PART FIRST
MONOGENERA
FAMILY: ANCYROCEPHALIDAE
Thaparoclidus gomtius (Jain, 1952), Lim, 1996

(Plate No- 1)

Fig. A. Entire worm
Order : Monopisthocotylea

Family : Ancyrocephalidae

Genus : Thaparocleidus Jain, 1952

Thaparoclidus gomtius (Jain, 1952), Lim, 1996

(Plate No.1, Fig. A)

Two specimens of Thaparoclidus gomtius were collected from fresh water fish Wallago attu (Bl. & Schn.) of Betwa River, Jhansi.

Description:-

Body elongated, tapering at the ends, broadest in middle, 0.67-0.69 mm long, 0.14-0.16 mm wide. Cephalic reason broad, cephalic lobes well developed. Two pairs of eye spots, posterior pair larger, accessory granules present in cephalic region. Pharynx spherical, 0.04-0.06 mm long, 0.04-0.06 mm wide. Intestinal caeca simple, posteriorly united.

Testes, oval, post-equatorial, post-ovarian, intercaecal, 0.07-0.09 mm long, 0.05-0.07 mm wide. Vasdeferens arises from anterior end of testis, runs anteriorly to loop left intestinal caecum, forming long finger like seminal vesicle, which opens at base of copulatory tube by long ductus ejaculatorius. Copulatory complex comprised copulatory tube, accessory piece. Small chitinized copulatory tube, 0.06-0.08 mm long, 0.02-0.04 mm wide. Accessory piece foliate, 0.04-0.06 mm long, 0.02-0.04 mm wide, three prostatic reservoirs opens at base of copulatory tube.

Ovary, oval. Pre-testicular, intercaecal, equal to testis, at middle of the body and over lapping the testis, 0.07-0.09 mm log, 0.05-0.07 mm wide. Vitelline follicles, spherical or sub-spherical, dense, extending pharynx up to the haptor.
Haptor discoidal, deeply marked, 0.11-0.13 mm long, 0.11-0.13 mm wide. Haptor with two pairs of anchors, dorsal bar, paired ventral bar, seven pairs of similar hooks. Each anchor is with broad base, strong shaft, curved tips. Dorsal anchor bar, arck shaped 0.18-0.2 mm long. Dorsal bar straight, 0.12-0.14 mm long, 0.03-0.05 mm wide. Ventral bar, paired, each bar, 0.8-0.1 mm long, 0.02-0.04 mm wide. Chitinized funnel shaped vagina sinistral, vaginal tube short, seminal receptacle oval.

**Discussion:**

Jain (1952a) described *Haploleidus gomtius* Jain, 1952 from Wallago attu at Lucknow, which was transferred to *Thaparoleidus* by Lim (1996) as *T. gomtius* (Jain 1952) Lim, 1996. The present form resembles with *Haploleidus gomtius* but differs in having seven pairs of hooks, straight vas deferens which is not differentiated into seminal vesicle, ovary over-lapping testis, spherical and muscular pharynx, shape and size of body.

**Host** : *Wallago attu* (Bl. & Schn.)

**Location** : Gills

**Locality** : Betwa River, Jhansi
*Thaparoclidus pusillus* (Gusev, 1976) Lim, 1996

(Plate No- 2)

Fig. A. Entire worm
Order : Monopisthocotylea

Family : Ancyrocephalidae

Genus : *Thaparocleidus* Jain, 1952

*Thaparocleidus pusillus* (Gusev, 1976), Lim, 1996

(Plate No.-2, Fig. A)

Two specimens of *Thaparocidus pusillus* were collected from fresh water fish *Mystus seenghala* (Sykes.) of Baruasager Dam, Jhansi.

**Description:-**

Body elongated, tapering at the ends, broadest in middle, 0.72 - 0.74 mm long, 0.17-0.19 mm wide. Head, lobed, with four pairs of head organs, two pairs of eye spots, posterior pair larger, accessory granules present in head region. Pharynx, muscular, oval, 0.05-0.07 mm long, 0.04-0.06 mm wide. Intestinal caeca simple, posteriorly united.

Testes, oval, elongated post-equatorial, post-ovarian, intercaecal, 0.07-0.09 mm long, 0.05-0.07mm wide. Vasdeferens arises from anterior end of testis, runs interiorly to loop right intestinal caecum, forming long finger like seminal vesicle, which opens at base of copulatory tube by long ductus ejaculatory. Copulatory complex comprised copulatory tube, accessory piece. Small chitinized copulatory tube, 0.14-0.16 mm long. One prostatic reservoir opens at base of copulatoys tube.

Ovary, oval. Pre-testicular, intercaecal, equal to testis, at middle of the body and over lapping the testis, 0.08-0.1 mm log, 0.05-0.07 mm wide. Vitelline follicles, spherical or sub-spherical, dense, extending pharynx up to the haptor.

Haptor discoidal, deeply marked, 0.14-0.16 mm long, 0.18-0.2 mm wide. Haptor with two pairs of anchors, dorsal bar, paired ventral bar,
seven pairs of similar hooks. Each anchor is with broad base, strong shaft, curved tips. Dorsal anchor bar, arck shaped 0.21-0.23 mm long. Dorsal bar straight, 0.11-0.13 mm long. Ventral anchor, 0.09-0.1 mm long. Ventral bar, paired, each bar, 0.11-0.13 mm long, 0.07-0.09 mm wide. Hooks, 0.06-0.08mm long. Chitinized, funnel shaped vagina sinistral, vaginal tube elongated, seminal receptacle oval.

Discussion:-

*Thaparocidus pusillus* described by Gusev, 1976. Present form resembles wit *T. pusillus* but differs in having, position and shape of ovary and testis, position of copulatory tube, straight vasdeferens, oval pharynx and different shape and size of the body.

Host : *Mystus seenghala* (Sykes.)

Location : Gills

Locality : Baruasager Dam, Jhansi
DIGENEA
FAMILY:

BUCEPHALIDAE
Bucephalus vachaii n. sp *

(Plate No- 3.)

Fig. A. Entire worm.
Fig. B. Egg enlarged.
Order : Digenea Van Beneden, 1858
Family : Bucephalidae Poche, 1907
Genus : Bucephalus Bear, 1826

*Bucephalus vachaii* n. sp *

(Plate No- 3, Figs. A & B)

Two specimens of this form were collected from the intestine of a fresh water fish *Eutropiichthys vacha* (Ham.) from Baruasager Dam, Jhansi.

**Description:**

Body, long, elongated, tubular, aspinose with pointed anterior end and rounded posterior end, 0.77-0.79 mm long, 0.17-0.19 mm wide. Anterior sucker, spherical, rounded, 0.08 - 0.1 mm long, 0.08 - 0.1 mm wide. Pharynx, oval, muscular, post-equatorial, 0.02 - 0.04 mm long, 0.03 - 0.05 mm wide. Oesophagus, tubular, small, 0.04 - 0.06 mm long, 0.03 - 0.05 mm wide. Intestine, sac like, elongated, pre-equatorial, 0.09 - 0.11 mm long, 0.04 - 0.06 mm wide.

Testes two, oval, post-ovarian, tandem on the right side of the intestine, anterior testis smaller than posterior testis, anterior testis, 0.07 - 0.09 mm long, 0.06 - 0.08 mm wide, at 0.38 - 0.4 mm from anterior extremity. Posterior testis, 0.09 - 0.11 mm long, 0.07 - 0.09 mm wide, at 0.49 - 0.51 mm from anterior extremity.

Abstract of this paper is published and full length paper is in a process for the publication in *National Zoology Congress* 29-31, December 2008.
Ovary rounded or spherical, pre-testicular, pre-equatorial, 0.06 - 0.08 mm long, 0.07 - 0.09 mm wide, at 0.19 - 0.21 mm from anterior extremity. Cirrus sac elongated, tubular, cylinder shaped, 0.29 - 0.31 mm long, 0.08 - 0.1 mm wide, extend from one forth part of anterior testis up to hind end of body. Vesicula-seminalis, sac like, 0.04 - 0.06 mm long, 0.02 - 0.04 mm wide. Parsprostatica, long, tubular, 0.11 - 0.13 mm long, 0.02 - 0.04 mm wide surrounded by large number of prostate gland cells. Ejaculatory duct small, 0.08 - 0.1 mm long, terminating into genital opening through genital pore.

