

***Hypnum uncinulatum* Jur. new to peninsular Spain**

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Résumé – *Hypnum uncinulatum* Jur. est une espèce à répartition atlantique, assez répandue dans la Macaronésie, mais très rare en Europe. Cette espèce est citée pour la première fois dans l'Espagne péninsulaire, et les différences entre *H. uncinulatum* et ses proches, sont commentées.

Abstract – *Hypnum uncinulatum* Jur. is a species with an Atlantic distribution, well represented in Macaronesia but very rare in Europe. Now it is reported as a new record for peninsular Spain, and differences from its closer taxa are commented.

Cádiz / *Hypnum* / Hypnaceae / *H. uncinulatum* / *H. cupressiforme* / *H. andoi* / Los Alcornocales Natural Park / Musci / Spain

INTRODUCTION

In 1959, during a field trip to Valle de la Miel (Algeciras, South Spain), C. Casas collected a specimen of the genus *Hypnum* that, after a recent revision, has proved to be *Hypnum uncinulatum* Jur.

The valley of the Río de la Miel is located in the southern tip of the Iberian Peninsula, a few kilometres inland from Algeciras (Cádiz, Spain), and forms a part of Los Alcornocales Natural Park. It is a gorge sheltered by Algeciras Mountains and with a characteristic morphology, locally called “canuto”. The climate is Mediterranean but with a strong atlantic influence; the mean temperature is mild (16-18 °C) and the annual rainfall average is around 900 mm, the summer drought is reduced by wet “Levante” winds and persistent fogs are frequent. These relict microclimatic conditions result in a vegetation type that is unique in the south of the Iberian Peninsula.

This valley and the surrounding area have been visited frequently by botanists, because of their high biogeographical interest, and the bryophyte flora is abundant and unique; Richards (1932) commented on the exceptional nature of this site, which he knew as “Waterfall Valley”, pointing out the occurrence of some bryophytes with a characteristic atlantic distribution. In fact, due to such a singular climate, Mediterranean and Atlantic species coexist, and in addition there

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have also been reported several Macaronesian disjunct taxa such as *Tetrastichium fontanum* (Mitt.) Cardot (Rumsey & Vogel, 1999) and *Pseudotaxiphyllum laetevirens* (F. Koppe & Düll) Hedenäs (Guerra *et al.*, 2001).

H. uncinulatum is an Atlantic species that occurs in Macaronesia (Hedenäs, 1992; Dirkse, Bouman & Losada-Lima, 1993), and is quite common in some of these islands. In Europe it is a very rare species, with only two cites, one from south-west Ireland (Ando & Townsend, 1980) and the other from Portugal (Allorge, 1974). The new Spanish record confirms even more the bryological importance of the Valle de la Miel. (Fig. 1).



Fig. 1. European and Macaronesian distribution of *Hypnum uncinulatum* Jur.

● Published reports ■ New reported locality

THE NEW LOCALITY

Spain: Cádiz, Algeciras, Valle del Río de la Miel, UTM Grid: 30STF70, Casas, 29 September 1959 (BCB 16717).

H. uncinulatum usually grows on tree-trunks and decaying logs, occasionally on rocks and earth (Ando, 1986), our specimen was found in a shaded and very moist place, very rich in different species of ferns and growing at base of *Osmunda regalis* L.

DISCUSSION

H. uncinulatum is included in the *Hypnum cupressiforme* complex (Smith, 1997). It is distinguished by its leaves triangular to ovate-triangular, widest near base, the leaf margin strongly denticulate in the upper half, the capsule ovoid

Table 1. Main differences between *Hypnum uncinulatum*, *H. cupressiforme* var. *cupressiforme* and *H. andoi*.

