

On Three New Species of *Dactylostomum* Woolcock, 1935 (Trematoda : Opecoelidae) from the Red Sea Fishes

M. M. RAMADAN

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Introduction

The genus *Dactylostomum* was established by Woolcock (1935) and considered to be in the subfamily Coitocoecinae. The type species is *D. gracile* Woolcock, 1935 from *Myxus elongatus* from Australia. *Dactylostomum* agrees with the genus *Coitocoecum* Nicoll, 1915 in the absence of a receptaculum seminis and in the posterior union of the intestinal diverticula. Woolcock (1935) distinguished *Dactylostomum* from *Coitocoecum* in the peculiar nature of its actabulum. *Dactylostomum* differs also from the related genus *Opecoelina* Manter, 1934 only in the absence of an anus.

Although the characters of the terminal genital ducts and (the character) of the acetabulum are exactly as in some species of the genera *Opegaster* Ozaki, 1928 and *Opecoelus* Ozaki, 1925. However, Manter (1940) and Yamaguti (1971) classified *Dactylostomum*, *Opecoelus*, *Opegaster*, *Opecoelina* and *Coitocoecum* in the same subfamily Opecoelinae Stunkard, 1931 depending on shape and arrangement of acetabular marginal projections, presence of seminal vesicle, and nature of cirrus pouch for their differentiation.

Manter (1940) described the second species, *D. vitellosum*, based on a single specimen

This research was undertaken by the author while holding a post-doctoral scholarship from the Egyptian Ministry of Higher Education in Harold W. Manter Laboratory, Division of Parasitology, University of Nebraska State Museum, Lincoln 68508, U. S. A.

Department of Biology, Faculty of Education, Ain Shams University, Cairo, Egypt.

collected from an unidentified small, silver tide-pool fish at Gorgona Island, Colombia. *D. caballeroi* Martin, 1960 from *Pseudupe-
neus fraterculus* of Hawaii and recently, *D. winteri* Caballero and Caballero, 1971 from *Paralabrax maculatofasciatus* in Gulf of California, Mexico, have been described.

Materials and Methods

The identification of the fishes as well as the methods followed in the collection, fixation and staining of trematodes are described elsewhere (Ramadan, 1982). Drawings are made to the scale using a camera lucida. Measurements are in millimetres, unless stated otherwise.

The posterior end of the worms were cut into serial cross sections 7-8 μ m thick. These sections show that the posterior part of the united caeca has no connection to the outside i.e. anus is lacking.

During the present investigation, the author reported three species of the genus *Dactylostomum* in Red Sea fishes. These species are different from all other known species of the genus, and accordingly described herein as new species.

Descriptions and discussion

1-*Dactylostomum woolcocki* sp. n. (Fig. 1 A, B)

The description is based on a single specimen found in *Mulloidichthys auriflamma* locally called "Ambar baladi".

Body elongate, smooth, tapering anteriorly, rounded posteriorly. Tegument smooth. Body length 2.06, body width 0.28, body

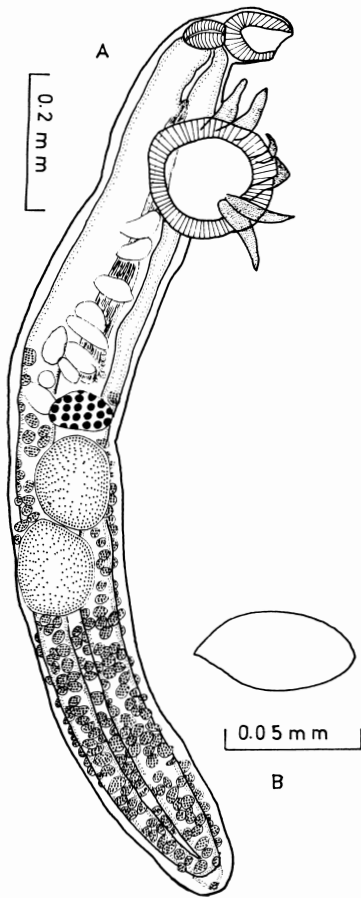


Fig. 1 *Dactylostomum woolcocki* sp. n.
A-Ventro-lateral view.
B-Egg.

length to body width ratio 7.35: 1. Oral sucker terminal, 0.15 long and 0.12 wide; prepharynx very short; pharynx well developed 0.09 long and 0.07 wide; oesophagus absent. Caeca united near posterior end of body, without anus; acetabulum well developed, short-stalked, muscular, 0.30 long and 0.28 wide, with 6 finger-like out growths; 0.16 long and 0.03 wide. Oral sucker to ventral sucker ratio 0.50: 1. Ventral sucker lies 0.24 from the anterior body end.

