

A New Species of the Genus *Thordisa* (Mollusca: Nudibranchia) from the Southwestern Iberian Peninsula

by

J. L. CERVERA AND J. C. GARCÍA-GÓMEZ

Laboratorio de Biología Marina, Departamento de Fisiología y Biología Animal,
Facultad de Biología, Universidad de Sevilla, Apdo. 1095, 41080 Sevilla, Spain

Abstract. A new species of nudibranch mollusk, *Thordisa azmanii*, is described from the southwestern Iberian Peninsula, Spain. Its coloration and anatomy distinguish it from the remaining Mediterranean and Atlantic species of *Thordisa*.

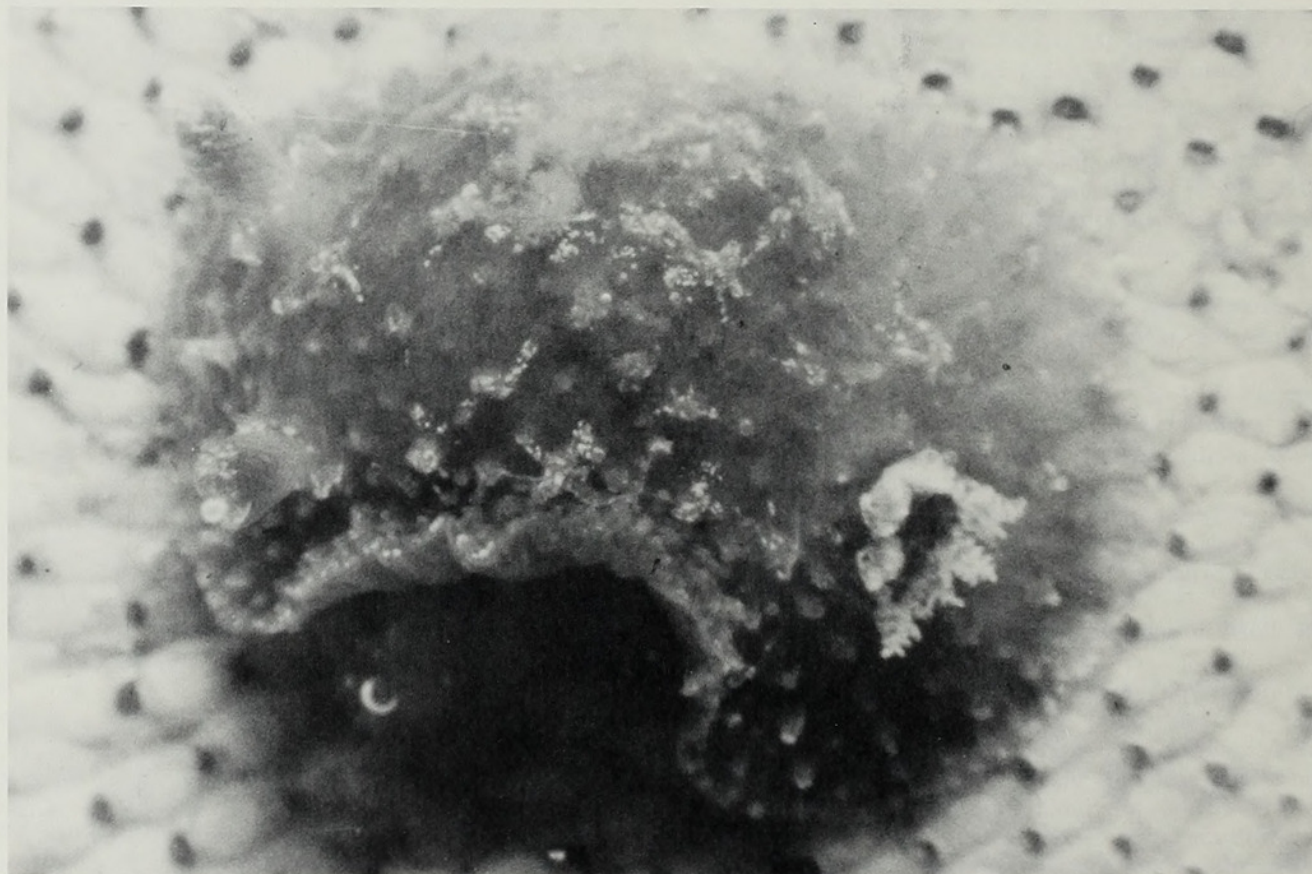


Figure 1

Thordisa azmanii sp. nov. Living animal, 11-mm specimen collected from Santa María del Mar Beach (Cádiz, Spain).

