A New Species of *Chromodoris*

(Opisthobranchia : Nudibranchia)

from Tropical West America

BY

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(1 Plate; 2 Text figures)

During the past few years, Dr. Antonio J. Ferreira and Mr. and Mrs. Roy Poorman have collected 4 specimens of a small chromodorid from tropical west American waters. Preserved specimens and color transparencies of the living animals were given to me for examination. A careful comparison of taxonomically important anatomical features has shown these specimens to be members of a new species.

HOLOHEPATICA

Doridoidea

Chromodorididae

Chromodoridinae

Chromodoris ***antonii*** Bertsch, spec. nov.

Material Examined: 1) **Holotype:** One specimen (4 mm long preserved) collected in about 9 m of water, at Punta Aguja (near Mulege), Baja California, Mexico (approximately 26°53′N; 111°56′W), on July 28, 1974, by Antonio J. Ferreira. This dissected specimen and its mounted radula have been deposited in the collections of the Los Angeles County Natural History Museum, LACM Type Series, No. 1810.

2) **Paratypes:** One specimen (4.5 mm long preserved) collected subtidally in about 10 - 12 m of water, Isla San Jose, Baja California, Mexico (approximately 24°53′N; 110°34′W), on August 14, 1973, by A. J. Ferreira. The dissected specimen and its mounted radula are in the LACM Type Series, No. 1811.

3) One specimen (4 mm long preserved), collected subtidally in about 28 m of water, Los Islotes, Baja California, Mexico (24°36′N; 110°24′W) on August 14, 1973, by A. J. Ferreira. The intact specimen is also in the LACM Type Series, No. 1812.

4) One specimen (alive, 10 mm long) collected in Santiago Bay, near Manzanillo, Colima, Mexico (approximately 19°06′N; 104°23′W), in January, 1976, by Laura Shy and Forrest & Roy Poorman while diving. The dissected specimen and its mounted radula are in the LACM Type Series, No. 1813.

This species has been collected only from subtidal regions, offshore along the Baja California coast of the central and southern Gulf of California, and from the southwestern coast of mainland Mexico. The known range of *Chromodoris* ***antonii*** extends some 1260 km in a northwest - southwest direction in the tropical west American marine faunal province.

Description: Lengths of preserved specimens vary from 3 to 4.5 mm; specimen 4 was measured alive as 10 mm long. Mantle margin extends past the sides of the animal's body, with the tail protruding out behind the posterior mantle margin about 1/9 the distance of the animal's total length (Figure 1).

Coloration consists basically of shades of blue, magenta, black, yellow-orange and white. A complete yellow-orange line encircles the rim of the notum; a black line immediately borders the entire inner side of the yellow-orange band. A wide area of light blue covers the rest of the lateral notal region. This zone is divided by a blackish line concentric with the 2 outermost bands. The central dorsal region (from between the rhinophores to the anterior and lateral sides of the gills) bears a light magenta

Table 1

Radular sizes and teeth counts of *Chromodoris* ***antonii***

Specimen	Length mm	Width mm	W:L Ratio	Rows of Teeth	Number of Teeth Per Half-Row
Material 1	0.61	0.3	1:2.03	~56	~35
Material 2	0.75	0.27	1:2.78	~78	~41
Material 4	0.64	0.31	1:2.06	~54	~32
Average	0.67	0.29	1:2.31	~63	~36

color, with darker splotches scattered randomly. Running lengthwise down the center of the notum is a thick, broken white line, bordered by a slight yellowish tinge. Rhinophores are light magenta proximally, and black the distal ½ of their length. The 6 or 7 pinnate gill plumes are pinkish-white basally, each tipped with black. Rim of branchial pouch is tinged yellowish. The dorsal portion of the foot, extending past the mantle, is rimmed by black, with successive light blue and dark blue regions, with a small broken white line along its center.

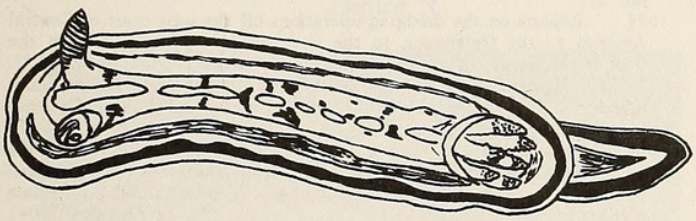

Figure 1

Chromodoris ***antonii*** Bertsch, spec. nov.
Drawing of living animal (from a color transparency by A. J. Ferreira). Holotype (LACM 1810)

The approximate radular sizes and formulae of specimens 1, 2, and 4 are given in Table 1. Because of their extremely small size, the radulae were damaged in mounting; exact measurements, and tooth and row counts of the radulae were not possible. The radula has no rachidian tooth. The lateral teeth bear long denticles, approximately ½ the total width of the erect hook along an anteroposterior axis (Figure 2). There is no prominent cusp thicker and longer than the succeeding denticles. Instead, this structure is reduced to approximately the same size and thickness as the denticles, and it is often actually shorter than the immedately adjacent denticle. In the following description, this "cusp" is counted simply as a denticle. The inner teeth of each half-row have 4 denticles (Figures *3*, *4*, *5*). The innermost tooth does not appear to have additional denticles on its inner face. In the central portion of each half-row the teeth have 6 - 7 (sometimes 8) denticles (Figures *6* and *7*). The outermost lateral teeth have only 4 or 5 denticles (Figure *8*). All the teeth have a base not clearly set off from the erect denticulate shaft; the postero-dorsal surface of the tooth curves evenly upwards from the posterior portion of the base (Figure *5*); outer teeth have a very short base (Figure 2).