Testes tandem, approximately in midbody, entire, subspherical, without intertesticular space, anterior testis 0.19 long and 0.15 wide, posterior testis 0.20 long and 0.15 wide. Cirrus pouch very weak, enclosing only the short cirrus, seminal vesicle tubular, almost

straight, 0.56 long and 0.04 wide, extending backward to near anterior end of ovary and posteriorly supplied with few prostate cells. Genital pore median, anterior to acetabulum, 18 μ m in diameter.

Ovary transverse oval shaped, median, immediately anterior to testes, 0.07 long and 0.13 wide. Vitelline follicles from anterior border of ovary to posterior end of body, confluent behind testes, seminal receptacle lacking. Uterus between ovary and acetabulum with few eggs; eggs 61 μ m long and 13 μ m wide.

Dactylostomum woolcocki sp. n. differs from all the known species of the genus by the distribution and topography of the vitellaria, being confined to the posterior half of the body, from ovary to posterior body end. Moreover, it can be distinguished from the only related species, *D. gracile*, by the body shape, genital pore position, egg size and suckers ratio.

The author believes that these differences are sufficient to designate *Dactylostomum woolcocki* as a new species.

Host: *Mulloidichthys auriflamma*.

Location: Intestine.

Locality: Al-Ghardaga, Red Sea.

Holotype: Deposited in the Helminthological Collection, Zoology Department, Faculty of Science, Ain Shams University No. 337.

2-*Dactylostomum yamagutii* sp. n. (Fig. 2 A-E)

The description is based upon six specimens found in *Uponeus vittatus* locally called "Ambar tina" and *Mulloidichthys auriflamma* locally called "Ambar baladi".

Body elongate, smooth, 2.51-3.81 long and 0.23-0.33 wide, tapering anteriorly and posteriorly, body length to body width ratio varies from 11.54: 1. Oral sucker terminal, 0.08-0.12 long and 0.09-0.12 wide; acetabulum short stalked, lying 0.24-0.46 from anterior body end, 0.14-0.18 long and 0.16-0.17 wide, with eight small papilla-like elevations, each of 0.03-0.07 long and 0.01-0.02 wide; oral sucker to ventral sucker ratio 0.57-0.67: 1.

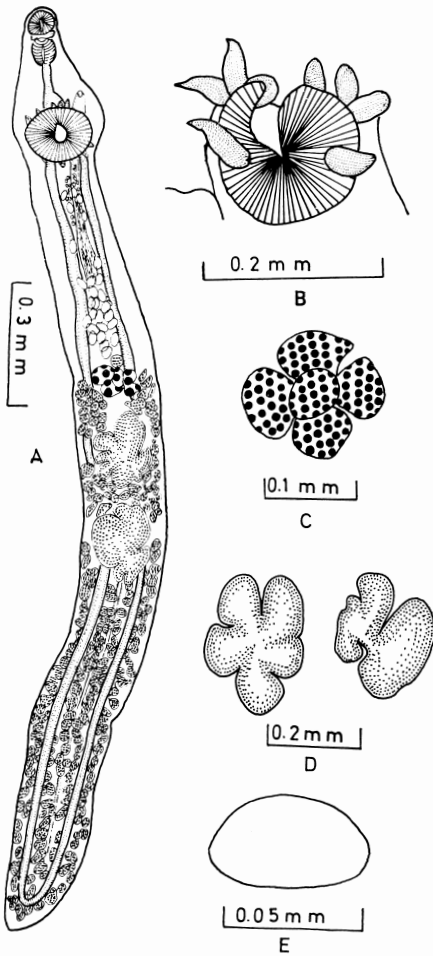


Fig. 2 *Dactylostomum yamagutii* sp. n.
 A-Ventral view (Holotype).
 B-Ventral sucker, lateral view (Paratype).
 C-Ovary, 5 lobes (Paratype).
 D-Testes, deeply indented (Paratype).
 E-Egg (from holotype).

Prepharynx very short, 0.01-0.02 long; pharynx 0.09-0.12 long and 0.05-0.10 wide; oesophagus 0.05-0.09 long; caeca uniting near posterior end of body, without anus.

