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Abstract. *Temnocephala colombiensis* n. sp., is described as ectosymbiont of *Pomacea* sp. from San José del Nús, Antioquia, Colombia. Temnocephalans were removed from the mantle cavity and its eggs from the umbilicus and the basal region of the operculum. The new species is characterized by: cirrus curved toward hindbody, approximately 90°; introvert's swelling with 20 to 26 longitudinal rows of fine spines and 11 to13 spines per row; dorsolateral excretory syncytial plates rectangular with rounded corners and excretory pores eccentric, displaced to the anterior portion of the plate. Additionally we have done a comparison of cirrus morphology for *Temnocephala* described to date, based on literature review. This is the first *Temnocephala* described from Colombia.

Key words: temnocephalans, mollusk, South America, taxonomy.

Resumen. *Temnocephala colombiensis* n. sp., se describe como ectosimbionte de *Pomacea* sp. de San José del Nús, Antioquia, Colombia. Los temnocéfalos fueron removidos de la cavidad del manto y sus huevos, del ombligo y región basal del opérculo. La nueva especie se caracteriza por un cirro curvado hacia la región posterior del cuerpo, con aproximadamente 90º; introverto ensanchado con 20-26 filas de espinas longitudinales y 11-13 espinas por fila; placas sincitiales dorsolaterales rectangulares con extremos redondeados y poros excretores excéntricos en la porción anterior. Adicionalmente se realiza una comparación de la morfología del cirro de las especies descritas a la fecha. Esta es la primera especie de *Temnocephala* descrita para Colombia.

Palabras clave: temnocéfalos, moluscos, Sudamérica, taxonomía.

Introduction

The *Temnocephala* Blanchard, 1849 species are commensals of crustaceans, mollusks, insects and turtles in the Neotropical region, which include thirty species described to date (Moquin-Tandon, 1846; Monticelli, 1899, 1902, 1903, 1913; Haswell, 1893; Vayssiere, 1898; Pereira and Cuocolo, 1941; Dioni, 1967a, 1967b; Jennings, 1968; Lamothe-Argumedo, 1974; Moretto, 1978; Ponce de León, 1979, 1989; Cannon, 1993; Damborenea, 1994; Amato et al., 2003, 2006, 2007, 2011; Ibáñez and Jará, 2003; Amato and Amato, 2005; Damborenea and Brusa, 2008; Volonterio, 2007, 2010; Seixas et al., 2011). Of them, *Temnocephala iheringi* Haswell, 1893, *T. rochensis* Ponce de León, 1979, *T. haswelli* Ponce de León, 1989 and *T. lamothei* Damborenea and Brusa, 2008 are known from ampullariid snails, showing a geographical distribution restricted to southeastern of South America (Damborenea and Brusa, 2008; Seixas et al., 2010a, 2010b, 2010c).

The *Temnocephala* genus is characterized by having eyes with red, fugacious pigment; a characteristic pattern of syncytial plates, and excretory pores enclosed in the excretory plates (Damborenea and Cannon, 2001). The cirrus has been the main taxonomic character (Damborenea, 1991) to differentiate the *Temnocephala* species. Recently, detailed descriptions of dorsolateral excretory syncytial plates (DLSPs) shape and excretory pores position has improved the identification of these (Damborenea and Cannon, 2001; Amato et al., 2003, 2005, 2006, 2010; Amato and Amato, 2005; Volonterio, 2007, 2009, 2010; Seixas et al., 2010a, 2010b, 2010c, 2011).

In the present study, we describe the first species of *Temnocephala* from Colombia, associated to mollusks *Pomacea* sp. Considering the cirrus as an important trait to differentiate the *Temnocephala* species, we have done

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a comparison of the cirrus characteristics of the species described, based on literature review.

Materials and methods

Ninety three *Pomacea* sp. were collected manually in the Estación Piscícola de San José del Nús, San Roque, Antioquia (6º29'51" N, 74º50.028' W), from April to May of 2008, and transported live to the laboratory. A total of 77 temnocephalans (36 adults and 41 juveniles) were recovered from mantle cavity of the host snail, fixed in hot A.F.A. and after 24 h, transferred to 70% ethanol, under slight cover slip pressure (Volonterio, 2007). The specimens were stained as follows: 3 in Giemsa, 4 in Meyer's paracarmine, 4 in Borax carmine, 17 in hematoxylin and 9 in silver nitrate; 6 dissected cirrus were mounted in Canada Balsam; description based on 28 adult specimens.

