

A new record of *Desmarestia dudresnayi* J.V. Lamouroux ex Léman (Desmarestiaceae, Heterokontophyta) represents a new southernmost limit of its distribution in the North Atlantic Ocean

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Resumen

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Un nuevo registro de Desmarestia dudresnayi J.V. Lamouroux ex Léman (Desmarestiaceae, Heterokontophyta) representa un nuevo límite meridional de su distribución en el Atlántico Norte

Este trabajo aporta la primera cita de *Desmarestia dudresnayi* (Phaeophyceae, Desmarestiaceae) para la provincia de Cádiz, que representa el registro más meridional de esta especie de hábitat profundo para las costas del Atlántico Norte. Se ha realizado una descripción morfológica del ejemplar encontrado.

Palabras clave: Corología, Estrecho de Gibraltar, Cádiz, España.

Abstract

This work reports the first record of *Desmarestia dudresnayi* (Phaeophyceae, Desmarestiaceae) for Cádiz province (Southern Spain), representing the southernmost record of this deep habitat species on the North Atlantic coast. Morphological description of the specimen is provided.

Key words: Chorology, Strait of Gibraltar, Cádiz, Spain.

Introduction

The order Desmarestiales includes sublittoral species distributed along polar to warm-temperate coasts (Peters & Breeman 1992). The order includes four genera, *Arthrocladia* Duby, *Himantothallus* Skottsberg, *Phaerurus* Skottsberg and *Desmarestia* J.V. Lamouroux, the three former ones being monotypic. While *Himantothallus* and *Phaerurus* are endemic to Antarctica and South Georgia, *Arthrocladia* and *Desmarestia* exhibit a wider distribution range and are both also present in the Northern Hemisphere.

The genus *Desmarestia* includes species

widely distributed from Antarctica to the Arctic in polar to warm-temperate coasts. Its members are characterized by a heteromorphic life history with microscopic gametophytes, which after oogamous reproduction mediated by the sexual pheromone desmarestene bear macroscopic sporophytes. Thalli are erect and can be terete, compressed or ligulate, simple or branched, reaching several meters in length. Compared with the Laminariales, they differ in having a thallus of pseudoparenchymatous construction and trichothallic growth (reviewed in Peters et al. 1997).

Except for *Desmarestia ligulata* (Stackhouse) J.V. Lamouroux and *Desmarestia viridis* (O.F.

Müller) J.V. Lamouroux, which are globally distributed and maybe locally common, most *Desmarestia* species are endemic to certain regions (Peters et al. 1997). *D. dudresnayi*, which encompasses *Desmarestia tabacoides* Okamura, *Desmarestia patagonica* Asensi, *Desmarestia foliacea* Pease and *Desmarestia sivertsenii* Baardseth, is also widely distributed in the Atlantic and Pacific Oceans (Yang et al. 2014), however it is usually rare. In the North Atlantic, it is considered endemic of the Lusitanic province with a warm-temperate distribution (Bárbara et al. 2005, 2006a; Yang et al. 2014), and some boreal relic populations in the Mediterranean Sea (Ribera et al. 1992, Rindi & Cinelli 1995, Conde & Flores-Moya 2000, Báez et al. 2001).

Results and Discussion

We present the southernmost record of *D. dudresnayi* on the North Atlantic coast, and the first record for Cádiz province. A drifted sporophyte of 40 cm length was found at Isla de Tarifa, Cádiz, Southern Spain (36°00'09"N 5°36'44"W) on 28th October 2011. The non-branched blade exhibited a prominent main nerve with secondary nerves, with a leaf-like appearance. The herbarium sheet has been included in the University of Málaga Herbarium (MGC Phyc 5427; herbarium acronym follows Holmgren et al. 1990). At the time of collection, the thallus exhibited no damage, sugges-

ting that the specimen originated from a nearby population. However, when preparing the herbarium sheet, part of the thallus became greenish due to discharge of the intracellular sulfuric acid (Sasaki et al. 1999)(Fig. 1).

Recent descriptions of gametophytes of *D. dudresnayi* describe it as monoecious, densely branched and 10-15 μm in diameter, becoming reproductive between 10 to 15 °C (Yang et al. 2014). This annual species present marked seasonality revealed from studies on the maërl bed communities from north-west coast of Spain, where the species showed a maximum cover in summer and being absent in winter, at a depth interval from -3 to -26 m depth (Bárbara et al. 2005, 2006b; Peña 2010). Despite this recent information on the biology of the species, the physiology and biochemistry of this species is still poorly understood (Yang et al. 2014).

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Figura 1. Ejemplar de *Desmarestia dudresnayi* encontrado en Tarifa, mostrando daño en el talo por compuestos ácidos.
Figure 1. Specimen of *Desmarestia dudresnayi* found at Tarifa, exhibiting damage on the thallus by acid substances.

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