Monogenean Parasitic on Marine Fishes from Perú and Chile: Three New Species and Two New Combinations

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Five species of monogeneans collected from marine fishes of the Pacific coast of Chile and Perú were studied. Three of them are new species: Internilocus chilensis n. sp. (Capsalidae), Neoheterobothrium insularis n. sp. (Diclidophoridae) and Loxura peruensis n. sp. (Axinidae) parasitic on Sebastes capensis (Scorpaenidae), Paralichthys sp. (Bothidae) and Belone scapularis (Belonidae), respectively. Two new combinations are proposed, Intracotyle neghmei (Microcotylidae) for Neobivagina neghmei Villalba, 1987 and Hargicotyle conceptionensis (Diclidophoridae) for Choricotyle conceptionensis Villalba, 1987.

Key words: Monogenea - marine fishes - Perú - Chile - new species

Knowledge of the parasite fauna of marine fishes from the Peruvian Faunistic Province (central and northern Chilean coast plus the southern and central Peruvian coast, mainly influenced by the Chile-Perú cold current) is sparse and some taxa such as the Monogenea are poorly known.

The pioneer papers on Monogenea from Chile were written in 1896 and 1889 by Braun and von Linstow, respectively (see Price 1938). The next paper was written by Brinkmann (1952), and recent articles include those of Suriano and Beverly-Burton (1979), Oliva (1987), and Villalba (1987 a,b). The scarcity also applies to Perú, where the first articles about Monogenea were those of Talcano (1974a,b). Recently Luque et al. (1991) published a checklist of parasites of marine fishes from Perú that includes 31 species of monogeneans. In the present paper, the description of three new species and two new combinations of monogeneans parasitic on marine fishes from Perú and Chile, are given.

MATERIALS AND METHODS

The fishes were obtained fresh from the fish market of Chorrillos, Perú (12° 30'S 76° 50'W), the fish market of Antofagasta, Chile (23° 42'S 70° 24'W), or were caught with gill nets in the vicinity of Antofagasta or in Caleta Constitucion (23° 28'S 70° 36'W). However, specimens of Sebastes capensis, were caught in 1972 in the Patagonian region (southern Chile) and specimens of their Monogenea were kindly sent to us by Raúl Castro (Univ. Antofagasta, Chile). Monogeneas were removed of the gills or body surface, fixed in 8% hot formalin, stained with Semichon's carmine or Delafield's haematoxylin, and mounted in Canada balsam. When necessary, sclerotized structures were examined from specimens mounted in Gray & Wess medium (Humason 1979). Drawings were made with the aid of a camera lucida. Measurements are given in millimeters (mm) (mean plus range in parenthesis), except when otherwise stated.


Descriptions
Capsalidae Baird, 1858
Internilocus sebastidis n.sp.
(Figs 1-4)

Host: Sebastes capensis (Scorpo)
Site of infection: gills
Locality: Chilean Patagonian shelf
Holotype: USNMHC 82034
Paratype: USNMHC 82036, MHNP 1102

Description: (based on three stained and mounted specimens). Total body length 2.3 (2.01-2.7), maximum width 1.34 (1.2- 1.50). Haptor a circular disc 1.26 (1.12 - 1.35) in diameter, joined to body proper by short peduncle. Ventral surface of haptor divided into 14 peripheral, 3 central loculi

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by 16 muscular septa (Fig. 1). Haptor with 14 peripheral hooks 0.019 long, two central robust sclerites, 0.13 long, with roots of central sclerites unequal (Fig. 2).

Prohaptor armed with two muscular suckers, each 0.5 in diameter. Pharynx 0.175 (0.17-0.18) long, 0.205 (0.20-0.21) wide. Two intestinal ceca, each branch with 5-7 lateral or median branches. Four ovoid, postovarian testes 0.20 (0.17-0.22) in diameter. Vas deferens ascending. Seminal vesicle

*Internilocusus sebastidis* n. sp. Fig. 1: holotype, ventral view. Fig. 2: central sclerite. Fig. 3: reproductive system. Fig. 4: egg.
formed by wider anterior portion of vas deferens. Cirrus sac 0.81 (0.80-0.83) long, with internal accessory gland. Genital atrium ventral, on left side of the body at level of posterior end of pharynx. Ovary globular, 0.26 (0.1-0.32) in diameter. Ootype, Mehlis gland conspicuous, associated with glandular field. Vaginal pore ventral, on left side of body (Fig. 3); short vaginal duct joins vaginae with seminal receptacle. Seminal receptacle anterior to vitelline reservoir. Vitellaria occupying body proper including testicular field. Eggs tetrahedral 0.12 long, with 1 polar filament. (Fig. 4).

