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Monogeneans from the southern Pacific Ocean: Polyopisthocotyleids from the Australian fishes, the subfamily Microcotylinae

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Monogeneans from the southern Pacific Ocean. Polyopisthocolylids from Australian fishes. The Subfamily Microcotylinae

(Special note: Plate and figure enumeration differ from those in Russian version. Text, plate and figure numbers in this version match.)

by

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ABSTRACT: This seventh in a series of monogenetic trematodes from the Southern Pacific Ocean discusses nine species of Monogenea from Australian waters. Redescriptions are given for Microcotyle arripis Sandars, 1945, M. bassensis Murray, 1931, M. helotes Sandars, 1944, M. nemadactylus Dillon and Hargis, 1965, M. neozealanicus Dillon and Hargis, 1965, M. odacis Sandars, 1945, M. pentapodi Sandars, 1944, and M. temnodontis Sandars, 1945. New locality records are reported for all of the above. New host records are established for Microcotyle bassensis Murray, 1931 and M. neozealanicus Dillon and Hargis, 1965. Microtyle sp. from the gills of Acanthopagrus australis (Gunther) is reported.

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INTRODUCTION

This is the seventh paper of a series on monogenetic trematodes of fishes from the Southern Pacific Ocean. The scope, organization, and purpose are the same as for the first installment (Dillon and Hargis, 1965a). Specific information on the Australian collection can be found in part V of this series (Lawler and Hargis, 1968). Information on the genus Microcotyle van Beneden and Hesse, 1863 and the cognate species that were assembled (through 1969), together with host and locality data, was reported by Dillon (1969).

MATERIALS AND METHODS

Methods used in the preservation and the preparation of the monogenetic flukes for identification and study are essentially the same as those given by Dillon and Hargis (1965a). In indicating the measurements the mean is given, followed by the range (minimum and maximum) in parenthesis. The number of measurements used in the calculations appears in parenthesis before these data. All measurements are given in microns.

Camera lucida and microprojector drawings were used to facilitate identification and in preparation of the plates.

RESULTS AND DISCUSSION

Order Monogenea Carus, 1863

Suborder Polyopisthocotylea Odhner, 1912

Superfamily Microcotyloidea Unnithan, 1957

Family Microcotylidae Taschenberg, 1879

Subfamily Microcotylinae Monticelli, 1892

Genus Microcotyle van Beneden and Hesse, 1863

Microcotyle arripis Sandars, 1945

Host: Arripis georgianus (Valenciennes), Ruff; family Arripidae.

Habitat: Gills

Locality: Adelaide, South Australia (new locality record); 25 miles E of Adelaide, near Androssan (1-2 fms.; sand-weed).

Number examined: 67

Homeotypes: USNM Helm. Coll. No. 71942 (3 specimens).

Description: Body elongate, (8) 2,047 (1,684-2,530) long by (6) 500 (368-598) wide; body constricted at level of vaginal opening in some specimens. Buccal suckers septate, (18) 32 (29-37) long by (18) 38 (37-45) wide, with small, sclerotized, tooth-like papillae on rims. Posthaptor weakly delineated, (5) 797 (707-874) long, armed with 34-54 pairs of clamps in two nearly equal ventrolateral rows. Clamps (Fig. 3) similar in structure, dissimilar in size: middle clamps (14) 61 (56-70) long by (14) 39 (34-45) wide; posteriormost clamps (12) 38 (36-41) long by (12) 28 (26-30) wide.

Pharynx (12) 43 (38-47) long by (12) 42 (38-47) wide; esophagus relatively long, without diverticula. Gut bifurcating immediately behind genital atrium; crura not confluent posteriorly with left crus extending farther into posthaptor than right.

Testes postovarian, 13-22 in number; vas deferens sinuous, extending anteriorly in midline to bulbous, unarmed cirrus. Genital atrium (8) 177 (164-201) wide, located (3) 190 (177-270) from anterior end of body. Genital atrium consisting of an outer muscular rim and an inner portion armed with numerous spines. Genital atrium arrangement and armament as in Fig. 2. Atrial spines (10) 12 (10-16) long.

Ovary tubular, folded; distal end of oviduct expanded, apparently serving as a seminal receptacle. Vagina single, middorsal, unarmed, located (5) 434 (414-477) from anterior end of body; vaginal duct extending posteriorly for some distance prior to bifurcating and fusing with vitelline ducts to form vitellovaginal reservoir. Vitellaria coextensive with intestinal crura. Eggs fusiform with filaments at both ends; eggs (3) 240

(233-248) long by (3) 83 (68-92) wide.

Discussion: Sandars (1945) described Microcotyle arripis from the gills of the same host, Arripis georgianus, collected from Western Australia. The above redescription is given because the original figures and description are incomplete. The present population differs from that described by Sandars (1945) as follows: (1) body 368-598 wide rather than 720 wide, (2) posthaptor 707-874 long rather than 528 long, (3) clamps larger, (4) buccal suckers septate rather than aseptate, (5) buccal suckers 29-37 long by 37-45 wide rather than 16 long by 64 wide, (6) eggs slightly longer, and (7) vaginal pore present, opening middorsally.

Microcotyle bassensis Murray, 1931

(PLATE I, Figs. 4-6)

Hosts: Platycephalus bassensis (Type Host), sand flathead; P. haackei (new host record); P. caeruleopunctatus, longnose flathead (new host record) and Neoplatycephalus macrodon (Ogilby), Tiger Flathead (new host record). Family Platycephalidae.