Vitellaria follicular, in two lateral rows 17-18 on right side, 16-17 on left side, extending from posterior margin of anterior sucker up to anterior margin of ovary. Vitelline ducts join lateral, opening into ootype, surrounded by large no of Mehli’s gland cells. Egg, small, oval, non operculated 0.01-0.02 mm long, 0.01-0.02 mm wide.

**Discussion:**

For many species of the genus Bucephalus Baer, 1826 are reported from India viz., B. aoria Verma, 1936; from Aroia aroia; B. jagannathai Verma, 1936 from Cyrobium guttai; B. tridentacularia Verma, 1936 from Aroia aroia and Mystus seenghala; B. barina Srivastava, 1938 from Scatophagus argus; B. gangeticus Srivastva, 1938 from Pseudotropius athenoides and Mystus seenghala; B. indicus Srivastava, 1938 from Mystus seenghala; B. allahabodensis Srivastava, 1963 from Bagarius bagarius, B. bagarius Srivastava, 1963 from Bagarius bagarius; B. tritentacularis Srivastava, 1963 from Bagarius bagarius; B. octotentacularis Kakaji, 1969 from Wallaonia attu; B. hexzglandulate and B. multiglandulata, Pandey, 1970; B. elacatus Yadav, 1977 from Elacate nigra, B. bharatica and B. purshottami Kumar, 1979 from Bagarius bagarius and B. indica Agarwal and Agrawal, 1980 from

While working on Bucephalus S. C Agarwal collected few metacercaria recovered from the fish Eutropiichthys vacha from river Betwa district Jhansi, Bundelkhand region. He created a new species B. prasadi collected from metacercaria.

The present n. sp. is the adult trematode recovered from the intestine of the same fish Eutropiichthys vacha from Baruasager Dam district, Jhansi. The new species differs from B. Prasadi in the larger size, in having aspinose body and in the absence of tentacles.

The new species resembles with B. hamirpurensis in having rounded oval sucker but differs in having tubular oesophagus, larger pharynx and position of a testis. It also differs in the host as it is collected from Eutropiichthys vacha instead of Nandus nandus. The present species also resembles with B. kanpurensis in having oval rounded pharynx, tandem elongated testes but differs in position of testes. Anterior testis is smaller than posterior testis instead of equal, in having small tubular ovary, instead of longer, small sac like pre-equatorial intestine instead of post-equatorial. The present form also bears a sac like vesiulaseminalis and elongated tubular cirrus sac extending up to the hind end of the body.
The new form also resembles with *B. anguilla*, in having elongated body, oval pharynx, large size of cirrus sac, presence of tubular pars-prostatica but new form differs from it, in absence of spines and tentacles, position and size of ovary which is pre-equatorial, position of cirrus sac which is parallel to posterior testis and extension of vitelline follicles posterior margin of oral sucker up to the anterior margin of ovary.

Therefore, it is considered as a new species and named *Bucephalus vachaii* n.sp after the name of the host from which it was collected

<table>
<thead>
<tr>
<th>Host</th>
<th><em>Eutropiichthys vacha</em> (Ham.)</th>
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</thead>
<tbody>
<tr>
<td>Position</td>
<td>Body cavity</td>
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<tr>
<td>Locality</td>
<td>Baruasager Dam</td>
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<tr>
<td>New species</td>
<td><em>Bucephalus vachaii</em> n.sp*</td>
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</table>
*Neobucephalopsis jhansis* n. sp *

(Plate No- 4.)

Fig. A. Entire worm.

Fig. B. Egg enlarged.
Order : Digenea Van Benden, 1858

Family : Bucephalidae Poche, 1907


*Neobucephalopsis jhansiansis* n.sp. *

(Plate No- 4, Figs. A & B)

The specimens of this form were collected from the intestine of fresh water fish *Xenenthodon cancila* (Bl.) from Matatila Dam, Jhansi.

**Description:** -

Body pear shaped with rounded anterior end a pointed posterior end 0.45 mm-0.48 mm long, 0.42 mm-0.44 mm wide. Anterior sucker oval, elongated 0.08 mm-0.11 mm long, 0.16 mm-0.18 mm wide. Mouth middle of body, at 0.17 mm-0.19 mm from anterior extremity. Pharynx muscular, pre-equatorial 0.04 mm-0.06 mm long, 0.02 mm-0.04 mm wide. Oesophagus, short, pre-equatorial, 0.02-0.04 mm long, 0.01-0.02 mm wide. Intestine rounded, sac like, at middle of the body, 0.06-0.08 mm long, 0.07-0.09 mm wide, extending between ovary and cirrus sac.

Testis tandem, spherical, rounded, pre-equatorial anterior testis larger than posterior testis. Anterior testis 0.06-0.08 mm long, 0.06-0.08 mm wide, at 0.16-0.18 mm from anterior extremity. Posterior testis globular 0.06-0.08 mm long, 0.05-0.07 mm wide, at 0.21-0.23 mm from anterior extremity. Cirrus sac, pre-equatorial, sac like, 0.27-0.29 mm long, 0.07-0.09 mm wide. Seminal vesicle, Sac like, 0.05-0.07 mm long, 0.03-0.05 mm wide. Parsprostatica, long tubular, 0.14-0.16 mm long, 0.03-0.05 mm wide, surrounded by prostate gland cells. Ejaculatory duct small 0.04-0.05 mm long, 0.02-0.04 mm wide and opens through genital pore.
Ovary oval pre-testicular, pre-equatorial 0.07-0.09 mm long, 0.08-0.1 mm wide, at 0.12 mm-0.14 mm from anterior extremity. Vitellaria follicular in two lateral rows 9-11 on right side, 8-10 left side, extending from posterior margin of anterior sucker to ovary. Vitelline ducts joins laterally, opening into ootype, surrounded by a large number of Mehl’s gland cells. Egg, small, oval, non operculated, 0.01-0.02 mm long, 0.1-0.02 mm wide.

Discussion:-

The present form is referred to genus Neobucephalopsis Dayal, 1948. Gupta, 1955 added three species of this genus N. eutropiichthius, N. gauhatiensis and N. pseudotropei, Bashirulla and Hafizuddin, 1976 described one more species N. chupisomium of this genus. The new form is resembles with N. eutropiichthius, Gupta, (1955) and N. pseudotropei, 1976, in having ovary is larger than testes but differs from it, in having testes obliquely tandem or apart of each other, cirrus sac, curved extending posterior testis up to the hind end of body, the position of intestine is post-ovarian and left vitelline gland cells parallel to ovary and cirrus sac.

Therefore, it is considered as a new species Neobucephalus jhansiansis n. sp and named after the place from which the host was collected.

Table:

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<thead>
<tr>
<th>Host</th>
<th>Xenentodon cancila (Ham.)</th>
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<td>Position</td>
<td>Intestine</td>
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<td>Locality</td>
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<tr>
<td>New species</td>
<td>Neobucephalus jhansiansis n.sp*</td>
</tr>
</tbody>
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Taxonomical and pathological studies on Trematodes parasitic of some economically important fishes of Bundelkhand Region. 41
*Prosorynchoides canciliansis* n. sp *

(Plate No- 5)

Fig. A. Entire worm.

Fig. B. Egg enlarged.
Order : Digenea Van Beneden, 1858
Family : Bucephalidae Poche, 1907
Genus : Prosorynchoides Dollfus, 1929

Prosorynchoides canciliensis n. sp *

(Plate No- 5, Figs. A & B)

Three specimens of this form were collected from the intestine of a fresh water fish Xenentodon cancila (Ham.) from Pahuj Dam, Jhansi.

Description:

Body fusiform, sub-terminal, aspinose or smooth with rounded anterior end and bluntly pointed posterior end, 0.51-0.53 mm long, 0.32-0.34 mm wide. Anterior sucker terminal or sub-terminal, spherical or sub-spherical, oval 0.08-0.1 mm long, 0.11-0.13 mm wide. Pharynx muscular, oval, post-equatorial 0.03-0.05 mm long, 0.04-0.05 mm wide. Oesophagus tubular, small 0.04-0.06 mm long, 0.02-0.04 mm wide. Intestine sac like, elongated, post-equatorial, 0.07-0.09 mm long, 0.04-0.06 mm wide.

Testes tandem anterior testis is larger than posterior testis, slightly elongated, sub-oval, 0.09-0.11 mm long, 0.6-0.08 mm wide, at 0.21-0.23 mm from anterior extremity. Posterior testis, apart, spherical or rounded, 0.6-0.8 mm long, 0.6-0.6 mm wide, at 0.3-0.32 mm from anterior extremity.