Remarks: Internilocus was proposed by Surtano and Beverley-Burton (1979) for capsulids with 4 postovarian testes, a vaginal pore opening ventrally on the left side of the body, eye spots absent, and haptor divided into 14 peripheral and 3 central loculi. I. sebastidis is distinguished from I. chilensis, the only previously described species in the genus, by the more developed haptor and the body length/haptor diameter ratio (1: 1.7 in I. sebastidis n. sp.; 1: 5 in I. chilensis). In the new species the haptor overlaps the testes but in I. chilensis the haptor does not reach the testicular field. The haptoral sclerite in the new species has 2 developed roots, but in I. chilensis only 1 of the roots is developed. I. chilensis also differs from the new species in the total body length (I. sebastidis 0.74 - 1.15; I. chilensis 2.01-2.7), the size of the testes (I. sebastidis 0.054-0.100; I. chilensis 0.17-0.22) and cirrus sac (I. sebastidis 0.142-0.206; I. chilensis 0.80-0.83). Known species of Internilocus parasites Scorpianid fishes from the Southeastern Pacific coast of America.

DICLIDOPHORIDAE Cerfontaine, 1895

Hargicotyle concepcionensis (Villalba 1987) n. comb.

Remarks: this species was originally described from the sciaenid fish Sciaena delicosa from Concepcion, Southern Chile, as Choricotyle concepcionensis by Villalba (1987b). This species is transferred to Hargicotyle Mamaev 1972, since figures and description given by Villalba (1987b) agree well with the generic diagnosis of Hargicotyle. All known species of Hargicotyle are parasites of sciaenid fishes (Oliva & Luque 1989).

Neoheterobothrium insularis n. sp. (Figs 5-7)

Type Host : Paralycithys sp.(Bothiidae)
Site of infection: gills
Type locality : Juan Fernandez Islands, Chile
Holotype : USNMHC 82031
Description (Based on one specimen): body fusiform (Fig. 5); total length 15.6, maximum width 2.12. Haptor with 8 clamps (each 0.52 in diameter). Clamps with ring shaped anterior middorsal typical of genus (Fig. 6). Lappet not observed. Prohaptor with two suckers each 0.36 long. 0.26 wide; mouth subterminal, pharynx muscular, ovoid, 0.26 long, 0.17 wide; intestinal ceca with numerous lateral branches in body proper, extend into haptor, penetrate haptoral peduncles. Testes 99, spherical (each 0.13 in diameter) postovarian, intercecal. Vas deferens extending to level of ovary. Genital atrium , 0.82 in diameter, armed with 11 curved hooks with bifid bases (Fig. 7). Ovary bilobed, seminal receptacle ovate, parovarian. Vitelline follicles coextensive with ceca but do not penetrate peduncles. Eggs not observed.

Remarks: according to Mamaev (1987), Neoheterobothrium Price, 1943 includes the following species: N. affinis [Linton, (1898); N. exilis (Cranke, 1972); and N. syacii (Mamaev, 1987)]. Payne (1987) described an additional species, N. mcdonaldi, from the Mexican Pacific coast. N. insularis n. sp. differs from N. affinis in testicular number (less than 50 in N. affinis, 99 in N. insularis); the general body shape (isthmus between body proper and haptor is very long in N. affinis) and the root of the spines in the genital atrium (bifid in the new species, pointed in N. affinis). The new species can be separated from N. exilis on general body shape and comparative length of the clamp peduncles, the total body length/haptor length ratio (1:4.5 in the new species, 1:2.5 in N. exilis) and by the number of testes (30-45 in N. exilis). The new species can be distinguished from N. syacii, by the pharynx length/oral sucker length ratio (1.4 in N. syacii, 1:1.5 in the new species), the number of genital atrium spines (8 in N. syacii, 11 in the new species) and by the number of testes (28-42 in N. syacii). N. insularis can be differentiated from N. mcdonaldi by the number of genital atrium spines (5-6 in N. mcdonaldi), the number of testes (16-19 in N. mcdonaldi) and the position of the seminal receptacle (postovarian in N. mcdonaldi, parovarian in N. insularis).