Habitat: Gills.

Localities: Platycephalus bassensis from Hobart, Tasmania (new locality record); 15 miles ENE Hobart (6 fms.; sand-weed). P. caeruleopunctatus from Tweed Heads, New South Wales (new locality record); 12 miles SE of Tweed Heads (12-16 fms.; mud). P. haackei from Port Kenney, South Australia (new locality record); 9 miles NW Port Kenney (1 fm., sand-rock). Neoplatycephalus macrodon from Ulladulla, New South Wales (new locality record); 6 miles SE of Ulladulla (65 fms.; mud).

Number examined: 129

Homeotypes: USNM Helm. Coll. Nos. 71943 (from P. bassensis, 1 specimen) and 71944 (from P. haackei, 2 specimens).

Description: Body elongate, fusiform, (20) 4,704 (3,726-5,704) long by

(20) 819 (593-1,260) wide. Buccal suckers septate, (22) 53 (45-65) long by (22) 65 (56-75) wide, with small, sclerotized, tooth-like papillae on rims. Posthaptor weakly delineated from body proper, (17) 1,392 (920-2,300) long, armed with 48-60 pairs of clamps in two nearly equal ventrolateral rows. Clamps (Fig. 6) similar in structure, dissimilar in size: middle clamps (19) 74 (64-83) long by (19) 49 (42-57) wide; posteriormost clamps (19) 45 (42-51) long by (19) 34 (30-38) wide.

Pharynx (14) 51 (47-59) long by (14) 50 (45-56) wide; esophagus long with incipient diverticula. Gut bifurcating immediately behind genital atrium; crura not confluent posteriorly with left crus extending farther than right; only left crus extends into posthaptor.

Testes postovarian, 25-36 in number; vas deferens, usually wider and more tightly coiled posteriorly, extending anteriorly in midline to bulbous, unarmed cirrus. Genital atrium large, (15) 283 (230-368) wide, located (16) 311 (240-423) from anterior end of body. Genital atrium consisting of an outer muscular rim and an inner portion armed with numerous spines. Genital atrium arrangement and armament as in Fig. 5. Atrial spines (7) 12 (10-15) long.

Ovary tubular, folded; distal end of oviduct expanded, apparently serving as a seminal receptacle. Vaginal pore large, middorsal, unarmed, located (17) 866 (736-1,150) from anterior end of body; vaginal duct extending posteriorly for some distance prior to bifurcating and fusing with vitelline ducts, forming vitellovaginal reservoir. Vitellaria coextensive with intestinal crura. Eggs fusiform with filaments at both ends (measurements not possible).

Discussion: Murray (1931) originally described M. bassensis from the gills of Platycephalus bassensis collected from Port Phillip Bay, Victoria, Australia. Woolcock (1936) redescribed this species from specimens

forwarded to her by Murray. This redescription is given because the original description and previous redescription of the adult morphology are incomplete.

Microcotyle helotes Sandars, 1944

(PLATE III, Figs. 16-18)

Host: Helotes sexlineatus (Quoy and Gaimard), trumpeter; family Theraponidae.

Habitat: Gills.

Localtiy: (1) Carnarvon, Western Australia (new locality record); 2 miles E. of Cape Peron, Shark Bay (7 fms.; silt-sand-shell), (2) Carnarvon, Western Australia; 1/2 mile W of Cape Peron, Shark Bay (4 fms.; sand) and (3) Carnarvon, Western Australia; 22 miles NNE of Cape Peron, Shark Bay (9 fms.; sand-shell).

Number examined: 2 adults; 1 juvenile

Homoeotypes: USNM Helm. Coll. No. 71945 (2 specimens).

Description: Body elongate, fusiform, (2) 1,670(1,610-1,730) long by (2) 282 (235-329) wide. Buccal suckers septate, (2) 44 long by (2) 60 wide, with sclerotized tooth-like papillae on rims. Posthaptor not sharply delineated, (1) 610 long, armed with 27-30 pairs of clamps in two nearly equal ventrolateral rows. Clamps (Fig. 18) similar in structure, dissimilar in size; middle clamps (4) 53 (51-55) long by (4) 37 (34-39) wide; posteriormost clamps (3) 40 (38-42) long by (3) 27 (25-28) wide.

Pharynx (2) 39 (38-40) long by (2) 36.5 (35-38) wide; esophagus relatively long, without diverticula. Gut bifurcating immediately behind genital atrium; crura not confluent posteriorly with left crus extending farther than right.

Testes postovarian, 12-13 in number; vas deferens extending anteriorly in midline to bulbous, unarmed cirrus. Genital atrium (1) 88 wide, located

(2) 184 from anterior end of body; genital atrium consisting of an outer muscular rim of radiating muscle fibers and an inner portion armed with numerous spines. Genital armament as in Fig. 17. Atrial spines (2) 9 (8-10) long.

Ovary tubular, folded. Vagina single, middorsal, unarmed, located (2) 420 (366-472) from anterior end of body. Vitellaria coextensive with intestinal crura; transverse vitelloducts fusing medially to form Y-shaped vitelline reservoir.

Discussion: Microcotyle helotes was originally described from the gills of the same host, Helotes sexlineatus, collected from Swan River, Nedlands, Rockingham, and Safety Bay, Perth, Western Australia (Sandars, 1944). The above redescription is presented because the original figures and description of the adult morphology are incomplete. Our population differs from that described by Sandars (1944) as follows: (1) body, 1,610-1,730 long by 235-329 wide rather than 2,690-2,870 long by 380 wide; (2) posthaptor 610 long rather than 810-1,020 long; (3) clamps 27-30 pairs rather than 32 pairs; (4) buccal suckers slightly smaller; (5) testes 12-13 in number rather than 14; and (6) vaginal pore present, opening middorsally.