Ovary, rounded, spherical, parallel to anterior testis, pre-equatorial, 0.05-0.07 mm long, 0.07-0.09 mm wide, at 0.2-0.22 mm from anterior extremity. Cirrus sac, long, cylindrical, curved, 0.21-0.23 mm long, 0.04-0.06 mm wide, extend from ovary to the hind end of the body. Vesicula-seminalis long, lobed, 0.04-0.06 mm long, 0.02-0.04 mm wide.
Parsprostatica long, tubular 0.09-0.1 mm long, 0.02-0.03 mm wide, surrounded by large number of prostate gland cells. Ejaculatory duct long, 0.04-0.06 mm long terminating into genital atrium, opening through genital pore.

Vitellaria follicular, in two lateral rows, 14-16 on right side, 12-14 on left side extending from posterior margin of anterior sucker or a little posterior to it, up to a little anterior to anterior margin of testis. Vitelline ducts join lateral, opening into ootype, surrounded by a large number of Mehli’s gland cells. Uterus is not seen. Egg small, spherical non operculated, 0.01-0.01 mm long, 0.01-0.01 mm wide.

Discussion:

The name *Bucephalooides* has been treated as a synonym of *Prosorhynchoides* by Srivastava and Chauhan (1972). The species includes under *Bucephalooides* has been transferred under the genus *Prosorhynchoides* Dollfus, 1929 with *P. ovatus* genotype. The new form differs from *Prosorhynchoides garuai* Verma, 1936, in having aspinose body; anterior testis is larger in size and equatorial, in presence of elongated post-equatorial oesophagus with pharynx, the position of the ovary which is parallel and equatorial of anterior testis and position of cirrus sac which is parallel to intestine.

Therefore, the new species considered as *Prosorhynchoides canciliansis* n. sp. as a large number of specimens collected from *Xenentodon cancila* (Ham.) from Pahuj Dam Jhansi.

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<td>Position</td>
<td>Intestine</td>
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<td>New species</td>
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*Bucephalus striatus* n. sp.*

(Plate No. 6)

Fig. A. Entire worm.

Fig. B. Egg enlarged.
Order : Digenea Van Beneden, 1858
Family : Bucephalidae Poche, 1907
Genus : Bucephalus Bear, 1826

*Bucephalus striatus* n.sp*

(Plate No- 6, Figs. A & B)

The four specimens of this form were collected from the intestine of fresh water fish *Channa striatus* (Bl.) from Paricha Dam, Jhansi.

**Description:** -

Body elongated spinose with tentaculated anterior end and bluntly pointed posterior extremity, 0.72-0.78 mm long, 0.15-0.189 mm wide. Anterior sucker oval, 0.09-0.11 mm long, 0.06-0.09 mm wide. Anterior rhynchus surrounded by five tentacles with broader at base and slightly pointed at free end. Mouth pre-equatorial in level of left side group of vitelline follicles at 0.36-0.38 mm from anterior extremity. Pharynx sub-spherical, muscular, 0.03-0.04 mm long, 0.02-0.03 mm wide. Oesophagus small, oval 0.06-0.07 mm long, 0.05-0.06 mm wide. Intestine elongated, saccular, 0.13-0.15 mm long, 0.06-0.08 mm wide, extending anterior to testis up to at the left side of ovary.

Testes, spherical or sub-spherical, tandem, close together and equatorial. Anterior testis, spherical, 0.05-0.08 mm long, 0.04-0.06 mm wide, 0.4-0.5 mm from anterior extremity. Posterior testis, sub-spherical, 0.06-0.09 mm long, 0.04-0.05 mm wide, 0.45-0.54 mm from anterior extremity. Cirrus sac long, elongated, tubular, 0.27-0.29 mm long, 0.05-0.07 mm wide extending up to middle of anterior testis up to hind end of body. Vesicula-seminalis rounded, 0.05-0.07 mm long, 0.03-0.05 mm wide. Pars-prostatica, tubular, 0.12-0.14 mm long, 0.03-0.05 mm wide,
surrounded by a large number of prostate gland cells. Ejaculatory duct, 0.04-0.06 mm long, terminating into genital atrium opens through sub-terminal genital pore.

Ovary spherical, pre-testicular, pre-equatorial, in the middle third of the body, 0.04-0.05 mm long, 0.04-0.05 mm wide, 0.03-0.34 mm from anterior extremity. Vitellaria follicular, pre-equatorial, 15-18 on right side, extended up to a little anterior or to anterior margin of the ovary. Vitelline duct and ootype not observed. Uterus extending two third of body length, coiled, opens at genital pore. Egg small, oval or subspherical, non operculated, 0.01-0.03 mm long, 0.01-0.02 mm wide. Genital pore sub-terminal at posterior end of body.

Excretory bladder, simple, tubular, excretory pore terminal.

**Discussion:**

So far many species of the genus Bucephalus Baer, 1826 are reported from India viz., B. aoria Verma, 1936 from Aroia aroia; B. jagannathai Verma, 1936 from Cyrophium guttatmi; B. tridentacularia Verma, 1936 from Aroia aroia and Mystus seenghala; B. barina Srivastava, 1938 from Scatophagus argus; B. gangeticus Srivastava, 1938 from Psedotropius athenoides and Mystus seenghala; B. indicus Srivastava, 1938 from Mystus seenghala; B. allahabadensis Srivastava, 1963 from Bagarius bagarius, B. bagarius Srivastava, 1963 from Bagarius bagarius; B. tritentacularis Srivastava, 1963 from Bagarius bagarius; B. octotentacularis Kakaji, 1969 from Wallaonia attu; B. elacatus Yadav, 1977 from Elacate nigra, B. bharatica and B. purshottami Kumar, 1979 from Bagarius bagarius and B. indica Agarwal and Agrawal, 1980 from Bagarius bagarius; B. yamaguit P.C. Gupta and R.B. Singh, 1989 from Caranx malabarius (Cuv. and Val.); B.

The present form differs from all known species in presence of rynchus like anterior sucker and number of tentacles, spinose body and relative size of various organs.

The new form closely resembles with **B. bandaensis**, in having spinose body and five tentacles. The new form differs from **B. bandaensis** in having tandem testis located in the mid region of the body, shape and size of the ovary, in the number of vitelline glands.

Therefore, it is considered as a new species and named *Bucephalus striatus* n.sp. after the host *Channa striatus* (Bl.) collected from Paricha Dam, Jhansi.

**Host** : *Channa striatus* (Bl.)

**Position** : Intestine

**Locality** : Paricha Dam

**New species** : *Bucephalus striatus* n.sp*
FAMILY: GORGODERIDAE
Phyllodistomum vachius Dayal, 1949

(Plate No- 7& 8)

Fig. A.  Entire worm.
Fig. B.  Egg enlarged.
Order : Digenea Van Beneden, 1858
Family : Gorgoderidae Looss, 1901
Genus : Phyllodistomum vachius Dayal, 1949

Phyllodistomum vachius Dayal, 1949

(Plate No. 7 & 8, Figs. A & B)

Five specimens of Phyllodistomum vachius, 1949 collected from urinary bladder and ureter of a fresh water fish Eutropiicthys vacha (Ham.) from River Betwa at Jhansi are recorded herein.

Description:-

Body spatulate, 0.124-1.48 mm X 0.86-0.96 mm, anterior part narrow and elongated 0.46-0.55 mm X 0.32-0.39 mm, posterior part expanded and nearly circular. Oral sucker oval, 0.16-0.20 mm X 0.19-0.20 mm; ventral sucker equal, slightly larger or smaller to oral sucker, 0.18 mm X 0.20mm. Pharynx absent, oesophagus tubular 0.09-0.12 mm, bifurculates into two intestinal caeca extending up to hind region of body.

Testes lobed, inter-caecal, post-equatorial; irregular shape, placed in expanded part of body. Right testis 0.11-0.12 mm X 0.05-0.07 mm, left testis 0.12-016 mm X 0.05-0.08 mm wide. Circus sac absent. Ovary lobed, Pre-testicular, 0.05-0.08 mm, X 0.07-0.1 mm, situated just behind right vitelline gland. Receptaculum seminis is absent. Vitelline glands two, lying behind ventral sucker, one on each side of body. Right vitelline gland slightly lobed, present just above ovary, 0.04-0.06 mm

long X 0.08-0.09 mm wide; left vitelline gland, 0.06-0.07 mm long X
0.05-0.06 mm wide. Eggs spherical, non operculated, 0.01mm long X
0.01 mm wide. Genital pore median, just behind intestinal bifurcation.
Excretory bladder sigmoid, with terminal excretory pore.

