

***Gangatrema chauhani* n. g., n. sp. (Trematoda : Opecoelidae,
Plagioporinae) from the Intestine of a Fresh Water
Eel *Mastacembelus armatus* (Lac.)**

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Key words: *Gangatrema chauhani*, Opecoelidae, Plagioporinae, *Mastacembelus armatus*

Two specimens were collected from the intestine of a fresh water eel, *Mastacembelus armatus* (Lac.) from river Ganges at Varanasi, India. Out of 50 fishes, only 2 were found infected with this fluke.

The flukes were fixed under a slight pressure of coverglass in 90% alcohol or alcoholic Bouin's fluid. For the staining and mounting the usual procedure as described by Agarwal and Verma (1972) has been followed.

Gangatrema chauhani n. g., n. sp.
(Fig. 1 A, B, C)

Host : *Mastacembelus armatus* (Lac.)
Location : Intestine
Locality : River Ganga, Varanasi

Description*

Body smooth, elongated with rounded anterior and blunt posterior ends and measures 1.86-1.94 in length and 0.53-0.57 in width, Oral sucker subterminal, subspherical and measures 0.15-0.19×0.13-0.16. Ventral sucker pre-equatorial, more or less rounded, larger than oral sucker and measures 0.27-0.31×0.26-0.27. Prepharynx short. Pharynx globular, muscular and measures 0.08-0.09×0.11. Oesophagus short, measuring 0.11-0.15. Intestinal caeca reaching up to hind region of body where they unite.

Testes irregular or may be oval, tandem, post-equatorial, anterior testis measuring 0.21-0.23×0.12-0.19. slightly smaller than posterior one which measures 0.23-0.24×0.13-0.18. Cirrus sac prominent, very long, curved, extends from right side of equatorial region, encircling the entire postero-lateral side of ventral sucker and finally ends at the level of intestinal bifurcation extracaecally on the right intestinal caecum and it measures 0.82-1.10×0.11-0.13. It encloses a bilobed vesicula seminalis measuring 0.06-0.08×0.05-0.08, an oval pars prostatica surrounded with numerous prostate gland cells and a long narrow ejaculatory duct measuring 0.31-0.43×0.02. Genital pore submedian extracaecal, on the side of right caecum at the level of intestinal bifurcation.

Ovary triangular or somewhat irregular, pre-testicular measures 0.17-0.20×0.12. Receptaculum seminis pre-ovarian, median, sac-like and 0.13-0.15×0.03-0.05. Uterus limited, equatorial, confined in between the level of ovary to ventral sucker and opens at genital pore by metraterm. Shell glands numerous surround the ootype. Laurer's canal not seen. Vitelline follicles extend from the level of intestinal bifurcation up to hind region of body. Two vitelline ducts unite with each other before opening at ootype. Eggs ovoid, yellow, operculated without polar filaments and measures 0.054-0.068×0.041-0.054.

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* All measurements are in mm.

Excretory bladder tubular. Excretory pore at the hind end of body.

Discussion

In having well developed cirrus sac, absence of anus and position of vitelline follicles, the present form belongs to the subfamily Plagioporinae Manter, 1947 of the family Opcoelidae Ozaki, 1925. Yamaguti (1971) in his monographic work "Synopsis of Digenetic Trematodes of vertebrates" has recorded 22 genera under the subfamily Plagioporinae. Subsequently, two more genera have been added, *Anthochoanocotyle* by Kamegai (1972) and *Olivacreadium* by Bilgees (1975). Out of 24 genera, the present form comes closer to *Bathycreadium* Kabata, 1961 in having posteriorly united intestinal caeca. However, it chiefly differs from it in the extension of vitelline follicles also in fore body, in the location of genital pore and by having well developed cirrus sac.

Therefore, in order to accommodate the present form, a new genus viz., *Gangatrema* is proposed with *G. chauhani* as the type species under the subfamily Plagioporinae Manter, 1947 of the family Opcoelidae Ozaki, 1925.

Gangatrema n. g.