Microcotyle nemadactylus Dillon and Hargis, 1965

(PLATE II, Figs. 7-10)

Host: Nemadactylus macropterus (Bloch and Schneider), jackass fish; family Cheiladactylidae.

Habitat: Gills

Locality: Lakes Entrance, Victoria (new locality record); 45 miles ESE of Lakes Entrance (65-75 fms.).

Numbered examined: 49

Homeotypes: USNM Helm. Coll. No. 71946 (4 specimens).

Description: Body (19) 4,186 (3,588-5,410) long by (19) 797 (616-1,001)

wide. Buccal suckers septate, (20) 71 (63-85) long by (20) 94 (81-116) wide; rims with small, sclerotized, tooth-like papillae. Posthaptor armed with 45-55 pairs of clamps. Clamps (Fig. 9) similar in structure, dissimilar in size; anteriormost clamps (11) 83 (75-89) long by (11) 55 (48-60) wide; middle clamps (20) 102 (92-117) long by (20) 68 (51-80) wide; posteriormost clamps (20) 63 (57-76) long by (20) 45 (41-55) wide. Pharynx (20) 60 (50-70) long by (20) 58 (52-67) wide; esophagus with a few short diverticula. Crura extending into posthaptor with left crus slightly longer than right. Testes postovarian, 15-25 in number. Genital atrium consisting of an outer muscular rim of radiating muscle fibers and an inner portion armed with numerous spines. Atrial spines (20) 14 (11-18) long. Vagina single, middorsal, unarmed. Vitellaria coextensive with intestinal crura. Eggs (3) 215 (189-247) long by (3) 75 (58-92) wide with filaments at both ends. Other features as described by Dillon and Hargis (1965b).

Discussion: The Australian population, taken from the same host generally agrees morphologically with the New Zealand population previously described by Dillon and Hargis (1965b). The presence of transverse prohaptoral septa and esophageal diverticula and the extent of the crura are described for the first time.

It is likely that the buccal suckers of most, if not all, microcotylinids posses septa. That they are not visible in some species or even certain individuals of the same population may be attributed to the stains employed and, in some cases, to the orientation of the buccal suckers themselves. Consequently, the use of the presence or absence of these septa as a distinguishing character is discouraged.

Microcotyle neozealanicus Dillon and Hargis, 1965

(PLATE II; Figs. 11-15)

Host: Chloropthalmus nigripinnis Gunther, cucumber fish; family Sudidae

(new host record).

Habitat: Gills.

Locality: Lakes Entrance, Victoria (new locality record); 45 miles ESE of Lakes Entrance (65-75 fms.).

Number examined: 1.

Description: Body elongate, fusiform, (1) 3,082 long by (1) 863 wide. Prohaptor a pair of septate buccal suckers, (1) 58 long by (1) 62 wide, with sclerotized, tooth-like papillae on rims. Posthaptor not sharply delineated, (1) 697 long, armed with 28 pairs of clamps in two nearly equal ventrolateral rows. Clamps (Fig. 14) similar in structure, dissimilar in size; anteriormost clamps (1) 61 long by (1) 35 wide; middle clamps (2) 79 (76-82) long by (2) 42 wide; posteriormost clamps (1) 57 long by (1) 34 wide.

Pharynx (1) 63 long by (1) 59 wide; esophagus relatively long, without diverticula. Gut bifurcating immediately behind genital atrium; posterior limits of crura not observed.

Testes postovarian; number of testes not discernible. Vas deferens extending anteriorly in midline to bulbous, unarmed cirrus. Genital atrium (1) 147 wide, consisting of an outer muscular rim of radiating muscle fibers and an inner portion armed with numerous spines. Genital armament as in Figs. 12-13. Atrial spines (1) 9 long.

Ovary tubular, folded, shaped like an interrogation mark; distal end of oviduct expanded (apparently serving as seminal receptacle). Vagina single, middorsal, unarmed, located (1) 559 from anterior end of body. Vitellaria extending from level of gut bifurcation to anterior portion of posthaptor; transverse vitelloducts fusing medially to form Y-shaped vitelline reservoir.

Discussion: Dillon and Hargis (1965b) described Microcotyle neozealanicus from the gills of Helicolenus percoides Richardson collected 8 miles SSE of Cape Campbell, New Zealand. The worm described above, from

Chloropthalmus nigripinnis Gunther, agrees in most respects with the population described by Dillon and Hargis (1965b).

It should be noted that Chloropthalmus nigripinnis belongs to the order Scopeliformes, whereas Helicolenus percoides belongs to the order Perciformes. Since this single worm has been reported from a different order of fishes, every effort should be made to secure additional specimens from C. nigripinnis to verify this record.

Microcotyle odacis Sandars, 1945

(PLATE III; Figs. 19-21)

Host: Odax semifasciatus, Barred Rock Whiting; family Odacidae.

Habitat: Gills.

Localities: (1) Port Kenney, South Australia (new locality record); 9 miles NW of Port Kenney (1 fm.; sand-rock), and (2) Albany, Western Australia; Princess Royal Harbor (1 fm.; weed-sand).

Number examined: 321

Homoeotypes: USNM Helm. Coll. No. 71947 (5 specimens).