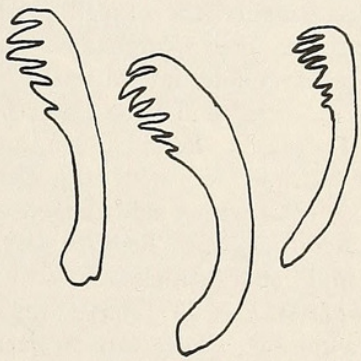

Figure 2

Chromodoris ***antonii*** Bertsch, spec. nov.
Outer lateral teeth from specimen 2 (LACM 1811) approximately × 1500

Discussion: Five genera of Chromodorididae have been reported from the Pacific coast of North America. Species of the genus *Cadlina* are differentiated from *Chromodoris* ***antonii*** because they 1) have a rachidian tooth with pronounced denticulations on the erect shaft; 2) are usually colored whitish or yellow or shades of both; and 3) ecologically are predominantly members of temperate, cooler water faunal provinces.

Chromodoris ***antonii*** can be separated from species of the remaining tropical chromodorid genera on the basis of coloration (cf. RUDMAN, 1973, for a discussion about the species-specificity of coloration among chromodorids) and radular characteristics.

Chromodoris banksi Farmer, 1963, *C. baumanni* Bertsch, 1970, *C. marislae* Bertsch, in Bertsch *et al.*, 1973, *C. norrisi* Farmer, 1963, and *C. sedna* (Marcus & Marcus, 1967) all have a white notal background color and a prominent cusp on the shaft of each lateral tooth. *Chromodoris mc-*

farlandi Cockerell, 1901, is violet, with a yellow-orange band encircling the notum edge, and 3 longitudinal yellowish lines in the mid-lateral and central portions of the dorsum; its teeth have pronounced cusps. The teeth of *C. porterae* Cockerell, 1901, resemble *C. **antonii*** in overall morphology; however, the coloration (blue with a yellow-orange line surrounding the central portion of the dorsum) of *C. porterae* is distinctly different from *C. **antonii***. *Chromodoris dalli* Bergh, 1879a, is an enigmatic species, but its teeth have the typical prominent cusp. *Chromodoris glauca* Bergh, 1879b, is a synonym of *Hypselodoris californiensis* (Bergh, 1879a) (Bertsch, in prep.).

Thorunna tura (Marcus & Marcus, 1967) and *T. lapislazuli* Bertsch & Ferreira, 1974, have numerous yellow-orange dots on the notum and lack either a peripheral orange or black line on the notal edge. Moreover, both species have a much broader based innermost lateral tooth; *T. tura* has a higher ratio of teeth per half-row : total rows of teeth than does *Chromodoris **antonii***, and *T. lapislazuli* has bicuspid outer lateral teeth.

Hypselodoris sp. (figured in Marcus & Marcus, 1967: 177, fig. 30), *H. agassizii* (Bergh, 1894), and *H. californiensis* all have bicuspid teeth with large distal cusps, and a dark blue body color with yellow dots or streaks on the dorsum *Hypselodoris aegialia* (Bergh, 1904) has bicuspid teeth, without additional denticles.

Felimida sphoni Marcus, 1971, has a "red cross" coloration pattern; a distinct, large cusp on each tooth; and denticles on both the inner and outer faces of the 4 innermost lateral teeth.

The specific name ***antonii*** is chosen to honor Dr. Antonio J. Ferreira, my esteemed friend and fellow worker, who graciously has shared with me his time, interest, and enthusiasm, and has contributed significantly to the knowledge of polyplacophoran and opisthobranch molluscan taxonomy.

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Explanation of Figures *3* to *8*

Scanning Electron Micrographs of *Chromodoris **antonii*** Radulae

Figure *3*: Inner lateral teeth, holotype (LACM 1810) ca. × 570
Figure *4*: Inner and central lateral teeth, specimen 4 (LACM 1813) ca. × 570
Figure *5*: Inner lateral teeth, holotype (LACM 1810) ca. × 1700
Figure *6*: Central lateral teeth (near middle of half-row), specimen 2 (LACM 1811) ca. × 1700
Figure *7*: Outer lateral teeth, specimen 4 (LACM 1813) ca. × 1700
Figure *8*: Outermost lateral teeth, specimen 4 (LACM 1813) ca. × 1700