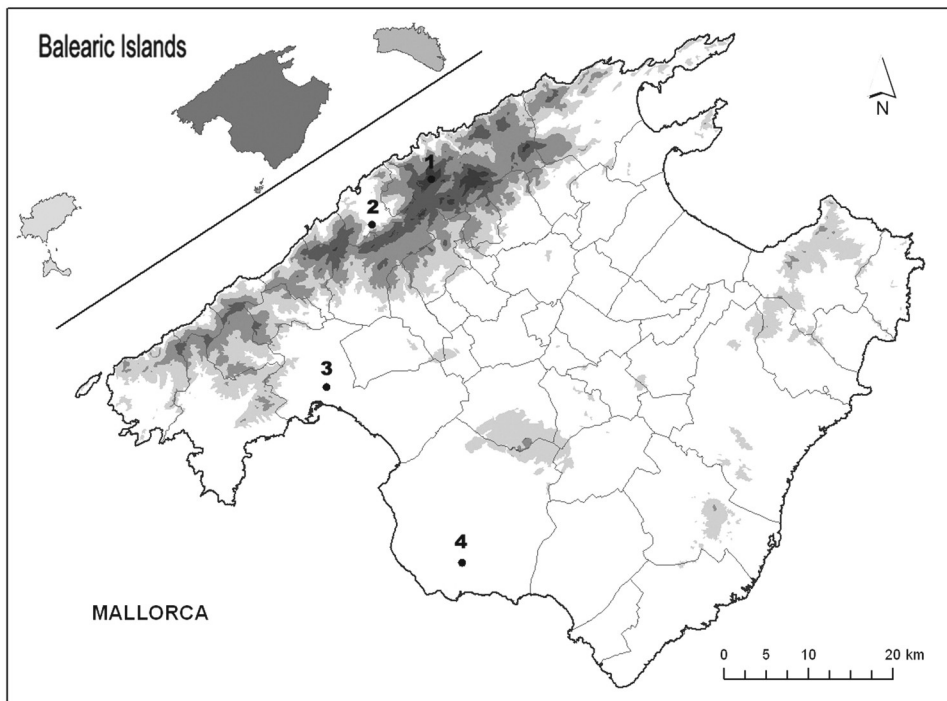


Fig. 1. Geographical location of the studied localities. **1.** Mallorca: Escorca, Puig Major de Torrella. – **2.** Mallorca: Sóller, Font de s'Olla. – **3.** Mallorca: Palma de Mallorca, gardens of the Cultural Centre of s'Escorxador. – **4.** Mallorca: Lluçmajor, Marina de Lluçmajor (see Methods for details on the position of the localities).

## RESULTS AND DISCUSSION

An alphabetical sequence for genera and species of reported mosses is presented. Overall, eleven moss taxa are newly reported for the Balearic flora. In a regional context, the finding of *Syntrichia handelii* (Schiffn.) S. Agnew & Vondr. is worthy emphasizing, since this moss was previously known from a single locality in Spain (Gallego, 2002). Also, *Schistidium atrofusum* (Schimp.) Limpr. has been rarely reported from the eastern Iberian Peninsula, being only known from two localities in the Valencia region (Casas C., 2001).

***Didymodon umbrosus*** (Müll. Hal.) R. H. Zander

Locality 3. Exposed soil, 2-4-2006, *Pericàs* (VAB-Brief 7344).

The collected plants are sterile but show multicellular tubers on proximal rhizoids.

***Fissidens rivularis*** Bruch & Schimp.

Locality 2, Calcareous rocks, 18-7-2005, *Pericàs* (VAB-Brief 7345).

The collected plants were sterile and grew in a spring, on submerged and shady calcareous rocks. Also, individuals were located on *Hildenbrandia rivularis* Liebmann (Hildenbrandiales, Rhodophyta) in very humid and shaded sites.

***Orthotrichum hispanicum*** F. Lara, Garilleti & Mazimpaka

Locality 1. Epiphyte on *Acer opalus* Mill. subsp. *granatense* (Boiss.) Font Quer & Roth. trunks, on southern exposures, 1.330 m, 8-2-2006, *Pericàs* (VAB-Brief 7346).

***Orthotrichum pallens*** Brid.

Locality 1. Epiphyte on *Santolina chamaecyparissus* L. branches, on northern exposures, 1.350 m, 8-2-2006, *Pericàs* (VAB-Brief 7347).

***Orthotrichum pumilum*** Sw.

Locality 1. Epiphyte on *Rosmarinus officinalis* L. branches, on southern exposures, 1.380 m, 7-9-2005, *Pericàs* (VAB-Brief 7348).

***Orthotrichum striatum*** Hedw.

Locality 1. Epiphyte on *Acer opalus* Mill. subsp. *granatense* (Boiss.) Font Quer & Roth. trunks, 1.330 m, 26-4-2006, *Pericàs* (VAB-Brief 7349, VAB-Brief 7350).

The presence of this species in the Balearic Islands has been controversial. Knoche (1921) reported *Orthotrichum striatum* in Mallorca referring to a record of Nicholson (1907). However, this is a mistake since Nicholson (1907) did not include *O. striatum* in his work. Later, the species was reported again from Majorca by Casas De Puig (1956), but the recent revision of the voucher specimens concluded that they belonged to *O. acuminatum* Philib (Sáez *et al.*, 2006b).

***Protobryum bryoides*** (Dicks.) J. Guerra & M.J. Cano

Locality 4. Temporal water pools, 3-3-2006, *Pericàs* (VAB-Brief 7351).

Sáez *et al.* (2006a) included this species in the abstract of their paper as a new record to the flora of Balearic Islands. However, the species was entirely lacking in the main text of their work.

***Schistidium atrofusum*** (Schimp.) Limpr.

Locality 1. Calcareous rocks on northern exposures, 1.340 m, 8-2-2006, *Pericàs* (VAB-Brief 7352); *ibidem*, 11-5-2006, *Pericàs* (VAB-Brief 7353).

The species is very rare in the eastern Iberian Peninsula and is only known from two localities in the Valencia region (Casas, 2001). The specimens from Majorca mostly agree with the morphological range described by Blom (1996). However, our samples show very deciduous peristomes (even in mature capsules still having attached opercules) and long peristome teeth (up to 300 µm).

***Syntrichia handelii*** (Schiffn.) S. Agnew & Vondr.

Locality 1. Calcareous rocks on northern exposures, 1.340-1.360 m, 11-5-2006, *Pericàs* (VAB-Brief 7354).

This species was previously known from a single Spanish locality (Gallego, 2002).

***Syntrichia subpapillosissima*** (Bizot & R.B. Pierrot ex W.A. Kramer)

M.T. Gallego & J. Guerra.

Locality 1. On soil on southern exposures, 1.360 m, 11-5-2006, *Pericàs* (VAB-Brief 7355).

***Tortella tortuosa*** (Hedw.) Limpr. var. ***fragilifolia*** (Jur.) Limpr.

Locality 1. Rock crevices, 1.330 m, 7-9-2005, *Pericàs* (VAB-Brief 7356).

This variety is newly recorded for the Balearic flora, where the type variety was already known.

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