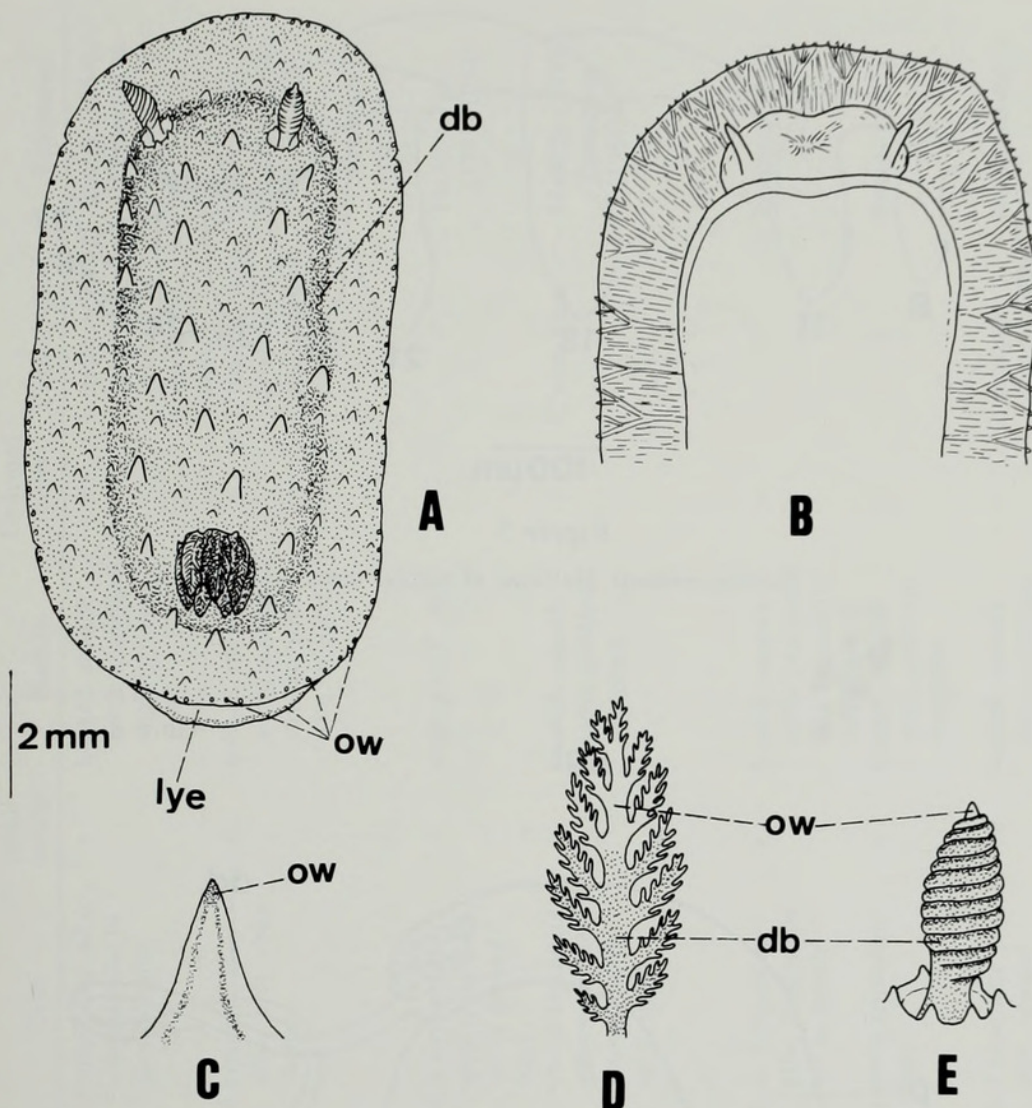


Figure 2

Thordisa azmanii. A. Dorsal view. B. Ventral view of anterior end. C. Detail of mantle tubercle. D. Gill. E. Rhinophore. Key: db, dark brown; lye, light yellow; ow, opaque white.