Discussion: -

Dayal (1949) described *Phyllodistomum vachius* from the urinary bladder of *Eutropiichthys vacha* at Lucknow. This appears to be another record of the species from type host but from different locality.

**Host** : *Eutropiichthys vacha* (Ham.)

**Position** : Ureter and Urinary bladder

**Locality** : Betwa river, Jhansi (U.P.)
Phyllodistomum laxmibai n.sp.*

(Plate No- 9)

Fig. A. Entire worm.
Fig. B. Egg enlarged.
Order : Digenea Van Beneden, 1858
Family : Gorgoderidae Looss, 1901
Genus : Phyllodistomum Braun, 1899

*Phyllodistomum laxmibai* n. sp*

(Plate No-9, Figs. A & B)

Three specimens of this form were collected from the intestine of fresh water fish *Xenenthodon canclila* (Bl.) from Matatila Dam, Jhansi.

**Description:-**

Body, aspinose, spatulate, divisible into a narrow, tubular fore body and expanded hind body, body 0.9 - 0.11 mm long and 0.2 - 0.4 mm wide with wavy margin. Anterior part of body narrow, elongated, 0.5 - 07 mm long ad 0.15 - 0.17 mm wide. Oral sucker, terminal, spherical, equatorial, 0.1 - 0.2 mm long and 0.08 - 0.09 mm wide. Pre-pharynx and pharynx are absent. Mouth leads into oesophagus. Oesophagus, tubular, 0.07 - 0.09 long, 0.02 - 0.04 mm wide, bifurcates into two simple unbranched intestinal caeca which extends up to the posterior end of the body. Ventral sucker spherical, inter-caecal, larger than oral sucker, 0.13 - 0.15 mm long and 0.13 - 0.15 mm wide.

Testes deeply lobed, inter caecal, sub equal, obliquely tandem, post equatorial, sub-equal, located in the broadest part of the body. Anterior testis 0.14 - 0.16 mm long and 0.09 - 0.11 mm wide. Posterior testis 0.14 - 0.17 mm long and 0.1 - 0.11 wide, at 0.68 - 0.7 mm from anterior extremity. Seminal vesicle, tubular, pre-acetabular, 0.08 - 0.1 mm long and 0.02 - 0.03 mm wide. Genital pore median just below the intestinal bifurcation, at 0.25 - 0.28 mm from anterior extremity.
Ovary lobed, median, pre-testicular, 0.15 - 0.17 mm long and 0.11 - 0.13 mm wide, at 0.58 - 0.6 mm from anterior extremity. Vitellaria two, large, unequal, and bean shaped, lying behind ventral sucker one on each side. Right vitelline gland, 0.05 - 0.07 mm long and 0.02 - 0.03 mm wide. Left vitelline gland 0.06 - 0.08 mm long, 0.04 - 0.06 mm wide. Right vitelline lobe present just above ovary. Eggs, oval, non-operculated, 0.02 - 0.03 mm long, 0.01 - 0.02 mm wide.

Excretory bladder, tubular, excretory pore median.

**Discussion:**

The new species resembles with *P. phulaenae* and *P. hardayali* U.K. Devedi and Rhabar Sultan, 1996, in having tubular oesophagus, spatula shape body but differs from in having oval oral sucker; oral sucker is smaller than posterior one.

The present form resemble with *P. phulaenae*, *P. hardayali* and *P. funduli* John Janovy, Tr, and John Ubelaker, 2003 in having lobed testis but differs from in having genital pore so far from intestinal bifurcation. The new species resemble with *P. funduli* in having amphitypic, lobed ovary but differs in having intestinal caeca extends from anterior up to posterior hind end of body, tubular seminal-vesicle and bean shaped vitelline glands.

Therefore, it is considered as n. sp. *P. laxmibai*. The name of sp. n was given in the memory of a great Indian freedom fighter Rani Laxmibai, the queen of district, Jhansi Bundelkhand region.

<table>
<thead>
<tr>
<th>Host</th>
<th><em>Xenentodon cancila</em> (Bl.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>intestine</td>
</tr>
<tr>
<td>Locality</td>
<td>Matatila Dam, Jhansi</td>
</tr>
<tr>
<td>New species</td>
<td><em>Phyllodistomum laxmibai</em> n.sp</td>
</tr>
</tbody>
</table>
Phyllodistomum betwaensis n.sp.*

(Plate No- 10)

Fig. A.          Entire worm.
Fig. B.          Egg enlarged.
Order : Digenea Van Beneden, 1858
Family : Gorgoderidae Looss, 1901
Genus : *Phyllodistomum* Braun, 1899

*Phyllodistomum betwaensis* n.sp.*

(Plate No-10, Figs. A & B)

Four specimens of this form collected from the intestine of fresh
water fish *Channa punctatus* (Bl.) from Betwa River, district Jhansi.

**Description:-**

Body spatulate, divisible in to a narrow tubular fore body and
expanded spatulate hind end of body, 1.4-1.6 mm long; 0.41-0.43 mm
wide with wavy margin. Anterior part of body, narrow, elongated, 0.81-
0.83 mm long 0.19-0.21 mm wide; posterior part of body, spatulated,
0.61-0.63 mm long, 0.41-0.43 mm wide. Oral sucker, terminal, slightly
oval, sub-spherical, mouth opening ventrally, no noticeable papillae on
oral sucker. Oral sucker, 0.15-0.17 mm long, 0.11-0.13 mm wide.

Pharynx and pre-pharynx are absent. Mouth leads into oesophagus;
oesophagus slightly curved tubular, 0.09-0.11 mm long, 0.03-0.05 mm
wide, and oesophagus bifurcates into two un-branched intestinal caeca
which extends up to the hind end of body.

Acetabulum or ventral sucker, oval, 0.23-0.25 mm long, 0.17-0.19
mm wide. Acetabulum is larger than oral sucker. Vitelline gland two,
posterior-lateral to acetabulum, oval, and rarely lobed. Right lobe of
the vitelline gland, 0.08-0.01 mm long, 0.03-0.05 mm wide. Left lobe of
vitelline gland, 0.05-0.07 mm long, 0.02-0.04 mm wide, at 0.86-0.88 mm
from anterior extremity. The distance between the two vitelline glands
0.03-0.05 mm at greatest width.

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*Taxonomical and pathological studies on Trematodes parasitic of
some economically important fishes of Bundelkhand Region.*
Testes located in the broadest part of the hind body, post-equatorial, tandem, inter-caecal and deeply lobed, present between the two intestinal caeca. Anterior testis 0.13-0.15 mm long, 0.1-0.12 mm wide, at 0.09-0.092 mm from anterior extremity. Posterior testis, 0.11-0.13 mm long, 0.08-0.1 mm wide, at 1.08-1.1 mm from anterior extremity. Anterior testis is larger than posterior one, parallel to ovary.

Ovary oval, post-equatorial, inter-caecal, just behind of right vitelline gland, parallel to anterior testis, 0.09-0.11 mm long, 0.06-0.08 mm wide, at 0.92-0.94 mm from anterior extremity. Seminal vesical, pre-acetabular, saclike in appearance, 0.17-0.19 mm long, 0.05-0.07 mm wide. Genital pore median just blow the intestinal bifurcation. Excretory bladder, saclular, excretory pore median. Eggs, oval, 0.02-0.04 mm long, 0.01-0.02 mm wide.

Discussion:-

The new form belongs to genus *P*. Brawn, 1899. The new species resembles with *P. folium*, *P. phulaena* U.K Dewedi and Rhabar Sultan, 1996, *P. hardayali* U. K. Dewedi and Rhabar Sultan, 1996 and *P. funduli* Jaclyn Helt, John Janovy, Jr., and John Ubelaker, 2003 in having aspinose spatulate body, but differs from having anterior sucker is smaller than acetabulum. The new species resembles with *P. luckowensis*, *P. funduli* in having amphitypic ovary but differs from in having tubular, curved oesophagus, right vitelline gland is larger than left one, in shape and size of the body and in having larger testis. The new form differs from P. funduli in having elongated seminal vesicle, in having anterior testis is larger than posterior one and extension of intestinal caeca anterior up to hind end of the body.
Therefore it is considered as a new species with specific name *P. betwaensis* n.sp. after the collection of host from river Betwa district Jhansi Bundelkhand region.

Host : *Channa punctatus* (Bl.)