Testes tandem, approximately in midbody, somewhat separated by vitellaria, intertesticular space 0.04-0.06 long, slightly indented; anterior testis 0.21-0.31 long and 0.16-0.23 wide; posterior testis 0.22-0.32 long and 0.17-0.23 wide. Cirrus sac lacking; portion of

male duct near genital pore elongated and thick walled, seminal vesicle elongate, reaching to about mid-way between acetabulum and ovary, 0.28-0.61 long and 0.05-0.06 wide, supplied with few prostate cells. Genital pore anterior to acetabulum, toward the left side, 35 μ m in diameter.

Ovary median, 0.10-0.15 long and 0.13-0.17 wide, distinctly lobed, with 5 lobes, lying 0.03-0.12 from anterior testis. Vitelline follicles distributed from ovary to posterior end of body, confluent between and behind testes; seminal receptacle absent. Uterus intercaecal, almost from ovary to acetabulum; 51-58 μ m long and 32-39 μ m wide.

Dactylostomum yamagutii sp. n. differs from all the known species of the genus by the distribution and topography of the vitellaria being confined to the posterior half of the body, from ovary to posterior body end, and also by the situation of the genital pore being immediately preacetabular and directed toward the left side and by the distinct ovarian lobes. Moreover, the new species differs from *D. vitellosum* Manter, 1940, *D. caballeroi* Martin, 1960 and *D. winteri* Caballero and Caballero, 1971 by body shape, shape and arrangement of acetabular outgrowths, and extension of vesicula seminalis.

The present author believes that all these differences are sufficient to designate *Dactylostomum yamagutii* as a new species.

Hosts: *Uponeus vittatus* and *Mulloidichthys auriflamma*.

Location: Intestine.

Locality: Al-Ghardaga, Red Sea.

Types: Deposited in the Helminthological Collection, Zoology Department, Faculty of Science, Ain Shams University, Nos. 338 (Holotype) from *V. vittatus* and 339 (Paratype) from *M. auriflamma*.

3-*Dactylostomum manteri* sp. n. (Fig. 3 A-C)

The description is based upon a single specimen recorded from *Pseudopeneus pleurospilos* locally called "Ambar baha".

Body elongate, smooth, 2.30 long and 0.30

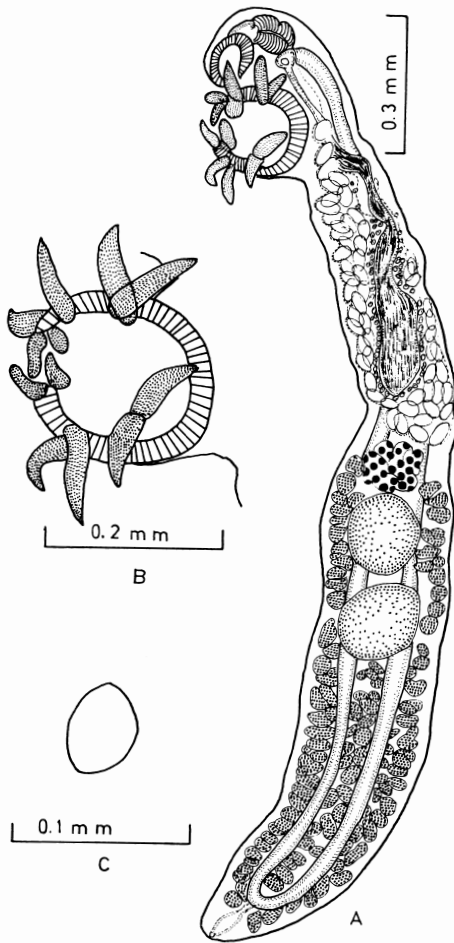


Fig. 3 *Dactylostomum manteri* sp. n.
A-Ventro-lateral view.
B-Ventral sucker.
C-Egg.

wide, fairly tapering anteriorly and posteriorly; body length to body width ratio 7.67:1. Oral sucker terminal, 0.13 long and 0.09 wide; acetabulum short-stalked; lying 0.30 from anterior body end, 0.20 long and 0.18 wide, with 12 tentacle-like outgrowths arranged in six pairs, each of 0.09 long and 0.03 wide; oral sucker to ventral sucker ratio 0.65:1. Prepharynx very short, 0.03 long; pharynx 0.10 long and 0.08 wide; oesophagus very short; caeca uniting near posterior end of body, without anus.