INTRODUCTION

Three specimens of a new doridacean have been collected at the southwestern Iberian Peninsula, Spain. Their external and internal anatomical features agree with species of the genus *Thordisa* Bergh, 1877 (type *T. maculigera* Bergh, 1877), although they differ from known Mediterranean and European species: *T. pallida* Bergh, 1884, *T. aurea* Pruvot-Fol, 1951, and *T. filix* Pruvot-Fol, 1951. This latter species has recently been recorded by BALLESTEROS (1987) and TEMPLADO *et al.* (1988) from the Iberian coasts.

Thordisa azmanii Cervera & García-Gómez,
sp. nov.

(Figures 1–4)

Material examined: (1) Holotype: One specimen, 11 mm in length, collected intertidally under stones at Santa Ma-

ría del Mar Beach (Cádiz, Spain), 36°31'N, 6°17'W, April 1985, deposited in the Museo Nacional de Ciencias Naturales de Madrid (Spain), catalogue number 12-77/1028.

(2) Paratypes: One specimen, 13 mm in length, collected intertidally under stones at Santa María del Mar Beach (Cádiz, Spain), June 1985, deposited in the Laboratorio de Biología Marina, Departamento de Fisiología y Biología Animal, Universidad de Sevilla.

(3) One specimen, 5 mm in length, collected intertidally under stones at Santa María del Mar Beach (Cádiz, Spain), January 1986, deposited in the Laboratorio de Biología Marina, Departamento de Fisiología y Biología Animal, Universidad de Sevilla. Color transparencies of living *Thordisa azmanii* are on file at the Laboratorio de Biología Marina, Departamento de Fisiología y Biología Animal, Universidad de Sevilla.

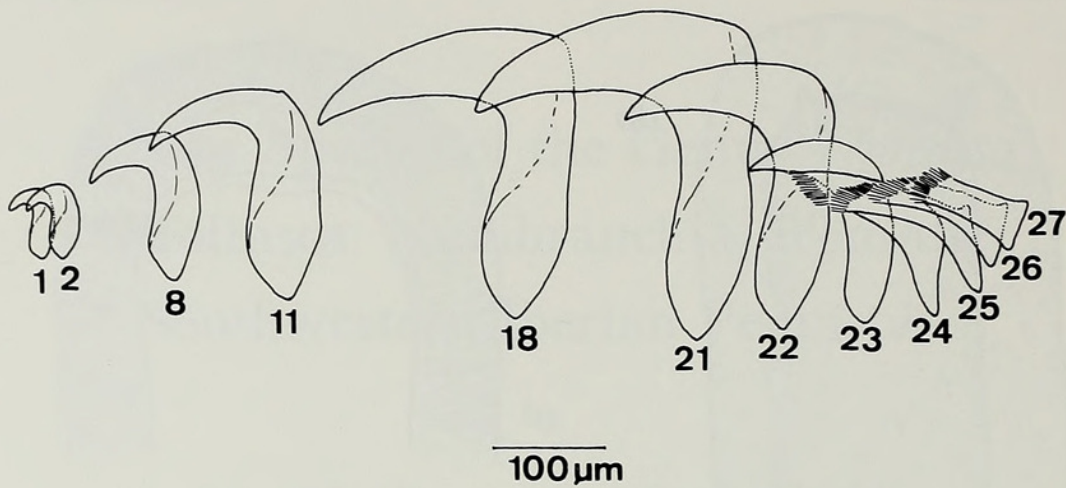


Figure 3

Thordisa azmanii. Half-row of radular teeth.