MICROCYOTYLIDAE Taschemberg, 1879

Intracotyle neghmei (Villalba, 1987) n. comb.

Remarks: this species was originally described by Villalba (1987b) as Neobivagina neghmei on the basis of material from the haemulid Anisotremus scapularis from Arica (18°30'S, 69° 50'W) and Pan de Azucar (26°09'S, 70°42'W) in northern Chile. We were able to obtain specimens of this species from the same host from Antofagasta (intermediate between Arica and Pan de Azucar) and Callao, Peru. Specimens agree well with the description of Villalba, but closely resemble Intracotyle Mamaev, 1970, since the armature of the genital atrium (see Mamaev, 1977) is typical of this genus and is not present in Neobivagina Dillon and Hargis, 1965. The new combination Intracotyle neghmei is proposed.
Neoheterobothrium insularis n. sp. Fig. 5: holotype, ventral view. Fig. 6: clamp. Fig. 7: genital atrium.
Loxura pernensis n. sp. Fig. 8: holotype, ventral view Fig. 9: armature (hook) of lappet. Fig. 10: clamp. Fig. 11: cirrus. Fig. 12: vagina
AXINIDAE Monticelli, 1893

Louxura peruensis n. sp.
(Figs 8-12)

Host: Belone scapularis (Jordan & Gilbert) (Belonidae)
Site of infection: gills
Locality: Chorrillos, Perú
Holotype: USNMH: 82038
Paratypes: USNMH: 81338 (Four stained whole mounts)

MHNP: TJ-246 (Two stained whole mounts)

Description (Based on six stained whole mounts): body subtriangular (Fig. 8), with asymmetrical haptor; haptor 5.57 (5.35-5.98) long, tapering gradually from haptor anterior end. Body width at testicular level 0.91 (0.78-1.00); haptor 1.94 (1.8-2.12) wide. Haptor with 80-102 clamps. Small lappet with two pairs of hooks at level of clamps 45-48 (from left to right in ventral view); hooks differ in size and shape (Fig. 9). Clamps (Fig. 10) of axinid type, 0.038 (0.03-0.045) long, 0.108 (0.102-0.115) wide; additional small sclerite occurs close to distal extremity of mid sclerite. Anterolateral sclerites not subdivided. Prohaptor with two suckers 0.06 (0.05-0.07) in diameter, without denticles; mouth subterminal; pharynx 0.02 (0.01-0.03) long, 0.03 (0.02-0.04) wide, esophagus slender; intestinal ceca with lateral, medial diverticula; intestinal bifurcation anterior to genital pore; ceca not confluent posteriorly. Testes intercelar, postovarian, 34 (31-37) in number, in 2 longitudinal rows that do not reach haptor. Genital atrium unarmed. Cirrus (Fig. 11) pineapple-shaped, 0.14 (0.13-0.15) long, armed with long narrow spines, similar in size. Ovary "J"-shaped; vitelline fields coextensive with intestinal ceca; vitelline ducts "Y"-shaped, joined at proovarian level. Vaginal pore (Fig. 12) ventrolateral anterior end sclerotized. Seminal receptacle, genito-intestinal ducts not observed. Eggs fusiform, with polar filament on each pole.

Remarks: Louxura was erected by Unnithan (1957) for those axinids with unarmed genital atrium and a pineapple-shaped cirrus densely covered with minute spines. The type species is Louxura ananaphallus, a parasite of the belonid Tylosurus leiurus from the Indian coast. To the best of our knowledge, no additional species has been described in the genus. The main differences of the species described herein include testes and clamp number (15 and 39 in L. ananaphallus, 31-37 and 80-102 in the new species, respectively).

The presence of an additional moon-shaped sclerite in L. peruensis and presence of a long basal spine in the cirrus in L. ananaphallus are further differentiating features.

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