Location : Intestine

Locality : Betwa River, Jhansi

New species : *Phyllodistomum betwaensis* n.sp.*
FAMILY:
ALLOCREADIIDAE
Allocreadium bundelkhandensis n. sp.*

(Plate No- 11)

Fig. A.    Entire worm
Fig. B.    Egg enlarged.
Order : Digenea Van Beneden, 1858
Family : Allocreadiidae Stossich, 1903
Genus : Allocreadium Looss, 1902

*Allocreadium bundelkhandensis* n.sp. *

(Plate No-11, Figs. A & B)

Five specimens of this form were collected from the intestine of a fresh water fish *Channa marulius* (Ham.) from the Baruasager dam of Jhansi (U.P.).

**Description:**

Body, elongated, aspinose with broad anterior and narrow posterior ends, 1.52-1.54 mm long, 0.38-0.4 mm wide. Oral sucker spherical, 0.16-0.18 mm long, 0.16-0.18 mm wide. Pre-pharynx absent; pharynx, oval, muscular, 0.05-0.07 mm long, 0.07-0.09 mm wide. Oesophagus, long, S-shaped, 0.08-0.1 mm long 0.03-0.05 mm wide. Intestinal caeca terminating at hind end of the body. Ventral sucker, spherical, rounded, intercaecal, pre-equatorial, smaller than oral sucker, 0.14-0.16 mm long, 0.14-0.16 mm wide.

Testes entire, oval, spherical, tandem, intercaecal, at middle of the body, anterior testis, 0.09-0.11 mm long, 0.07-0.09 mm wide. Posterior testis, 0.07-0.09 mm long, 0.09-0.11 mm wide. Cirrus sac, elongated, present at the middle of oesophagus up to the anterior level of ventral sucker, 0.21-0.23 mm long, 0.06-0.08 mm wide. Vesiculase seminalis, small, 0.08-0.1 mm long, 0.04-0.06 mm wide. Parsprostatica, small, 0.06-0.08 mm long and surrounded by a large number of gland cells. Ejaculatory duct, narrow, small, 0.04-0.06 mm long.
Ovary, oval, equatorial, close to anterior testis, 0.09-0.11 mm long, 0.06-0.08 mm wide. Vitelline follicles spherical or sub-spherical, extending at the level of intestinal bifurcation up to the hind end of the body. Uterus arises from ootype extending little anterior to anterior testis and than turns anteriorly and opens at genital pore. Eggs, large, few in number, operculated, 0.08-0.1 mm long, 0.05-0.07 mm wide. Genital pore, present at the level of oesophagus.

Excretory bladder cylindrical in shape, excretory pore terminal.

**Discussion:**

The present form resembles with *A. dograti, A. brevitellatum* in having oval ovary, tandem testis and oval pharynx but differs in the position of genital pore at the level of oesophagus instead of in middle of ventral sucker, extension of vitelline follicles at the level of intestinal bifurcation up to the hind end of body, presence of long and S-shaped oesophagus and position of cirrus sac extending middle of oesophagus up to anterior level of ventral sucker.

The present form resembles with *A. patagonicum* in having long and S-shaped oesophagus, sub-terminal oral sucker, tandem testis, excretory pore terminal and ventral sucker smaller than oral sucker but differs in having position of genital pore at the level of oesophagus, oval ovary, position of cirrus sac extending middle of oesophagus up to anterior level of ventral sucker, extension of vitelline follicles at the level of intestinal bifurcation up to the hind end of body and larger sized of operculated eggs.

In the view of these differences the present form is considered as a new species with a specific name *A. bundelkhandensis* n.sp.

The new species is named after the name of the region from which the host was collected.

**Host:** *Channa marulius (Ham.)*

**Location:** Intestine

**Locality:** Baruasager dam, Jhansi

**New species:** *Allocreadium bundelkhandensis* n.sp*"
Allocreadium punctatai n. sp.*

(Plate No- 12)

Fig. A. Entire worm
Fig. B. Egg enlarged.
Order : Digenea Van Beneden, 1858

Family : Allocreadiidae Stossich, 1903

Genus : Allocreadium Looss, 1902

Allocreadium punctatai n.sp*

(Plate No-12, Figs. A & B)

Two specimens of this form were collected from the intestine of a fresh water fish Channa punctatus (Bl.) from the Pahuj Dam of Jhansi (U.P.).

Description: -

Body elongated, smooth, with narrow posterior and broad anterior ends, 1.13-1.16 mm long and 0.28 mm long 0.3 mm wide. Oral sucker sub-terminal, oval 0.09 mm long, 0.13 mm wide. Ventral sucker spherical pre-equatorial smaller than oral sucker 0.1-0.12 mm long and 0.01-0.12 mm wide, at 0.27 mm from anterior extremity. Pre-pharynx absent. Pharynx ovoid muscular 0.04-0.06 mm long, 0.03-0.05 mm wide. Oesophagus, curved, tubular, 0.01-0.012 mm long. Intestinal caeca simple extending up to hind end of body.

Testes, oval, sub-spherical, tandem, pre-equatorial, post-ovarian, posterior testis is larger than anterior testis. Anterior testis, 0.12-0.14mm long, 0.1-0.12 mm wide, at 0.42 mm from anterior extremity. Posterior testis, oval 0.15-0.17 mm long, 0.11-0.13 mm wide, at 0.49 mm from anterior extremity. Cirrus sac elongated, extending pharynx up to anterior margin of ventral sucker. Vesicular seminalis bipartite 0.08-0.1 mm long and 0.02-0.04 mm wide. Pars-prostatica tubular, 0.04-0.06 mm long surrounded by large number of prostate gland cells. Ejaculatory duct small, narrow 0.03 mm long.
Ovary, oval, pre-testicular, pre-equatorial lying just behind the ventral sucker 0.18-0.2 mm long, 0.5-0.7 mm wide, at 0.34 mm from anterior extremity. Vitellaria follicular, extending from the posterior margin of ventral sucker up to the hind end of the body. Egg ovoid, operculated 0.02 mm long, 0.01 mm wide. Genital pore present at the level of pharynx.

Excretory bladder tubular, excretory pore terminal.

**Discussion:--**

The new species is resembles A. dogrii, A. brivivitellatum and A. patagonicum, in having terminal oral sucker, tandem testes, oval ovary but new form differ from all known species in the position of genital pore located in the level of pharynx and extension of cirrus sac pharynx up to the anterior level of ventral sucker and extension of vitelline follicles ventral sucker up to the little anterior to the hind end of the body. The present form also differs from A. patagonicum in having curved and tubular oesophagus instead of s-shaped.

In the view of these differences the present form is considered as a new species with a specific name *Allocreadium punctatai* n. sp.

The new species is named after the name of the host from which it was collected.

<table>
<thead>
<tr>
<th>Host</th>
<th><em>Channa punctatus</em> (Bl.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Intestine</td>
</tr>
<tr>
<td>Locality</td>
<td>Pahuj Dam, Jhansi</td>
</tr>
<tr>
<td>New species</td>
<td><em>Allocreadium punctatai</em> n.sp*</td>
</tr>
</tbody>
</table>
Allocreadium channaii n. sp.*

(Plate No- 13)

Fig. A. Entire worm
Fig. B. Egg enlarged.
Order : Digenea Van Beneden, 1858

Family : Allocreadiidae Stossich, 1903

Genus : *Allocreadium* Looss, 1902

*Allocreadium channaii* n.sp.*

(Plate No-13 Figs, A & B)

Three specimens of this form were collected from the intestine of a fresh water fish *Channa punctatus* (Bl.) from Pahuj Dam, Jhansi.

**Description:**

Body elongated, aspioose with blunt extremities, 1.3-1.33 mm long, 0.46-0.48 mm wide. Oral sucker sub-spherical, sub-terminal 0.11 mm-0.13 mm long, 0.12-0.15 mm wide. Pre-pharynx absent. Pharynx ovoid, 0.05-0.07 mm long, 0.04-0.06 mm wide. Oesophagus long, tubular, 0.05-0.06 mm long, 0.03-0.05 mm wide. Intestinal caeca simple, extending up to hind end the of body.

Excretory bladder tubular, excretory pore terminal. Genital pore sub median, lying between the intestinal bifurcation and acetabulum, at 0.24 mm from anterior extremity.