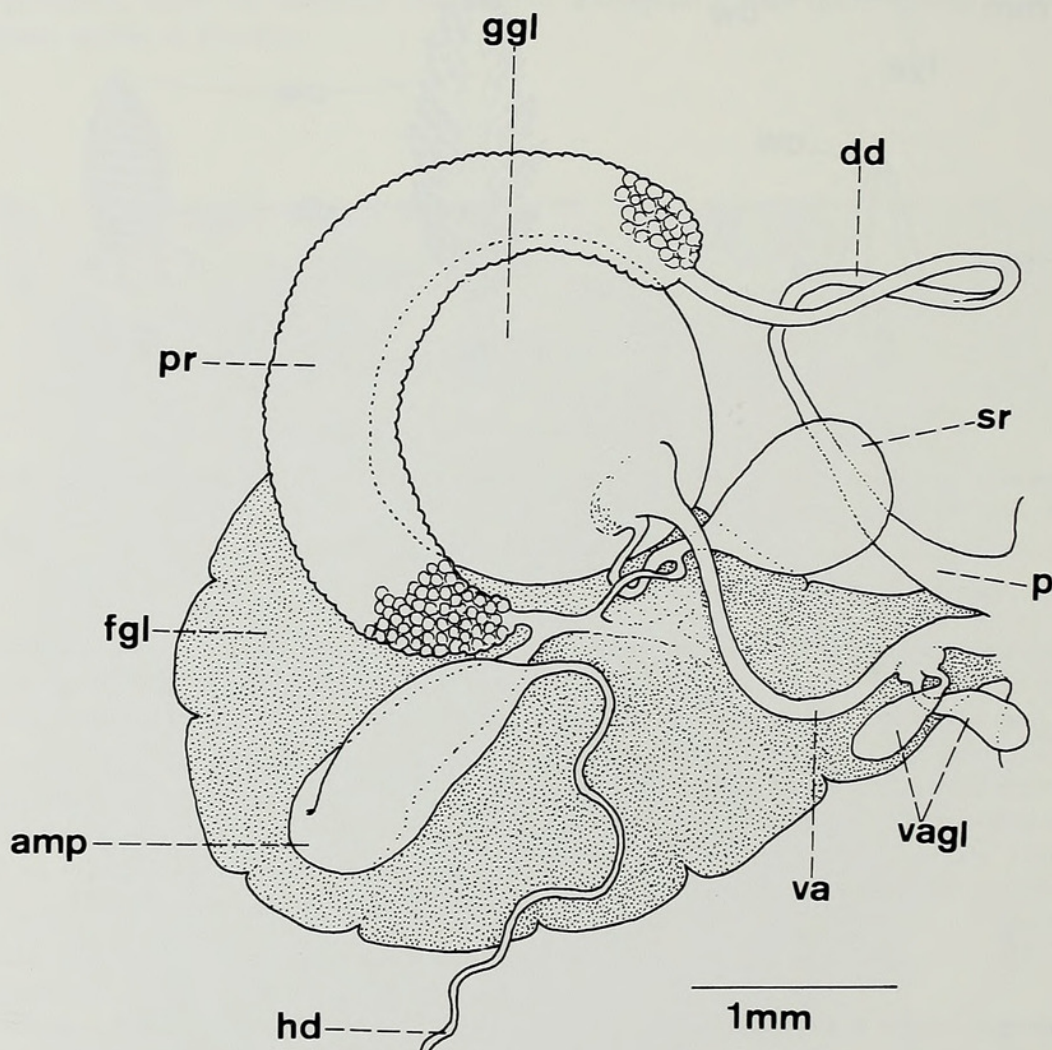


Figure 4

Thordisa azmanii. Reproductive system. Key: amp, ampulla; dd, deferent duct; fgl, female gland; ggl, gametolytic gland; hd, hermaphroditic duct; p, penis; pr, prostate; sr, seminal receptacle; vagl, vaginal glands; vd, vaginal duct.

Table 1
Comparison between the Mediterranean and Atlantic species of *Thordisa*.

Species	Mantle tubercles	Ground color	Foot color	Gills	Smooth labial cuticle	Radula	Unarmed penis	Vaginal glands	References
<i>T. pallida</i> Bergh, 1884	little different nodules	yellowish white	?	10 tripinnate gills; color similar to ground color	+	hooked, smooth teeth; marginals slightly denticled	+	1, more or less spherical (quoted as vestibular gland)	BERGH (1884); PRUVOT-FOL (1954)
<i>T. filix</i> Pruvot-Fol, 1951	slender, long and different; grayish-red color	dark yellowish or orange, with delicate brown dots	light yellow or orange	4 bipinnate gray gills, with white rachis	+	hooked, smooth teeth; marginals slender, pectinate on edges	+	1, tubular, highly elongate and coiled on itself	PRUVOT-FOL (1951, 1954); SCHMEKEL (1970); SCHMEKEL & PORTMANN (1982)
<i>T. aurea</i> Pruvot-Fol, 1951	small and short	yellow lemon	?	6-8 bipinnate gills; color similar to ground color	?	similar to <i>T. filix</i>	?	?	PRUVOT-FOL (1951, 1954)
<i>T. diuda</i> Marcus, 1955	conical and rough, different in form and size; paler than the ground color, with white pigmentation	olivaceous; brown	orange anterior and white posterior; cream	6 tri- or bipinnate gills; base dark brown, clearer up to apex	+	hooked, smooth teeth; pectinate marginals	+	1, with lobes	MARCUS (1955); THOMPSON (1980)
<i>T. ladislavii</i> * (Ihering, 1886)	hemispherical and smooth	brown	light brown	4 or 5 tripinnate gills; color similar to mantle	+	hooked, smooth teeth; pectinate and degenerate marginals	+	?	IHERING (1886)
<i>T. punctulifera</i> † Bergh, 1907	small and almost conical; white	white with black spots	white, sometimes with black spots on the edge	5 white tripinnate gills	+	hooked, smooth teeth; pectinate marginals	+	?	BERGH (1907)
<i>T. azmanii</i> sp. nov.	conical and different in size; larger with opaque white pigmentation	dark brown	light yellow, with delicate opaque white on posterior edge	5-7 bipinnate gills; opaque white apex, rest of gill dark brown	+	hooked, smooth teeth; pectinate marginals	+	2, elongate	present study

