



Taxonomic review of the family Discodorididae (Mollusca: Gastropoda: Nudibranchia) from Brazil, with descriptions of two new species

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Abstract

The family Discodorididae was previously represented by 11 species in Brazil; however, recently collected specimens from several localities in Rio de Janeiro, in addition to the study of material previously deposited in scientific collections, revealed the existence of 13 taxa: *Diaulula greeleyi* (MacFarland, 1909), *Discodoris hummelincki* (Ev. Marcus & Er. Marcus, 1963) comb. nov., *Discodoris branneri* MacFarland, 1909, *Geitodoris pusae* (Er. Marcus, 1955), *Hoplodoris hansrosaorum* Domínguez, García & Troncoso, 2006, *Jorunna spazzola* Er. Marcus, 1955, *Jorunna spongiosa* **sp. nov.**, *Paradoris mulciber* (Ev. Marcus, 1971), *Platydoris angustipes* (Mörch, 1863), *Rostanga byga* Er. Marcus, 1958a, *Taringa telopia* Er. Marcus, 1955, *Taringa iemanja* **sp. nov.**, and *Thordisa diuda* Er. Marcus, 1955. *Discodoris voniheringi* MacFarland, 1909 was previously regarded as *nomen dubium*, and this view is maintained in the present study. Three new re-

cords for the Brazilian coast are recognized among these 13 taxa; the previous record of *Diaulula phoca* (Ev. Marcus & Er. Marcus, 1967a) is rectified as *Discodoris hummelincki* comb. nov., constituting the first record of this species from Brazil; two new species, *Taringa iemanja* sp. nov. and *Jorunna spongiosa* sp. nov., are described in anatomical detail. The following taxa, which were formerly considered junior synonyms of species studied in this work, have been revalidated: *Diaulula nayarita* (Ortea & Llera, 1981), from the Pacific coast of Costa Rica, which differs from *Diaulula greeleyi* in the length and width of caryophyllidia; *Discodoris mortenseni* Ev. Marcus & Er. Marcus, 1963, from the Caribbean, which is likely to belong to *Jorunna*, yet differs from *Jorunna spazzola* in body size and coloration, radula appearance, and number of lamellae in the rhinophores; *Jorunna luisae* Ev. Marcus, 1976, which differs from *Jorunna spazzola* in the reproductive system, mainly in the size and shape of the accessory gland; and *Thordisa azmani* Cervera & García-Gómez, 1989, which differs from *Thordisa diuda* in the presence of two accessory glands in the genital atrium and the absence of one denticle in the external surface of the inner lateral teeth. Finally, the specimens of *Geitodoris pusae* reported from the European coast and Mediterranean Sea show differences in general coloration and in the radula, gill, and reproductive system, thereby these specimens likely refer to different taxa.

Key words: Doridacea, Opisthobranchia, Southwestern Atlantic, taxonomy

Introduction

Nudibranchs constitute marine gastropods that are characterized by the absence, through loss, of the shell in the postlarval form, a pericardial complex orientated longitudinally, solid rhinophores and the presence of specialized vacuolated epithelium (Wägele & Willan, 2000). Doridacea is the most diverse group among nudibranchs, with approximately 2000 species described (Valdés, 2004a). General characteristics of members of this group include an anus mid-posteriorly situated dorsally in all typical forms, but under the mantle rim in *Corambe* Bergh and incidentally in all doridids at an early developmental stage. Doridacea present a variable number of foliaceous gills arranged near the anal papilla, usually in a circlet, except for *Corambe* that presents multiple ventral gills (Thompson & Brown, 1984; Martinov & Schrödl, 2011).

The family Discodorididae Bergh, 1891, as currently recognized, consists of dorids with a large variety of morphoanatomical features. Members of the family usually show an oval to elongated body, a mantle covered by caryophyllidia or simple tubercles, gills generally composed of multipinnate leaves, but sometimes unipinnate and, conical oral tentacles (Valdés *et al.* 2006).

The taxonomic arrangement of Discodorididae has changed a few times since its original description by Bergh (1891), who grouped the following genera in the family: *Discodoris* Bergh, 1877; *Geitodoris* Bergh, 1891; *Carminodoris* Bergh, 1889; *Fracassa* Bergh, 1878a; *Paradoris* Bergh, 1884a; *Hoplodoris* Bergh, 1880; *Audura* Bergh, 1878a; *Halla* Bergh, 1876 (= *Hallaxa* Eliot, 1909); and *Rostanga* Bergh, 1879.

Odhner *in Franc* (1968) raised several subfamilies described by Bergh (1891) to the family level, added several families and genera, and allocated some genera to different families. The family Discodorididae was divided into three subfamilies: Taringinae Odhner *in Franc*, 1968; Neodoridinae Odhner *in Franc*, 1968; and Discodoridinae Bergh, 1891. Discodorididae was completely modified to include *Taringa* Er. Marcus, 1955; *Neodoris* Baba, 1938; *Thordisa* Bergh, 1877; *Aporodoris* Ihering, 1886; *Nirva* Bergh, 1905; *Discodoris* Bergh, 1877; *Anisodoris* Bergh, 1898; *Peltodoris* Bergh, 1880; *Diaulula* Bergh, 1878b; and *Phialodoris* Bergh, 1890.

Valdés (2002) performed a morphology-based phylogenetic revision of the cryptobranch dorids, recognizing 22 genera as belonging to Discodorididae. Although the family as a whole lacks a molecular revision, its monophyly is supported by a series of synapomorphies, such as a notched labium, small conical oral tentacles, the prostate divided into two parts (clearly differentiated in color and texture), and separation of the blood gland into two portions (Valdés, 2002).

Knowledge of the taxonomy and diversity of the Discodorididae from Brazil is sparse. Most studies on the Brazilian species were conducted by Ernest Marcus and Eveline Marcus between 1955 and 1983, including the description of seven new species (Er. Marcus, 1955; 1958a; Ev. Marcus, 1971). Other species were described by Bergh (1894), MacFarland (1909) and Domínguez *et al.* (2006). García *et al.* (2008) recognized 16 species of Discodorididae from Brazil, whereas Rios (2009) listed only 13. However, due to some instances of synonymy between species (Valdés & Gosliner, 2001; Dayrat, 2010), we consider that only 11 valid species were previously reported from Brazil: *Diaulula greeleyi* (MacFarland, 1909); *Diaulula phoca* Ev. Marcus & Er. Marcus, 1967a; *Discodoris branneri* MacFarland, 1909; *Geitodoris pusae* (Er. Marcus, 1955); *Hoplodoris hansrosaorum*

- Foot anteriorly bilabiate and notched on the upper and lower“lips”.....10
- 9. Color of living species predominantly red-orange *Platydoris angustipes*
- Color of living species predominantly purplish/whitish-gray..... *Jorunna spazzola*
- 10. Penial cuticle ring-shaped..... *Taringa iemanja*
- Penial cuticle cylindrical..... *Taringa telopia*
- 11. Color of living species predominantly yellow/orange *Diaulula greeleyi*
- Color of living species predominantly whitish gray..... *Jorunna spongiosa*

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