Description: Body elongate, fusiform, (20) 3,445 (3,174-4,022) long by (20) 644 (460-828) wide. Buccal suckers septate, (20) 49 (42-56) long by (20) 54 (49-60) wide, with small, sclerotized, tooth-like papillae on rims. Posthaptor not sharply delineated, (20) 1,108 (920-1,265) long, armed with 30-34 pairs of clamps in two nearly equal ventrolateral rows. Clamps (Fig. 21) similar in shape, dissimilar in size; anteriormost clamps (11) 60 (48-72) long by (11) 42 (33-49) wide; middle clamps (20) 80 (74-91) long by (20) 55 (45-61) wide; posteriormost clamps (15) 53 (49-59) long by (15) 41 (37-44) wide.

Pharynx (20) 62 (53-71) long by (20) 58 (51-67) wide; esophagus moderately long, without diverticula. Gut bifurcating immediately behind genital atrium; crura not confluent posteriorly with left crus extending

farther than right.

Testes postovarian, 13-20 in number; vas deferens relatively straight, extending anteriorly in midline to bulbous, unarmed cirrus. Genital atrium (14) 175 (141-198) wide, located (2) 230 (184-293) from anterior end of body. Genital atrium consisting of an outer muscular rim and an inner portion armed with numerous spines. Genital atrium arrangement and armament as in Fig. 20. Atrial spines (11) 10 (8-13) long.

Ovary tubular, folded; distal portion of oviduct expanded, apparently serving as a seminal receptacle. Vagina single, middorsal, unarmed, located (14) 577 (471-736) from anterior end of body; vaginal duct extending posteriorly for some distance prior to bifurcating and fusing with vitelline ducts, forming the vitellovaginal reservoir. Vitellaria coextensive with crura. Eggs fusiform with filaments at both ends; eggs (2) 248 (239-258) long by (2) 92 wide.

Discussion: Microcotyle odacis was originally described from the gills of the same host, Odax semifasciatus, collected from Albany, Western Australia (Sandars, 1945). The above redescription is given because the original figures and description of the adult morphology are incomplete. The present population differs from that described by Sandars (1945) as follows: (1) posthaptor 920-1,265 long rather than 880 long; (2) clamps larger, (3) buccal suckers 42-56 long by 49-60 wide rather than 80 long by 80 wide, (4) atrial spines 8-13 long rather than 16 long, (5) eggs 239-258 long rather than 152, and (6) vaginal pore present, opening middorsally.

Microcotyle pentapodi Sandars, 1944

(PLATE IV, Figs. 22-24)

Host: Pentapodus milii, Butterfish; family Lutjanidae.

Habitat: Gills.

Locality: (1) Carnarvon, Western Australia (new locality record); 2 miles

E of Cape Peron, Shark Bay (7 fms., silt-sand-shell) and (2) Carnarvon, Western Australia; 1/2 mile W of Cape Peron, Shark Bay (4 fms., sand).

Number examined: 4.

Homoeotypes: USNM Helm. Coll. No. 71948 (3 specimens).

Description: Body elongate, (3) 1,987 (1,619-2,410) long by (3) 331 (259-389) wide. Buccal suckers septate, (3) 43 (35-53) long by (3) 54 (44-60) wide, with sclerotized, tooth-like papillae on rims. Posthaptor weakly delineated from body proper, (3) 558 (478-690) long, armed with 21-26 pairs of clamps in two nearly equal ventrolateral rows. Clamps (Fig. 24) similar in structure, dissimilar in size; anteriormost clamps (3) 46 (42-50) long by (3) 29 (22-35) wide; middle clamps (4) 56 (52-59) long by (4) 36 (30-42) wide; posteriormost clamps (4) 37 (32-40) long by (4) 28 (27-29) wide.

Pharynx (2) 32 (31-33) long by (2) 32 (31-33) wide; esophagus relatively long, without diverticula. Gut bifurcating immediately behind genital atrium; posterior limits of crura not observed.

Testes postovarian, 12-13 in number; vas deferens extending anteriorly in midline to bulbous cirrus. Genital atrium (4) 141 (108-163) wide, located (3) 180 (152-216) from anterior end of body; genital atrium consisting of an outer muscular rim of radiating muscle fibers and an inner portion armed with numerous spines. Genital atrium arrangement and armament as in Fig. 23. Atrial spines (4) 9 (7-11) long.

Ovary tubular, folded. Seminal receptacle present, dorsal to genitointestinal canal. Vagina single, middorsal, unarmed, located (3) 456 (419-478) from anterior end of body; vaginal duct extending posteriorly for some distance prior to bifurcating and fusing with vitelline ducts, forming vitellovaginal reservoir. Vitellaria extending posteriorly from

level of vaginal pore, coextensive with intestinal crura. Eggs with filaments at both ends (measurements not possible because eggs were distorted).

Discussion: Sandars (1944) originally described Microcotyle pentapodi from the gills of the same host, Pentapodus milii, collected from Rockingham, Western Australia. The above redescription is given because the original figures and description of the adult morphology are incomplete. The present population differs from that described by Sandars (1944) as follows: (1) pharynx 31-33 long rather than 50 long. (2) testes 12-13 rather than 15, and (3) the vagina opens middorsally rather than on the right side at the level of the genital atrium.

Microcotyle temnodontis Sandars, 1945

(PLATE IV, Figs. 25-27)

Host: Pomatomus saltatrix (L.) [=Perca saltatrix; Temnodon saltator; Pomatomus saltator. See Weber and DeBeaufort (1931) for additional synonyms], Tailor; family Pomatomidae.

