

***Conocephalum salebrosum* (Marchantiopsida) new to Spain**

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Abstract – *Conocephalum salebrosum* is reported for the first time from Spain. After revising the material of *Conocephalum* in the BCB Herbarium, we have recognized two species: *C. conicum* and *C. salebrosum*. According to the geographical distribution, it appears that *C. conicum* is mainly localized close to coastal areas in the E of Spain and at low altitudes, whereas *C. salebrosum* is a mountainous species localized mainly in the Pyrenees and in the north of Spain.

Bryophyta / liverworts / Marchantiopsida / *Conocephalum conicum* / *Conocephalum salebrosum* / Spain

INTRODUCTION

Conocephalum conicum (L.) Dumort. is a hepatic listed in the European Floras (Paton, 1999; Smith, 1990), common in the Iberian Peninsula, chiefly in the northern half, and in Mallorca (Balearic Islands) (Casares-Gil, 1919; Casas *et al.* 2004).

During a revision of the Spanish material previously identified as *C. conicum* placed in the BCB Herbarium, we observed certain samples from the Pyrenees showing differences in specific macroscopical aspects such as the mat dorsal surface of the thallus, whereas in *C. conicum* this is shiny. We finally concluded that these were *C. salebrosum* Szweykowski, Buczkowska *et* Odrzykoski. This species has never before been reported from Spain.

Conocephalum salebrosum is a holarctic species, widespread throughout Europe, eastern Asia and North America, and was first described in Poland (Szweykowski *et al.*, 2005). In this extensive work, descriptive statistics of both qualitative and quantitative characters are given, as well as the differences between *C. salebrosum* and *C. conicum*. Table 1 sets out some of the morphological differences detailed in the cited work.

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Table 1. Description of 8 characters in two species of *Conocephalum*.

<i>Character</i>	<i>Conocephalum conicum</i>	<i>Conocephalum salebrosum</i>
Texture of dorsal thallus surface	shiny	dull
Width of thallus (mm)	7-20	5-12
Hyaline border of thallus	broad, usually 3-4 elongated cells rows; rarely fewer	narrow, usually 1-2 elongated cells rows; rarely more
Type of thallus margin	usually plane or recurved	inflexed or rarely plane
Number of air chambers between costa and thallus margin	5-8, usually 6-7	3-7, usually 4-5
Structure of dorsal thallus surface (limits between particular air chambers)	smooth, limits between particular air chambers usually shallow or indistinct	uneven, limits between particular air chambers very distinct or deep
Structure of junction of air chamber wall with dorsal epidermis	highest cell of air chamber wall not inserted, only touching the dorsal epidermal cells	highest cell of air chamber wall inserted between the dorsal epidermal cells
Shape of the hyaline apical cells underlying the pores	flask-shaped	pyriform

Conocephalum conicum and *C. salebrosum* present both discrete and overlapping morphological and anatomical characteristics that collectively separate the species. We principally assessed: texture of dorsal thallus surface, width of thallus, hyaline margin, number of air chambers between costa and thallus margins, size and structure of junction of air chamber wall with dorsal epidermis and shape of the hyaline apical cells underlying the pores.

The plants used in this study were specimens from the BCB Herbarium, mainly from Catalonia and the Pyrenees, with some also from the rest of Spain. We follow Szweykowski *et al.* (2005) with respect to the morphological and anatomical diagnostic characters based on sterile thalli, since most herbarium specimens are sterile in the BCB, with only one sample bearing sporophytes.

DISCUSSION AND RESULTS

From 60 samples studied, we conclude that *Conocephalum salebrosum* seems to be frequent in the Pyrenees, in the Montseny Mountains, and in the north of Spain, at between 900-2200 m, though rarely at lower altitudes. *C. conicum* is mainly localized close to coastal areas in the E of Spain and in Mallorca, at between 100-900 m, in the central western part of Spain and at lower altitudes in the north-west. Both species are found in the eastern Pyrenees. *C. conicum* forms dense and extensive wefts on rocks and wet soils, usually in contact with water, exactly like *C. salebrosum*, although this latter species seems to be more tolerant to desiccation.

It is possible that the geographical distribution of *C. salebrosum* could be found to be wider if more specimens from a broader range of herbaria were revised.