	<i>H. uncinulatum</i>	<i>H. cupressiforme</i> var. <i>cupressiforme</i>	<i>H. andoi</i>
Plants	Small to medium-sized, yellowish green to brownish green, ± densely pinnate-branched	Medium-sized, light green to dark green, irregularly branched	Small, green to dark green usually densely and regularly pinnate-branched
Leaves	Weakly falcate, triangular or ovate-triangular, margin distinctly denticulate in the upper half of leaf	Weakly falcate to falcate-secund, ovate to oblong-lanceolate, margin denticulate near leaf apex	Falcate to strongly falcate, ovate or ovate-lanceolate, margin distinctly denticulate near leaf apex
Median leaf cells	50-80(-90) × 3-4 µm	60-80 × 3-4 µm	(40-)50-60(-70) × 4-5 µm
Alar parts	Excavated, often brown coloured, of few cells, 3-8 subquadrate cells along the margin	Slightly excavated, 10-18 subquadrate cells along the margin	Slightly excavated, 7-10(-13) subquadrate cells along the margin, enlarged towards basal angles
Capsules	Ovoid to shortly oblong, slightly curved and inclined to horizontal	Cylindrical, curved and inclined	Shortly oblong-cylindrical, erect to slightly inclined
Lids	Rostellate	Rostrate	Mamillate

to shortly oblong, inclined to horizontal and the lid shortly rostellate. This species when sterile, as in our sample, could be confused with *H. cupressiforme* Hedw. var. *cupressiforme* and with *H. andoi* A.J.E. Sm., both reported from the valley of the Río de la Miel (Guerra *et al.*, 2003), and usually it is necessary to use more than one character to separate the different taxa (Tab. 1).

This species also closely resembles *Hypnum jutlandicum* Holmen & E. Warncke because the alar parts are similar and both have leaf margins sharply denticulate above, but *H. jutlandicum* is a paler plant, sparsely branched and its leaves are ovate or ovate-lanceolate, not gradually tapering from near base.

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REFERENCES

- ALLORGE V., 1974 — La bryoflore de la Forêt de Bussaco (Portugal). *Revue bryologique et lichénologique* 40: 307-452.
- ANDO H., 1986 — Studies on the genus *Hypnum* Hedw. (IV). *Hikobia* 9: 467-484.
- ANDO H. & TOWNSEND C.C., 1980 — *Hypnum uncinulatum* Jur. reinstated as an Irish species. *Journal of bryology* 11: 185-190.
- DIRKSE G.M., BOUMAN A.C. & LOSADA-LIMA A., 1993 — Bryophytes of the Canary Islands, an annotated checklist. *Cryptogamie, Bryologie-Lichénologie* 14: 1-47.
- GUERRA J., CANO M.J., PÉREZ LATORRE A.V., ROS R.M. & CABEZUDO B., 2003 — Flora brio-pteridofítica de los bosques lauroides de *Rhododendron ponticum* L. del Parque Natural de los Alcornocales (Cádiz-Málaga, España). *Acta botanica Malacitana* 28: 19-36.

- GUERRA J., CANO M.J., ROS R.M., JIMÉNEZ J.A. & GALLEGU M.T., 2001 — Remarks on the chorology, habitat and morphology of *Pseudotaxiphllum laetevirens* (F. Koppe & Düll) Hedenäs in the Iberian Peninsula. *Cryptogamie, Bryologie* 22: 53-57.
- HEDENÄS L., 1992 — Flora of Madeiran pleurocarpous mosses (Isobryales, Hypnobryales, Hookeriales). *Bryophytorum bibliotheca* 44: 6-162.
- RICHARDS P.W., 1932 — Note on the bryophytes of the “Waterfall Valley” near Algeciras: an outpost of the Atlantic flora. *Revue bryologique et lichénologique* 5: 5-9.
- RUMSEY F.J. & VOGEL J.C., 1999 — Bryological Notes. *Tetrastichium fontanum* (Mitt.) Card. new to mainland Europe. *Journal of bryology* 21: 72-73.
- SMITH A.J.E., 1997 — The *Hypnum cupressiforme* complex in the British Isles. *Journal of bryology* 19: 751-774.