Generic diagnosis :

Opcoelidae, Plagioporinae. Body elongate, unarmed. Oral sucker subterminal, smaller than ventral sucker. Ventral sucker spherical and pre-equatorial. Prepharynx present. Pharynx globular and muscular. Oesophagus short, tube-like. Intestinal bifurcation at a distance from ventral sucker, caeca united at posterior extremity of body. Testes post-equatorial and tandem. Cirrus sac prominent, elongated, curved, extending from right side of equatorial region ends extracaecally on right caecum at the level of intestinal bifurcation, containing bilobed vesicula seminalis, oval pars prostatica and a long ejaculatory duct. Genital pore extracaecal, submedian on the right side, just at the level of intestinal bifurcation. Ovary pre-testicular, post-

equatorial and triangular. Receptaculum seminis saccular. Laurer's canal not seen. Vitelline follicles in fore and hind body. Eggs large, operculated, without polar filament. Excretory bladder short, tubular

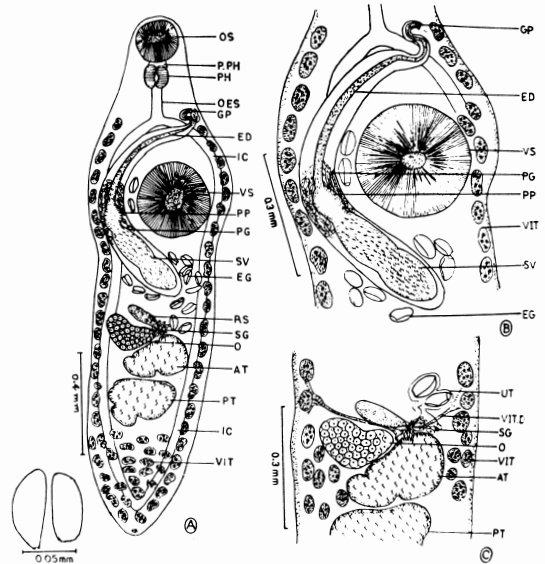


Figure 1 *Gangatrema chauhani* n. g., n. sp.
 A. Dorsal view
 B. Cirrus sac enlarged
 C. Ovary and ootype (drawn from live specimen)

Key to lettering in figures :

- AT -Anterior testis
- ED -Ejaculatory duct
- EG -Egg
- GP -Genital pore
- IC -Intestinal caecum
- O -Ovary
- OES -Oesophagus
- OS -Oral sucker
- PG -Prostate gland
- PH -Pharynx
- PP -Pars prostatica
- PPH -Prepharynx
- PT -Posterior testis
- RS -Receptaculum seminis
- SG -Shell glands
- SV -Vesicula seminalis
- UT -Uterus
- VIT -Vitelline follicles
- VITD -Vitelline duct
- VS -Ventral sucker.

reaching to testes, with terminal pore. Intestinal parasites of fresh-water fishes.

Type species : *Gangatrema chauhani*
n. g., n. sp.

Key to the genera of the subfamily Plagioporidae Manter, 1947*

1. Excretory vesicle usually long, reaching to near intestinal bifurcation, or beyond it
Acetabulum pedunculate, overlapped by puckered margin of its stalk ;
Excretory vesicle not reaching up to intestinal bifurcation...*Podocotyloides*
Yamaguti, 1934
Acetabulum sessile
Excretory vesicle reaching up to pharynx ; oral sucker funnel-shaped ; ovary unlobed.....*Choanostoma*
Yamaguti, 1934
Excretory vesicle reaching up to intestinal bifurcation ; oral sucker simple ; ovary lobed or not Genital pore submedian ; excretory vesicle simple ; vitellaria extending into forebody
Genital pore prebifurcal...*Plagioporus*
(*Paraplagioporus*)
Yamaguti, 1939
Genital pore post-bifurcal
..... *Hamacreadium*
Linton, 1910
Genital pore median ; excretory vesicle branched anteriorly
..... *Pacificreadium*
Durio and Manter, 1969
Excretory vesicle not so long ; acetabulum pedunculate or not 2
2. Acetabulum with long stalk ; vitellaria in hind body.....*Pedunculacetabulum*
Yamaguti, 1934
Acetabulum sessile or subsessile ; vitellaria in hind body or fore-and hind body 3
3. Testes divided into 9 or 10 follicles ; vitellaria in fore-and hind body
Genital pore submedian ; eggs not filamented.....*Decemtestis*
Yamaguti, 1934