Testes sub-spherical, intercaecal, tandem, pre equatorial, anterior testis is larger than posterior testis. Anterior testis 0.09-0.1 mm long, 0.07-0.09 mm wide, at 0.47 mm from anterior extremity. Posterior testis 0.07-0.09 mm long, 0.07-0.09 mm wide. Cirrus sac, long, 0.18-0.2 mm long, 0.06-0.08 mm wide. Vesicular seminalis bipartite 0.08-0.1 mm long, 0.04-0.06 mm wide. Parasprostatic tubular, 0.04-0.06 mm long, surrounded by large number of prostate gland cells. Ejaculatory duct tubular, 0.03-0.05 mm long and open through a genital pore.
Ovary spherical, sub median, pre equatorial, left to ventral sucker 0.08-0.1 mm long, 0.06-0.08 mm wide, at 0.5-0.52 mm from anterior extremity. Receptaculum seminis pouch like situated posterior to ovary 0.18-0.2 long, 0.05-0.07 mm wide. Vitellaria follicular extending from the level of genital pore up to hind end of the body. Uterus arises from ootype, extends up to posterior testis then turns anteriorly and opens at genital pore. Eggs large, operculated 0.07-0.09 mm long, 0.04-0.06 mm wide.

**Discussion:**

The new species closely resembles to the *A. dogrii*, and *A. patagonicum* in having elongated and S-shaped oesophagus, in having entire testes in the extension of intestinal caeca up to the posterior end of the body. The new species can be distinguished from *A. Brevivitellatum* and *A. patagonicum* Shimazu, et all, 2000, in having smaller size of anterior and posterior sucker in the extension of intestinal caeca which is not up to the posterior tip of the body and in the small size of testes. The new species differs from *A. dograii* in having equatorial testes, in the extension of intestinal caeca for above the posterior testes, and in having different host.

In the view of these differences the present form is considered as a new species with a specific name *Allocreadium channaii* n.sp.

The new species is named after the name of the host from which it was collected.

<table>
<thead>
<tr>
<th>Host</th>
<th><em>Channa punctatus</em> (Bl.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Intestine</td>
</tr>
<tr>
<td>Locality</td>
<td>Pahuj Dam, Jhansi</td>
</tr>
<tr>
<td>New species</td>
<td><em>Allocreadium channaii</em> n.sp*</td>
</tr>
</tbody>
</table>
FAMILY:
AZYGIIDAE
Azygia mastacembelii n. sp.*

(Plate No- 14)

Fig. A. Entire worm
Fig. B. Egg enlarged.
Order : Digenea Van Beneden, 1858
Family : Azygiidae Odhner, 1911
Genus : Azygia Looss, 1899

*Azygia mastacebelii* n.sp.*

(Plate No-14, Figs. A & B)

Two specimens of this form collected from fresh water fish *Mastacebelus armatus* (Lecepede.) of Matatila Dam, Jhansi.

**Description:**

Body elongated, aspinose, dorsoventrally flattened with rounded at anterior end pointed at posterior end, 1.74-1.76 mm long, 0.61-0.63 mm wide. Oral sucker, sub-terminal, spherical, 0.24-0.26 mm long, 0.24-0.26 mm wide. Prepharynx absent; pharynx, oval, muscular, 0.07-0.09 mm long, 0.11-0.13 mm wide. Oesophagus short, 0.04-0.06 mm long, 0.03-0.05 mm wide. Oesophagus opens into intestinal caeca which runs posteriorly at hind end of the body. Ventral sucker, spherical, rounded, pre-equatorial, muscular, smaller than oral sucker, 0.17-0.19 mm long, 0.17-0.19 mm wide.

Testes, entire, intercaecal, post-equatoriaial, triangular, oval, apart of each other, in anterior third of the body, anterior testis, 0.05-0.07 mm long, 0.07-0.09 mm wide. Posterior testis, 0.06-0.08 mm long, 0.09-0.11 mm wide. Cirrus sac, secular, anterior to ventral sucker, 0.12-0.14 mm long, 0.07-0.09 mm wide. Vesiculaseminalis, small, 0.07-0.09 mm long, 0.05-0.07 mm wide. Parsprostatica, small, 0.03-0.05 mm long, 0.01-0.02 mm wide, surrounded by a large number of prostate gland cells. Ejaculatory duct, narrow, small, 0.02-0.04 mm long, 0.01-0.02 mm wide.
Ovary, oval shaped, pre-testicular, post-equatorial, tandem to anterior testis, equal to testis, and 0.06-0.08 mm long, 0.08-0.1 mm wide. Vitelline follicles, extracæcal, or intracæcal, extending from oesophagus up to the posterior level of the caeca. Uterus arises from ootype, intercaecal, extending up to ovary then turns anteriorly and opens at genital pore. Eggs oval, larger, operculated, 0.04-0.06 mm long, 0.02-0.04 mm wide. Genital pore post-bifurcal, anterior to ventral sucker.

Excretory bladder, Y-shaped, excretory pore sub-terminal.

Discussion:-

The present new form is referred to sub-genus Pseudoazygia Rai, 1962 of genus Azygia Looss, 1899. It resembles with Azygia (Pseudoazygia) stunkardi Rai, 1962 after Rai, 1964, Azygia papiliata S. R. Ubgade and S. M. Agarwal 1979, in having ventral sucker smaller than oral sucker, triangular tandem testis, but new form differ form A. stunkardi and A. papiliata in having ovary tandem to anterior testis, extending of vitelline follicles oesophagus up to the posterior level of intestinal caeca, presence of operculated eggs, posterior testis and ovary in equal size, presence of muscular, oval pharynx and position of intestinal caeca, extending up to the hind end of the body.

Therefore, a new species Azygia mastacembellii n.sp.* is form for its reception.

The new species is named after the host from which it was collected and added new host record in Bunmdelkhand region, Jhansi.

<table>
<thead>
<tr>
<th>Host</th>
<th>Mastacembelus armatus (Lacepede.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>stomach</td>
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<tr>
<td>Locality</td>
<td>Matatila Dam, Jhansi</td>
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<tr>
<td>New species</td>
<td>Azygia mastacembellii n.sp.*</td>
</tr>
</tbody>
</table>

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*Taxonomical and pathological studies on Trematodes parasitic of some economically important fishes of Bundelkhand Region.*
FAMILY:
OPECOELIDAE
Dactylostomum cuchia n. sp*

(Plate No- 15)

Fig. A. Entire worm
Fig. B Anterior portion of Ventral sucker showing tentacles
Fig. C. Egg enlarged.
Order : Digenea Van Beneden, 1858

Family : Opecoelinae Ozaki, 1925

Genus : Dactylostomum Woolcock, 1935

**Dactylostomum cuchia** n. sp*

(Plate No-15, Figs.A, B & C)

Two specimens of this form collected from fresh water fish *Amphipnous cuchia* (Ham.) of Matatila Dam, Jhansi.

**Description:** -

Body elongated, aspinose with Hammer headed anterior end, and rounded posterior end, 0.85-0.92mm long, 0.2-0.24mm wide. Oral sucker terminal, oval, 0.07-0.09 mm long, 0.04-0.06 mm wide. Pre pharynx short, 0.02-0.04 mm long 0.03-0.05 mm wide. Pharynx, oval muscular, 0.04-0.06 mm long, 0.03-0.05 mm wide. Oesophagus long 0.07-0.09 mm long 0.03-0.05 mm long, anus absent, ventral sucker pre-equatorial, muscular with four dactylae, larger than oral sucker, 0.12-0.14 mm long 0.14-0.17 mm wide.

Testes entire, oval obliquely tandem, post equatorial, anterior testis 0.14-0.17 mm long, 0.15-0.18 mm wide, posterior testis smaller than anterior testis, 0.07-0.09 m long, 0.12-0.14 mm wide. Vesicula- minalis elongated, lying freely in parenchyma, extends from anterior to ovary up to level of ventral sucker.

Ovary spherical or rounded, pre-testicular, overlapping the intestinal caeca, 0.09-0.11 mm long, 0.1-0.14 mm wide. Receptaculum seminis elongated 0.03-0.06 mm long, 0.05-0.07 mm wide. Vitelline

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follicles rounded, extending from level of genital pore up to posterior end of body. Uterus arises from ootype, intercaecal and opens at genital pore. Eggs large, oval, operculated, 0.04-0.06 mm long, 0.02-0.04 mm wide. Genital pore extracaecal at level of ventral sucker. Excretory bladder, tubular, excretory pore terminal.