Testes tandem, approximately in midbody, entire, subspherical, with short intertesticular

space, 0.02 long; anterior testis 0.16 long and 0.15 wide; posterior testis 0.13 long and 0.11 wide. Cirrus sac lacking; seminal vesicle tubular, 0.60 long and 0.07 wide, extending backward to near anterior end of ovary; surrounded by very small prostate cells; cirrus elongated and weakly developed, 0.12 long. Genital pore median, immediately behind pharynx, 46 μm in diameter.

Ovary median, with compact lobes, immediately anterior to testes, 0.13 long and 0.14 wide. Vitelline follicles distributed from ovary to posterior end of body, confluent behind testes; seminal receptacle absent, uterus coiled, from ovary to genital pore; eggs 55 μm long and 41 μm wide.

Dactylostomum manteri sp. n. differs from all the known species of the genus by the number and arrangement of acetabulum outgrowths and the distribution and topography of the vitellaria. Moreover, *D. manteri* sp. n. differs from *D. gracile* by the lobed ovary and extension of the vesicula seminalis, from *D. caballeroi* by the shape and situation of ovary and testes, position of genital pore and oesophagus length, and also from *D. vitellosum* by the shape of ovary and testes, extension of vesicula seminalis and position of genital pore.

The present author believes that all these differences are sufficient to designate *Dactylostomum manteri* as a new species.

Host: *Pseudopenaeus pleurospilos*.

Location: Intestine.

Locality: Al-Ghardaga, Red Sea.

Holotype: Deposited in the Helminthological Collection, Zoology Department, Faculty of Science, Ain Shams University, No. 340.

Key to genus *Dactylostomum*

The present description of these species represents the first record of the genus *Dactylostomum* in the Red Sea.

The following key is suggested to distinguish between seven species known so far in the genus *Dactylostomum* Woolcock, 1935.

1-Vitellaria extending from posterior end of body to acetabulum...2

Vitellaria extending from posterior end of body to midway between ovary and acetabulum.....3

Vitellaria extending from posterior end of body to ovary only.....4

2-Vitellaria arranged in longitudinal rows; eggs measures 70-80 μm long*D. gracile*

Vitellaria not arranged in longitudinal rows; eggs measures 53-54 μm long only.....*D. vitellosum*

3-Vesicula seminalis saccular, extending toward the right side of the body, testes entire.....*D. winteri*

Vesicula seminalis elongate, tubular and coiled, extending toward the left side of the body, testes irregular.....*D. caballeroi*

4-Acetabulum with 6 finger-like outgrowths, testes and ovary smooth and without inter-testicular or inter-ovariotesticular spaces*D. woolcocki* sp. n.

Acetabulum with 8 papilla-like elevations, ovary lobed, testes indented and with inter-testicular and ovariotesticular spaces.....*D. yamagutii* sp. n.

Acetabulum with 12 tentacle-like outgrowths, testes smooth, ovary compact, lobed, and with inter-testicular space and without ovariotesticular space.....*D. manteri* sp. n.

Summary

The genus *Dactylostomum* is briefly reviewed with description of three new species from the Red Sea fishes: *D. woolcocki* sp. n. from *Mulloidichthys auriflamma*, *D. yamagutii* sp. n. from *Uponeus vittatus* and *Mulloidichthys auriflamma* and *D. manteri* sp. n. from *Pseudopeneus pleurospilos*. The new species are discussed with the known species of the genus and followed by a key to distinguish the congeneric species. The

present descriptions of these species represent the first record of the genus *Dactylostomum* in the Red Sea.

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紅海産の魚類に寄生するダクチロストムム属（オペコエルス科・
吸虫類）の3新種について

M. M. RAMADAN

(Department of Biology, Faculty of Education, Ain Shami University, Cairo, Egypt)

Dactylostomum 属は Coitocoecum 亜科に属するもので既知種として4種報告されていたが、今回、紅海産の魚類 (*Mullidichthys auriflamma*, *Uponeus vittatus*, *pseudopeneus pleurospiloe*) の腸管から新たに3種類の *Dactylostomum* に属する吸虫を得て、*D. wooli*

cocki sp. n., *D. yamagutii* sp. n. および *D. manter* sp. n. と命名し記載した。

今回の3新種と既知の4種、計7種を比較検討して検索表を提示した。本報告は紅海における *Dactylostomum* 属の初記録となる。