- Genital pore median ; eggs filamented
.....*Helicometrina*
Linton, 1910
Testes two ; vitellaria extensive or not
..... 4
4. Eggs filamented..... 5
Eggs not filamented..... 6
 5. Vitellaria more or less extensive, in fore-and hind body
Genital pore median, nearer to intestinal bifurcation than to acetabulum ; vitellaria extending from level of pharynx to posterior extremity.....
..... *Helicometra*
Odhner, 1902
Genital pore submedian, nearer to acetabulum than to intestinal bifurcation ; vitellaria commencing at level of intestinal bifurcation, terminating in front of testes*Helicometroides*
Yamaguti, 1934
Genital pore submedian, near pharynx ; two ani present.....*Neohelicometra*
Siddiqi and Cable, 1960
Vitellaria confined to hind body
Oral sucker goblet-shaped, terminal, much larger than acetabulum ; cirrus pouch claviform, not reaching posterior to acetabulum ; genital pore post-bifurcal*Allostenoopera*
Baeva, 1968
Oral sucker simple, subterminal, smaller than acetabulum ; cirrus pouch very long, reaching for posterior to acetabulum ; genital pore pre-bifurcal.....
.....*Stenoopera*
Manter, 1933
 6. Vitellaria in fore- and hind body 7
Vitellaria confined to hind body
Receptaculum seminis absent....*Cableia*
Sogandares-Bernal, 1959
Receptaculum seminis present
Caeca united posteriorly.....
..... *Bathycreadium*
Kabata, 1961
Caeca ending blindly
Acetabulum funnel-shaped, provided with semirosette-shaped hood-like flap.....*Anthochoanocotyle*
Kamegai, 1972

* Modified after Yamaguti (1971).

- Acetabulum simple or may be encircled by puckered margin of peduncle*Podocotyle*
(Dujardin, 1845)
Odhner, 1905
- Vitellaria confined to posterior half of body*Procaudotestis*
Szidat, 1954
7. Caeca united posteriorly.....
.....*Gangatrema* n. g.
Caeca ending blindly
Genital pore pre-acetabular
Cirrus pouch entirely pre-acetabular ;
ovary halfway between acetabulum
and anterior testis*Eucreadium*
Dayal, 1942
Cirrus pouch largely dorsal to acetabulum ;
ovary opposite to anterior testis
Ovary entire.....*Spinoplagioporos*
Skrjabin and Koval, 1958
Ovary follicular.....*Olivacreadium*
Bilqees, 1976
Genital pore median, at intestinal bifurcation ;
vitellaria extensive in forebody 8
Genital pore submedian, usually level
with oesophagus ; vitellaria not so extensive
in forebody.....*Plagioporus*
(*Plagioporus*) and (*Caudotestis*)
Stafford, 1904
8. Cirrus pouch very long, slender, reaching
posterior to acetabulum to near ovary ;
ovary entire.....*Peracreadium*
Nicoll, 1909
Cirrus pouch swollen posteriorly and not
reaching posterior to acetabulum ; ovary
lobed*Cainocreadium*
Nicoll, 1909

Summary

Gangatrema chauhani n. g., n. sp. is described from the intestine of a fresh water eel, *Mastacembelus armatus* (Lac.). It is characterized by posteriorly united intestinal caeca, a very long curved cirrus sac, extra-caecal genital pore on right side just at the level of intestinal bifurcation, and in the extension of vitelline follicles. It is assigned

to Plagioporinae Manter, 1947 in Opecoelidae Ozaki, 1925 on the basis of its general morphology and being closely related to *Bathycreadium* Kabata, 1961.

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トゲウナギ (*Mastacembelus armatus*) の腸から得た新吸虫
(*Gangatrema chauhani* n. g., n. sp.)

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インドのガンジス河産トゲウナギ 50 尾中 2 尾の腸から吸虫 2 虫体を得た。本種の一般体制は Opcoelidae 科の Plagioporinae 亜科の特徴を具えている。従来この亜科には 24 属が知られているが、本種の左右腸管が

後方で連結（肛門はない）している点では *Bathycreadium* 属に近似するが、卵黄巣の分布状態、生殖口の位置およびよく発達した長大な彎曲陰茎囊の状態に差異が認められ、新属、新種とした。