Discussion:-

The present form belongs to genus *Dactylostomum* Woolcock, 1935 with type species *D. gracite* Woolcock, 1935. Many species of this genus previously describe are *D. vitellusum* Manter, 1940; *D. caballeroi* Martin, 1960; *D. jhansiensis* Agrawal and Agrawal, 1988; *D. yamaguti* Ramaan, 1985; *D. manteri* Ramadan, 1985; *D. harashi* Agawal and Agrawal, 1988 and *D. satpali* Sudhir kumar and H.C Agrawal, 1989. The present form differs from all known species of this genus in having short pedunculated ventral sucker with four dactyles; ventral sucker larger than oral sucker with four dactyls, extension of tubular vesiculaseminalis anterior to ovary up to the level of ventral sucker; position genital pore extracaecal; excretory bladder long, tubular and vitelline follicles extending from the level of genital pore up to posterior end of body. Therefore, a new species *Dactylostomum cuchia* n. sp. is formed for its reception. The new species is named *Dactylostomum cuchia* n. sp after the name of host from which it was collected for the first time from Matatila Dam, Jhansi.

Host : *Amphipnous cuchia* (Ham.)

Location : Intestine species:

New Locality : Matatila dam, Jhansi

New species : *Dactylostomum cuchia* n.sp.*
*Dactylostomum baruasagerii* n. sp*

(Plate No- 16)

Fig. A.    Entire worm
Fig. B.    Egg enlarged.
Order : Digenea Van Beneden, 1858
Family : Opecoelinae Ozaki, 1925
Genus : Dactylostomum Woolcock, 1935

*Dactylostomum baruasagerii* n. sp*

(Plate No-16, Figs. A & B )

Two specimens of a digenetic trematode were collected from fresh water fish *Mystus seenghala* (Skyes.) from Baruasager Dam, district Jhansi Bundelkhand region.

**Description:**

Body elongated, aspinose, anterior part of body is horse head shaped, and posterior end rounded, 0.09-0.11 mm long, 0.16-0.18 mm wide. Oral sucker terminal, spherical or sub spherical, 0.13-0.15 mm long, 0.13-0.15 mm wide. Pre pharynx short, 0.08-0.1 mm long, 0.03-0.05 mm wide. Pharynx oval, mucular, 0.06-0.18 mm long, 0.08-0.12 mm wide. Oesophagus short, 0.06-0.09 mm long, 0.04-0.06 mm wide. Intestinal caeca long, united near hind end of body. Anus absent. Ventral sucker pre-equatorial or slightly equatorial, muscular, larger than oral sucker with two dactylae, both oral, ventral sucker are parallel in position, 0.12-0.14 mm long, 0.11-0.13 mm wide.

Testes entire, rounded, obliquely tandem, post equatorial, both testes are slightly equal in size, anterior testis, 0.08-0.12 mm long, 0.09-0.11 mm wide; posterior testis 0.08-0.12 mm long, 0.08-0.12 mm wide. Cirrus sac, lacking. Vesicular seminalis, elongated, sac like, lying freely in parenchyma, extends from intestinal bifurcation up to the posterior end.

Abstract of this paper is published and full length paper is in a process for publication in “National Zoology Congress” 29-31 Dec.2008.
of ventral sucker, 0.17-0.19 mm long, 0.06-0.09 mm wide.

Ovary oval or spherical, median, pre testicular, 0.05-0.08 m long, 0.04-0.07 mm wide. Receptaulum seminis oval, 0.03-0.05 mm long, 0.05-0.07 mm wide. Vitelline follicles oval, rounded, extending from the level from pharynx up to the hind end of the body. Uterus arises from ootype, intercaecal and extracaeal, opens at genial pore. Egg large, oval, operculated, 0.04-0.07 mm long, 0.02-0.05 mm wide. Genital pore intercaecal present just below the intestinal bifurcation. Excretory bladder long sac like; excretory pore terminal.

**Discussion:**

The present form belongs to genus *Dactylostomum* Woolcock, 1935 with type species *D. gracite* Woolcock, 1935. Many species of this genus previously describe are *D. vitellusum* Manter, 1940; *D. caballeroi* Martin, 1960; *D. hansiensis* Agrawal and Agrawal, 1988; *D. yamaguti* Ramaan, 1985; *D. manteri* Ramadan, 1985; *D. harashi* Agawal and Agrawal, 1988; *D. satpali* Sudhir kumar and H. C Agrawal, 1989 and *D. cuchia* S.F. Siddiqui and Sen, 2008. The present form differs from all known species of this genus in having short pedunculated ventral sucker with two dactyls; size of ventral sucker which is larger than oral sucker, both oral and ventral sucker are parallel in position, extension of sac like vesiculaseminalis intestinal bifurcation up to the posterior end of ventral sucker, lying freely in parenchyma, excretory bladder long and saclike and extension of vitelline follicles pharynx up to the hind end of the body.

Therefore, a new species *Dactylostomum baruasagerii* n.sp. is formed for its reception. The new species is named after the name of host from which it was collected for the first time from Baruasager Dam, Jhansi.
<table>
<thead>
<tr>
<th>Host</th>
<th>Mystus seeghala (Skyes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position</td>
<td>Intestine</td>
</tr>
<tr>
<td>Locality</td>
<td>Baruasager Dam</td>
</tr>
<tr>
<td>New species</td>
<td>Dactylostomn baruasagerii n.sp*</td>
</tr>
</tbody>
</table>
Gangatrema matatilae n. sp.*

(Plate No- 17)

Fig. A. Entire worm
Fig. B. Egg enlarged.
Order : Digenea Van Beneden, 1858
Family : Opecoelidae Ozaki, 1925
Genus : *Gangatrema Agrawal and Agrwal, 1981*

*Gangatrema matatilae* n sp*

(Plate No-17, Figs. A & B)

Two specimens of this species are collected from fresh water fish
*Rita rita* (Ham.) from Matatila Dam, Jhansi.

**Description**:-

Body smooth, aspinose, elongated with rounded anterior, broad
posterior ends, 1.24-1.26 mm long, 0.46-0.48 mm wide. Oral sucker, sub-
terminal, oval, 0.08-0.1 mm long, 0.06-0.08 mm wide. Pre-pharynx
absent. Pharynx, oval, muscular, 0.04-0.06 mm long, 0.03-0.05 mm wide.
Oesophagus opens into the intestinal caeca, united at hind end of the
body. Ventral sucker, oval, pre-equatorial, 0.16-0.18 mm long, 0.11-0.13
mm wide, at 0.35-0.37 mm from anterior extremity.

Testes, entire, tandem, oval, post-equatorial, unequal; anterior
testis, 0.13-0.15 mm long, 0.2-0.22 mm wide; posterior testis larger than
anterior one, 0.18-0.2 mm long 0.24-0.26 mm wide.

Cirrus sac long, curved, extend at the level of intestinal bifurcation
up to a little anterior to ovary, 0.35-0.37 mm long, 0.05-0.07 mm
wide. Vesicula seminalis, 0.11-0.13 mm long, 0.03-0.05 mm wide. Pars-
prostatica small surrounded by a large number of prostate glandcells.
Ejaculatory duct narrow, 0.05-0.07 mm long.

Ovary, oval, post-equatorial, pre-testicular, 0.05-0.07 mm long,
0.09-0.11 mm wide, at 0.57-0.59 mm from anterior extremity. Vitelline
follicles extend from a pharynx up to hind end of the body. Uterus sac
like, opens at genital pore. Eggs, oval, non-operculated, 0.02-0.03 mm long, 0.03-0.05 mm wide. Excretory bladder tubular; excretory pore terminal.

**Discussion:**

The present form belongs to genus *Gangatrema* Agrawal and R. Kumar, 1981 with *G. chauhani* its genotype. So far *G. ritai*, H. C. Agrawal and G. P. Agrawal, 1989, *G. hanumanthai*, H. C. Agrwal and S. Kumar, 1989. The new species resembles with *G. ritai*, in having oval shape oral sucker but it differs in having oval ventral sucker. The new form also differs from *G. ritai* and *G. hanumanthai* in absence of pharynx and oesophagus long in size. The present form also resembles with *G. ritai* and *G. hanumanthai* in having oval shaped ovary, tandem to anterior testis. The new form differs from both species in presence of oval testis, in position of genital pore at the level of intestinal bifurcation; cirrus sac curved extends at level of intestinal bifurcation up to little anterior to ovary and vitelline follicle extending from pharynx up to the hind end of the body.

Therefore, it is regarded as a new species with a specific name *Gangatrema matatilae* n. sp. named after the name of place from which the fresh water fish *Rita rita* was collected.