Specimens examined in the BCB herbarium

C. salebrosum

Álava: Pipaón, 30TWN21, 900 m, *Losa* (BCB15459). **Barcelona:** Montseny, Riells, Sot del Pla de Saba, 31TDG52, 700-975 m, *Cros et al.* (BCB49090, BCB49091). **Cantabria:** Vega de Liébana, Río Frío, 30TUN66, 600 m, *Muñoz* (BCB45091); Campoo de Suso, Abriada, Río, 30TUN96, 1100 m, *Muñoz* (BCB45093). **Girona:** Pardines, Santa Magdalena, 31TDG38, 1200 m, *Brugués* (BCB50558); ibidem, Torrent de la Pietat, 31TDG38, 1300 m, *Brugués* (BCB50557); Setcases, Torrent de la Llosa, 31TDG49, 1600 m, *Lloret* (BCB25235); **Huesca:** Benasc, 31TCH02, *Casas* (BCB30148); ibidem, Aigualluts, 31TCH02, 2200 m, *Cros* (BCB53233). **La Rioja:** Sierra de la Demanda, Tobía, 30TWM18, 800 m, (BCB1396). **Lleida:** Isil, Bordes de la Perosa, 31TCH42, 1500 m, *Cros* (BCB53278); Esterri d'Aneu, Barranc d'Arrose, 31TCH41, 1380 m, *Cros et al.* (BCB 55798); ibidem, Barranc al Tinter, 31TCH41, 1850 m, *Cros et al.* (BCB 55800); Mata de València, Vall de Cabanes, 31TCH32, 1400 m, *Cros et al.* (BCB55801); Montgarri, Barranc de Marimanya, 31TCH33, 1700 m, *Brugués* (BCB30665); Gòsol, Aigua de Valls, Pont Quebradís, 31TCG97, 1300 m, *Cros* (BCB47853). **Navarra:** Puerto de Ibañeta, 30TXN36, 1050 m, *Fuertes* (BH-156).

C. conicum

A Coruña: Caaveiro, Puentedeume, 29TNJ70, *Reinoso* (BCB1400). **Asturias:** Pravia, Cañedo, Molinos de la Vega, 29TQJ31, 50 m, *Muñoz* (BCB45094); Valdés, Río de la playa de Cadavedo, 29TQJ12, 10 m, *Muñoz* (BCB45095); **Barcelona:** Moià, Font de la Falzia, 31TDG22, *Vives* (BCB41226); Montnegre, Sot del Salt, 31TDG71, *Cros* (BCB51214); ibidem, Riera de Vallmanya, 31TDG61, 160 m, *Cros* (BCB8678); ibidem, Torrent dels Llorers, 31TDG50, 160 m, *Cros* (BCB8676); Riera de Pineda, *Montserrat* (BCB15465, BCB15462). **Cáceres:** Castañar de Hervás, 30TTK56, 900 m, *Elías* (BCB19661); Sierra de Gata, Rivera de Gata, 29TPE95, 480 m, *Cros & Brugués* (BCB21481). **Castelló:** La Cènia, Font de Sant Pere, 31TBF60, 350 m, *Casas et al.* (BCB13785). **Girona:** El Mercader, Llanars, 31TDG48, 1100 m, *Lloret* (BCB25371); Olot, Font de Sant Roc, 31TDG56, 480 m, *Soler* (BCB53684); Constantins, 31TDG74, 200 m, *Girbal* (BCB1401); Bescanó, 31TDG74, 100 m, *Girbal* (BCB55799); Port de la Selva, Mas de Perafita, Panís, 31TEG18, 180 m, *Casas* (BCB15458); Maçanet de Cabrenys, entre Molí d'en Robert y Pla d'Amigó, 31TDG79, 330 m, *Brugués* (BCB1393). **Salamanca:** Navacarros, 30TTK67, 1800 m, *Elías* (BCB19662). **Sevilla:** San Nicolás del Puerto, 30STH60, 500 m, *Dominguez et al.* (BCB23091, BH-465). **Tarragona:** Prades Mountains, Vimbodí, Vall del Barranc del Tillar, 31TCF37, 900 m, *Casals & Cros* (BCB48361); ibidem, Prades, Coll de Sant Roc, 31TCF37, 800 m, *Casals* (BCB48362). **Balearic Island:** Mallorca, Torrent de Coa Negra, 31SDD79, 320 m, *Sáez* (BCB54807); Lluc, 31SDE90, 530 m, *Casas* (BCB15460); Hort des Molí, 31SDE91, 430 m, *Sáez* (BCB54806).

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