* Live specimens not seen.

† The specimens from New Caledonia that RISBEC (1953) attributes to *T. punctulifera* and includes in *Carminodoris* do not correspond to this species because the radula described by this author is different from that described by BERGH (1907) for *T. punctulifera*. Moreover, *Carminodoris* has an armed penis.

‡ Lacks discrete armature.

Description: The body is oval, somewhat convex and spiculose (Figure 1). The mantle is covered by conical tubercles varying in size, although the small ones are generally arranged at the mantle, rhinophoral sheath, and branchial sheath edges (Figures 1, 2A). Spicules are located within the tubercles. Ventrally, radial and branched bundles of spicules are visible in the mantle (Figure 2B). The bilabiate foot, spiculose, is not notched and occasionally extends posteriorly from the mantle edge. The oral tentacles are short and cylindrical. The rhinophores possess 9–11 lamellae (Figure 2E). The branchial tuft has 5–7 bipinnate gills (Figure 2D), which surround the anal papilla.

The ground color of the mantle is dark brown, and its edges bear small opaque white spots. The larger tubercles usually exhibit an irregular opaque white pigmentation throughout their length. The rhinophores are dark brown with opaque white tips on the 3 or 4 apical rhinophoral lamellae. A little more than the proximal half of each gill is dark brown and the remaining part is opaque white (Figures 1, 2A, C–E). The light yellow foot, possesses a minutely opaque white pigmentation on its posterior edge (Figure 2A).

The labial cuticle lacks discrete armature. The radular formula of one 13-mm specimen is $31 \times 4.23.0.23.4$. The teeth (Figure 3) are hooked and smooth, except the four marginals, which are pectinate. The inner teeth are small with respect to those in the middle of each half-row. From the 21st tooth, the size of the teeth rapidly decreases.

The thin hermaphroditic duct of the reproductive system (Figure 4) connects with a large ampulla that folds upon itself. The granular prostate partially covers the gametolytic gland and joins the unarmed penis by a long and slightly coiled deferent duct. The spherical gametolytic gland is voluminous and the pyriform seminal receptacle is smaller. The vaginal duct is relatively long. Two elongate vaginal glands connect with this duct close to its external opening.

Discussion: The main external and internal features of *Thordisa azmanii* are compared with those of known Mediterranean and Atlantic species of the genus *Thordisa* in Table 1.

Thordisa azmanii is the only species of *Thordisa* recorded from northeastern Atlantic coasts and it can be distinguished well from the Mediterranean species (*T. pallida* Bergh, 1884; *T. aurea* Pruvot-Fol, 1951; and *T. filix* Pruvot-Fol, 1951) by its coloration, the shape of the mantle tubercles and marginal teeth, and the possession of two vaginal glands. The former and latter features also distinguish *T. azmanii* from other Atlantic species of the genus.

The British species *Doris millegrana* Alder & Hancock, 1854, recently placed in *Discodoris* by THOMPSON & BROWN (1981, 1984), has a similar radula to *Thordisa* species, but

the 4–6 outer lateral teeth of *Doris millegrana* are denticled. Some authors suggested previously the possibility that this species belongs to the genus *Thordisa* (BERGH, 1891, 1894; ELIOT, 1910; Odhner in MARCUS, 1955; MARCUS & MARCUS, 1967), but examination of more material is required to change the generic placement of this species.

The specific name *azmanii* is chosen to give recognition to Dr. J. Azmani (M.D.), who eliminated a chronic ailment of one of us (J. C. García-Gómez).

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