Habitat: Gills.

Locality: Carnarvon, Western Australia (new locality record); 2 miles E of Cape Peron, Shark Bay (7 fms.; silt-sand-shell).

Number examined: 9.

Homoeotypes: USNM Helm. Coll. No. 71949 (2 specimens).

Description: Body elongate, (4) 2,553 (2,116-2,082) long by (5) 429 (368-460) wide. Buccal suckers septate, (5) 40 (38-42) long by (5) 54 (51-55) wide, with small, sclerotized, tooth-like papillae on rims. Post-haptor (4) 978 (874-1,196) long armed with 50-60 pairs of clamps in two nearly equal ventrolateral rows. Clamps (Fig. 27) similar in shape, dissimilar in size; anteriormost clamps (3) 50 (46-52) long by (3) 40 (39-41) wide; middle clamps (4) 42 (37-45) long by (4) 33 (31-34) wide.

Pharynx (2) 38 (35-41) long by (2) 33 (29-37) wide; esophagus relatively long, without diverticula. Gut bifurcating immediately behind genital atrium; posterior limits of crura not observed.

Testes postovarian, 17-23 in number; vas deferens extending anteriorly in midline to bulbous, unarmed cirrus. Genital atrium (5) 151 (132-165) wide, located (2) 207 (170-244) from anterior end of body; genital atrium consisting of an outer muscular rim of radiating muscle fibers and an inner portion armed with numerous spines. Genital armament as in Fig. 26. Atrial spines (4) 11 (8-13) long.

Ovary tubular, folded. Vagina single, middorsal, unarmed, located (2) 577 (552-601) from anterior end of body. Vitellaria extending from level near gut bifurcation to level near end of testicular field; vitellaria not extending into posthaptor; transverse vitelloducts fusing medially to form Y-shaped vitelline reservoir.

Discussion: Sandars (1945) described Microcotyle temnodontis from the gills of the same host, Pomatomus saltatrix (=Temnodon saltator), collected from Western Australia. The above redescription is given because the original figures and description of the adult morphology are incomplete. The present population differs from that described by Sandars (1945) as follows: (1) posthaptor 874-1,196 long rather than 720 long, (2) clamps larger, (3) slight difference in size of buccal suckers, (4) pharynx 35-41 long by 29-37 wide rather than 30 long by 80 wide, and (5) buccal suckers septate rather than aseptate.

MacCallum's (1921) description of Microcotyle australiensis from Pomatomus saltatrix, the "tailer", collected at Sidney, Australia is inadequate. Comparison of MacCallum's figure and description of M. australiensis with the figures and descriptions of M. temnodontis indicate that these species are closely related. One major difference is that the vaginal opening of M. australiensis is armed. It is possible, especially

since Weber and DeBeaufort (1931, p. 305) list P. saltatrix and Temnodon saltator [the host name used by Sandars (1945)] as synonyms of Pomatomus saltator, that M. temnodontis is a synonym of M. australiensis. In an effort to solve this problem, an attempt was made to secure type material of M. australiensis from the USNM Helm. Coll. Unfortunately, this material was not available and therefore the question of whether M. australiensis and M. temnodontis are synonymous cannot be resolved.

Our population of worms from Pomatomus saltatrix is considered conspecific with Microcotyle temnodontis because examination indicates them to be closely related morphologically to the one described by Sandars (1945). It is recommended that someone with access to the type materials of these species, ideally to fresh collections from the hosts and localities in question, undertake to evaluate the question of synonymity.

Microcotyle sp.

Host: Acanthopagrus australis (Gunther), Yellowfin Bream; family Sparidae.

Habitat: Gills.

Locality: Noosaville, Queensland; 2 miles S of Noosa Heads, Weyba Lake (1 fm.; mud).

Number examined: 1.

Discussion: It is apparent that this worm belongs to the genus Microcotyle because of the presence of the following characters: (1) a single middorsal vaginal pore, (2) a genital atrium consisting of an outer muscular rim and an inner portion armed with numerous spines, (3) anchors absent in the adult specimen, and (4) numerous microcotylid-like clamps in two, nearly equal, ventrolateral rows. This single specimen was in such poor condition that species determination was impossible.