Morphology of DLSPs was studied in specimens stained with hot silver nitrate (SN), without pressure, between slide and cover slip. Temnocephalans were stained with hot SN and exposed to sun light for about 5 minutes, and washed in distilled water, and preserved in 70% ethanol. Measurements are in micrometers (µm) unless otherwise indicated: ranges are followed by the arithmetic mean, standard deviation values and the number of specimens measured for a given character; range (mean, standard deviation; n). Drawings were made using a drawing tube Nikon 1.25X microscope. Photographic images were taken with a Sony Cyber-shot DSC-W35. The line drawings were prepared using Corel Draw X5. Type specimens were deposited in the Colección Colombiana de Helmintos (CCH.116), and the mollusk hosts were deposited in the Colección de Moluscos Vectores (VHET-37), Universidad de Antioquia, Medellín, Colombia. A comparison of external cirrus structure in *Temnocepahala* was done, which includes drawings adapted from to literature found for 29 species (except *T. peruensis*).

Description

Temnocephala colombiensis n. sp. (Figs. 1b-g, 2, 3, 7c, 8d-g)

Description based on 28 adult specimens. External characteristics. Body shape elliptical (Figs. 1b-d, 3a) with 5 anterior tentacles, concave ventrally. Body without tentacles 1 090.26-2 838.79 (1 621.44 ± 3 61.02; 28) long by 596.56-1 686.82 (938.91 ± 252.08; 28) wide; posterior circular adhesive disc 350.77-661.68 (479.21 ± 89.110; 27) in diameter; eyespots round to irregular shaped, with red pigment in live specimens.

Epidermal mosaic (demonstrated through staining with SN) with 2 dorsolateral excretory syncytial plates (DLSPs) rectangular with rounded corners (Figs. 8d-g), extending from just below the base of first and fifth tentacles, respectively; left plate 221.82-514.93 (389.94 ± 78.37; 9) long by 150.52-324.80 (196.29 ± 106.41; 9) wide; right plate 261.43-522.852 (392.58 ± 95.06; 9) long by 95.06-348.57 (198.93 ± 102.45; 9) wide. Excretory pores eccentric displaced to the anterior portion of plate (Figs. 8f-g). Alimentary system: mouth between first and second thirds of body, surrounded by a large muscular sphincter; pharynx longer than wide, 111.61-286.99 (204.14 ±46.70; 28) long by 103.63-454.40 (201.86 ± 78.11; 28) wide; intestine saccular, without septa. Excretory system: 2 excretory ampullae at level of mouth. Glands: rhabdite producing glands, numerous, forming bunches, in lateral fields of the body; extending from pharynx to the anterior part of adhesive disc. Haswell cells in front of the eyespots and the brain. Disc glands between adhesive disc and genital complex, integrated for numerous lateral cells, forming bunches around the disc and 2 lobed central cells (Fig. 3a).

Reproductive system (Fig. 3b). Female. Genital atrium spacious; gonopore in the center of the posterior third of the body; ovary ovoid, 47.83-175.38 (96.42 ± 32.18; 21) long by 39.86-143.49 (91.87 ± 28.70; 21) wide, 2-3 seminal receptacles observed; vitellaria branched, completely covering intestine sac dorsally without exceeding it; vagina short, with distal portion muscular, sphincter large and symmetrical well developed, vesicula resorbens ovoid, 71.75-334.82 (138.04 ± 58.34; 19) long by 71.75-318.88 (151.47 ± 64.93; 19) wide, with spermatozoids inside. Eggs oval, 510.2-693.87 (617.34 ± 6.43; 8) long by 183.67-285.71 (257.65 ± 3.30; 8) wide, with median-sized subpolar filament; peduncles 122.45-224.49 (170.91 ± 3.62; 8); the plane of fracture is perpendicular (Figs. 1e, 3c). Eggs deposited in umbilicus and operculum (Figs. 1f-g). Male. Testes 4, usually rounded, posterior to intestinal sac, anterior and posterior testes of different sizes, posterior testes more voluminous; right anterior testis 79.72-279.02 (157.45 ± 63.91; 28) long by 63.78-231.19 (134.39 ± 54.32; 28) wide; left anterior testis 63.78-318.88 (156.19 ± 60.08; 27) long by 71.75-247.13 (140.23 ± 48.35; 27) wide; right posterior testis 111.61-350.77 (193.04 ± 64.42; 28) long by 79.72-294.96 (176.52 ± 64.43; 28) wide; left posterior testis 111.61-318.88 (176.52± 55.98; 28) long by 103.64-358.74 (192.75 ± 66.31; 28) wide. Vesicle seminal pyriform, dorsal to prostatic bulb, 12-46 (23.68 ± 8.72; 19) long by 16-50 (30.32 ± 9.87; 19) wide. Prostatic bulb slightly ovoid with thick muscular wall, 72-216 (146.44 ± 36.81; 27) long by 78-210 (136.89 ± 24.74; 27) wide. Cirrus curved toward the terminal region of the body, approximately in 90°, 150-268 (213.19 ± 31.11; 27) long;

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