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EXPLANATION OF PLATE I

Microcotyle arripis Sandars, 1945

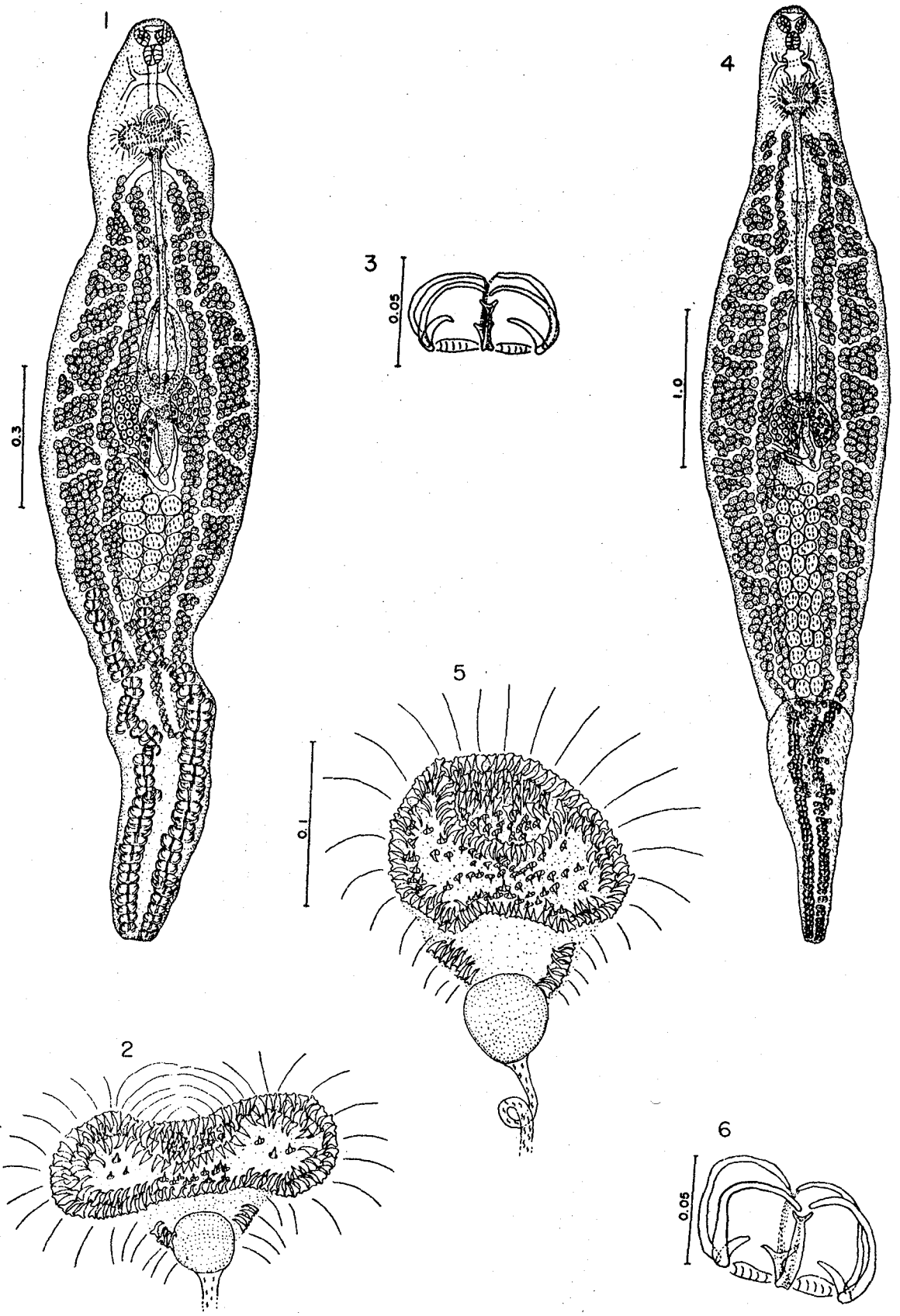
Figures:

1. Whole mount, ventral view.
2. Genital corona.
3. Clamp, ventral view.

Microcotyle bassensis Murray, 1931

Figures:

4. Whole mount, ventral view.
5. Genital corona.
6. Clamp, ventral view.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EXPLANATION OF PLATE II (after Dillon and Hargis, 1965b)

Microcotyle nemadactylus Dillon and Hargis, 1965

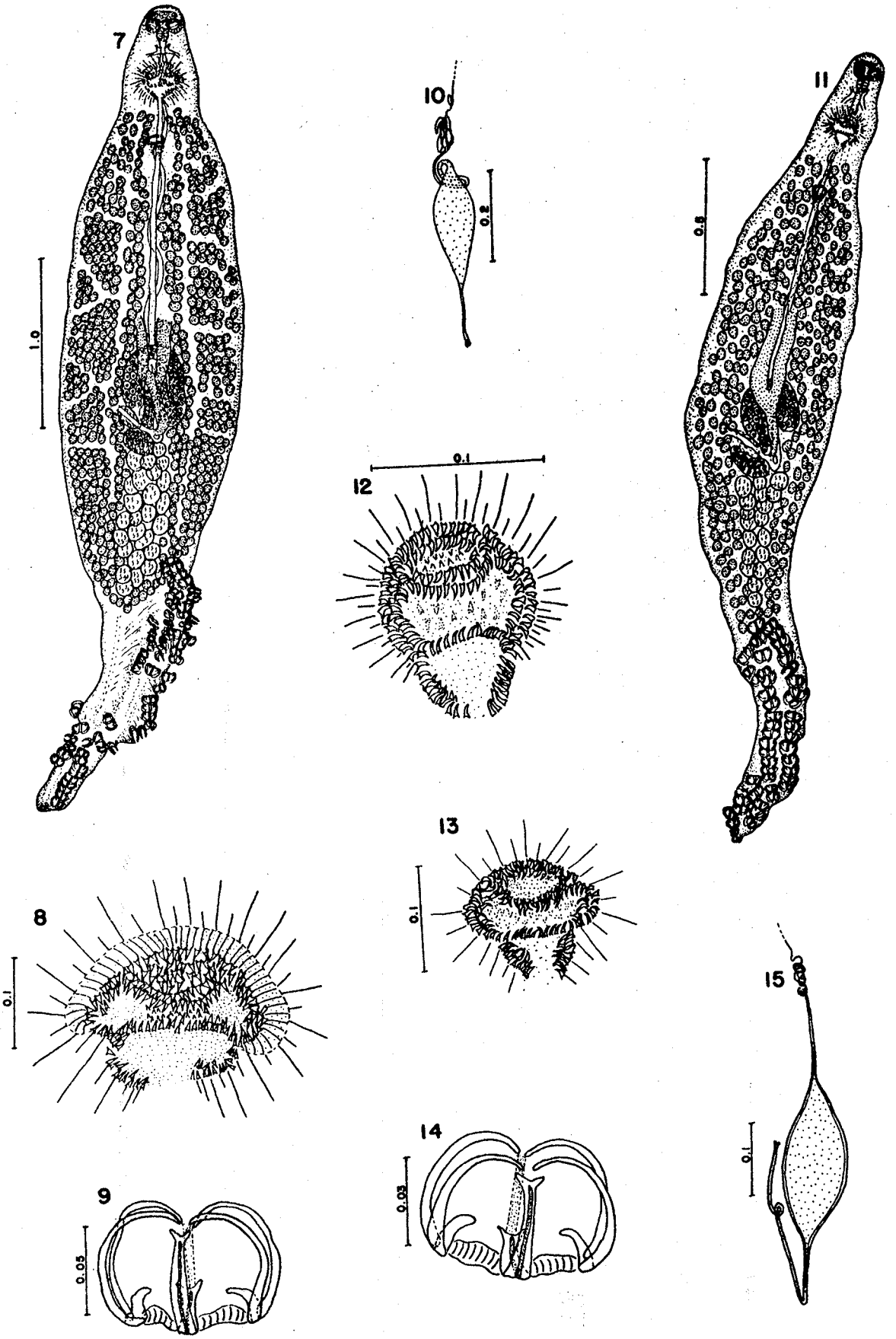
Figures:

7. Whole mount, ventral view.
8. Genital corona.
9. Clamp, ventral view.
10. Egg.

Microcotyle neozealanicus Dillon and Hargis, 1965

Figures:

11. Whole mount, ventral view.
12. Genital corona.
13. Genital corona.
14. Clamp, ventral view.
15. Egg.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9
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EXPLANATION OF PLATE III

Microcotyle helotes Sandars, 1944

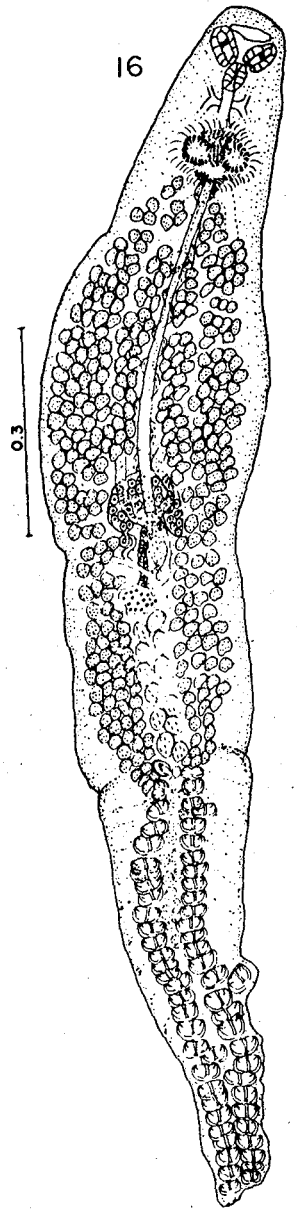
Figures:

16. Whole mount, ventral view.
17. Genital corona.
18. Clamp, ventral view.

Microcotyle odacis Sandars, 1945

Figures:

19. Whole mount, ventral view.
20. Genital corona.
21. Clamp, ventral view.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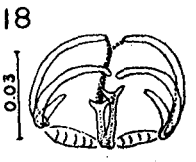
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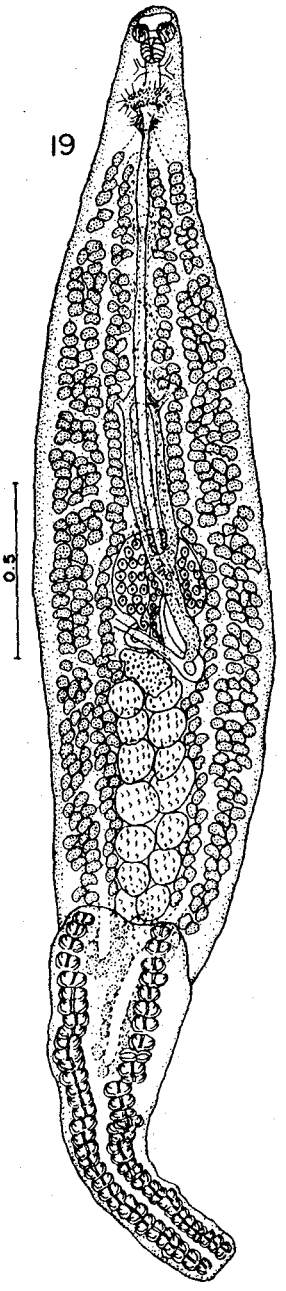
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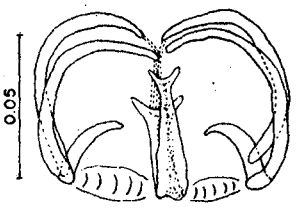
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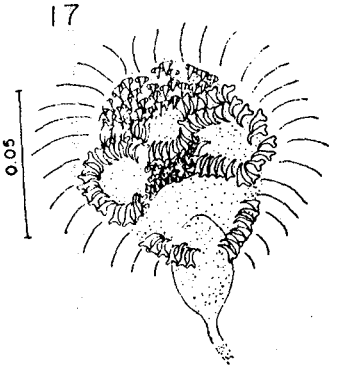
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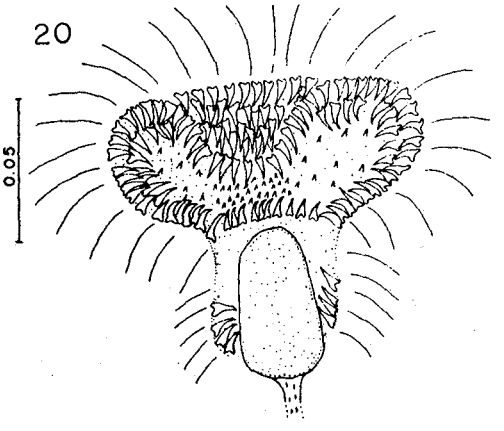
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EXPLANATION OF PLATE IV

Microcotyle pentapodi Sandars, 1944

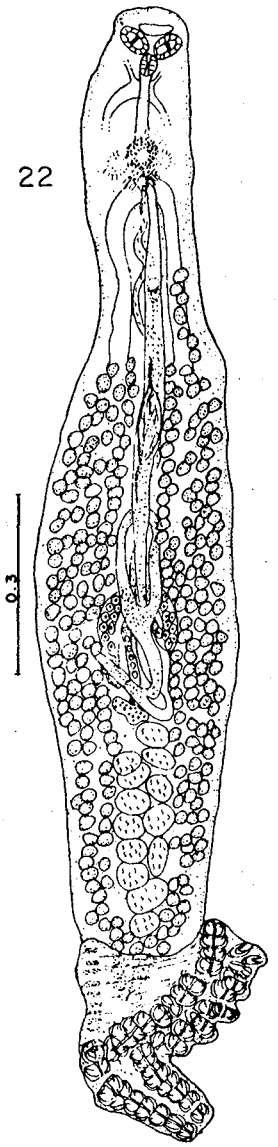
Figures:

22. Whole mount, ventral view.
23. Genital corona.
24. Clamp, ventral view.

Microcotyle temnodontis Sandars, 1945

Figures:

25. Whole mount, ventral view.
26. Genital corona.
27. Clamp, ventral view.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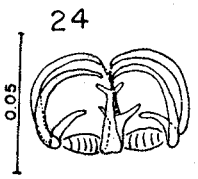
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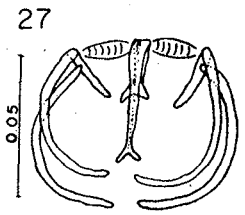
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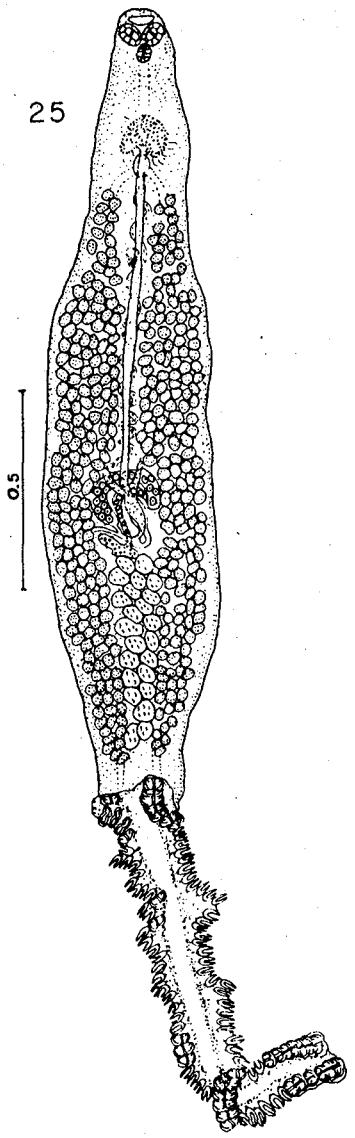
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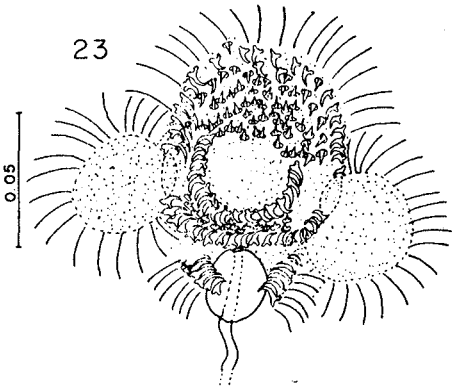
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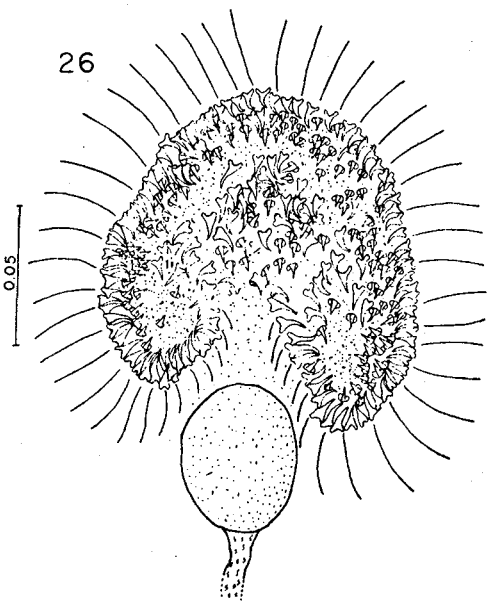
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