**Host**: *Rita rita* (Ham.)

**Location**: Intestine

**Locality**: Matatila dam, Jhansi

**New species**: *Gangatrema matatilae* n.sp.*
*Neopodocotyle mastacembelii* n.sp.

(Plate No- 18)

Fig. A. Entire worm
Fig. B. Egg enlarged.
Order : Digenea Van Beneden, 1858
Family : Opecoelidae Ozaki, 1925
Genus : Neopodocotyle Dayal, 1944

Neopodocotyle mastacembelii n.sp. *

(Plate No.18, Figs. A & B)

Three specimens of this form were collected from the intestine of fresh water fish Mastacembelus armatus (Lacepède) from Matatila Dam, district Jhansi Bundelkhand region.

Description:-

Body elongated, smooth, aspinose, with narrow anterior end and broad posterior end, 0.93-1.1 mm long, 0.34-0.38 mm wide. Oral sucker terminal, sub-terminal or sub-spherical, 0.09-0.11 mm long, 0.08-0.1 mm wide. Pre-pharynx small, tubular, 0.04-0.06 mm long, 0.02-0.04 mm wide. Pharynx globular, muscular, 0.05-0.07 mm long, 0.06-0.08 mm wide. Oesophagus long, tubular, 0.09-0.1 mm long, 0.03-0.05 mm wide, dividing in to two un-branched intestinal caeca, reaching up to the hind end of the body. Ventral sucker oval, pre-equatorial, just blow the intestinal bifurcation and overlapping by cirrus sac, 0.09-0.11 mm long, 0.13-0.15 mm wide, at 0.32-0.34 mm from anterior extremity.

Testis elongated, post-equatorial, close or apart from each other, unequal, tandem. Anterior testis is larger than posterior testis. Anterior testis 0.06-0.08 mm long 0.17-0.19 mm wide, at 0.5-0.52 mm from anterior extremity. Posterior testis 0.08-0.1 mm long, 0.14-0.16 mm wide, at 0.6-0.62 mm from anterior extremity. Ovary oval, post-equatorial pre-testicular, 0.06-0.08 mm long, 0.08-0.1 mm wide, at 0.47-0.49 mm from anterior extremity.
Cirrus sac elongated, sac like, 0.28-0.3 mm long, 0.04-0.06 mm wide extends from right side of equatorial region, occupying the entire posterior-lateral margin of ventral sucker and finally ends at the middle level of oesophageal region on its right side, enclose, bilobed vesiculaseminalis, 0.14-0.16 mm long, 0.04-0.06 mm wide, an elongate pars-prostatica 0.09-0.11 mm long, 0.03-0.06 mm wide, surrounded with numerous prostate glands cells. Ejaculatory duct narrow, long, 0.03-0.05 mm, and opens by a small genital pore at the middle of oesophagus.

Vitelline follicles, spherical, sub-spherical, extend from little anterior to intestinal bifurcation up to hind end of the body. Eggs oval, operculated, 0.04-0.07 mm long, 0.01-0.02 mm wide.

Discussion:-

The genus *Neopodocotyle* was erected by Dayal in, 1944, in a note with *N. indica* as type species which was obtained from the intestine of *Callichrobus bimaculatus*. Its detailed account however, was published by him in 1950. Yamaguti, 1958 reduced it to a rank of subgenus under *Podocotyle* (Dujardin, 1845) Odhner, 1905 and placed under the sub-family *Allocreadinae* Looss, 1902 of the family *Allocreadiidae* (Looss, 1902) Stossich, 1903. However, Mehra (1966) retained *Neopodocotyle* as a distinct genus under sub-family Plagioporinae Manter, 1947 of the family Opecoelidae Ozaki, 1925. Furthermore, Pritchard (1966) transferred *M. indica* under the genus *Allocreadium* as A. indica. Subsequently, Gupta and Chakrabarti (1967) described *N. lucknowensis* and Rai (1971) added *N. mehrai* from the intestine of *Puntius sarana* Yamaguti (1958) included under the genus *Podocotyle* five sub-genera viz. *Podocotyle* (Dujardin, 1845) Odhner, 1905, *Neopodocotyle* Dayal, 1944, *Apopodocotyle* Pritchard, *Neopodocotyloider* Pritchard, 1966 and *Pedunculotrema* Fischal and Thomas, 1970. Baugh and Chakrabarti
(1970) erected a new genus *Puntiotrema* on the basis of presence of genital sucker and named *N. lucknowensis*. Gupta and Chakrabarti, 1967 as *P. lucknowensis*. Rai (1971) and Pandey (1975) differ from Pritchard’s view and considered *Neopoocotyle* as a distinct genus. However, the writer ages with Yamaguti (1958) and regards *Neopoocotyle* as a sub-genus of *Podocotyle* because the position of uterus in between ovary and anterior testis is of sub-generic importance.

To the best of my knowledge so far many species of the sub-genus *Neopoocotyle* Dayal, 1944 are known viz. *N. indica*, Dayal, 1944 from *Callichrous bimaculatus*, *N. spinopora* Sircar and Sinha, 1969 from *Rita rita*, *N. mehrai* Rai, 1971 from *Puntius sarana* and *P. sophore*, *N. ballianensis* Pandey, 1975 from *P. sarana* and *N. matatilaensis* Agrawal and Agrawal, 1980 from *P. sophore*, *N. chauhani* Agrawal and Agrawal (1980) from *P. sarana*, *N. laxmibai* (1993) from *labeo rohita* and *N. hanumanthai* (1993) from *labeo rohita*. The present from chiefly differs from all the known species in ratio and size of oral and ventral sucker, in size of anterior testis and in the extension of vitelline follicles little anterior of the intestinal bifurcation up to the hind end of the body.

The new form further differs from *N. indica*, *N. spinopora*, *N. ballianensis*, *N. matatilaensis*, *N. laxmibai* and *N. hanumanthai* in position of genital pore at middle of oesophagus and extension of intestinal caecae up to hind end of the body.

The present form resembles with *N. laxmibai* and *N. hanumanthai* in having rounded oral sucker and in the position of the ovary but differs in having pre-pharynx, opening of genital pore, size of testis, in having long tubular oesophagus and extension of cirrus sac and vitelline follicles.
In the view of these differences the present form considered as new species with specific name *Neopodocotyle mastacembelii* n. sp is named after the host *Mastacembelus armatus* from which it was collected for the first time and added as new host record.

<table>
<thead>
<tr>
<th>Host</th>
<th><em>Mastacembelus armatus</em> (Lecepede.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Intestine</td>
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<tr>
<td>Locality</td>
<td>Matatila dam, Jhansi</td>
</tr>
<tr>
<td>New species</td>
<td><em>Neopodocotyle mastacembelii</em> n.sp.*</td>
</tr>
</tbody>
</table>
Crowcrocaecum cuchiinae n.sp. *

(Plate No- 19)

Fig. A. Entire worm
Fig. B. Egg enlarged.
Order : Digenea Van Beneden, 1858
Family : Opecoelidae Ozaki, 1925
Genus : Crowcrocacuum Skujabinet Koval, 1956

Crowcrocacuum cuchiinae n.sp.*

(Plate No. 19, Figs. A & B)

Two specimens of a digenetic trematode were collected from fresh water fish Amphilpous cuchiia (Ham.) from Matatila Dam, district Jhansi Bundelkhand region.

Description:

Body foliate, some what tapering in the anterior region and almost flattened at posterior end, 1.2-1.24 mm long, 0.35-0.37 mm wide. Oral sucker sub-terminal, sub-spherical, 0.06-0.08 mm long 0.07-0.09 mm wide. Pre-pharynx short, tubular, 0.02-0.03 mm long, 0.01-0.02 mm wide. Oesophagus long, tubular, 0.05-0.07 mm long, 0.02-0.04 mm wide opens into intestinal caeca, divided into two parts, reaching up to the hind region of body where they unite. Ventral sucker spherical, rounded, pre-equatorial, 0.13-0.16 mm long, 0.13-0.16 mm wide, at 0.22-0.24 mm from anterior extremity.

Testes post-equatorial, oval, tandem, equal, anterior testis, 0.13-0.15 mm long, 0.08-0.1 mm wide, at 0.66-0.68 mm from anterior extremity. Posterior testis 0.13-0.15 mm long, 0.08-0.1 mm wide, at 0.78-0.8 mm from anterior extremity. Both testes are equal in size. Ovary almond shaped, post-equatorial, 0.07-0.09 mm long, 0.1-0.12 mm wide, at 0.62-0.64 mm from anterior extremity.

Cirrus sac long, sac like, extends from left side of equatorial region occupying the entire posterior-lateral margin of ventral sucker and finally
ends blow intestinal bifurcation 0.33-0.35 mm long, 0.050.07 mm wide. Seminal-vesicle sac like, 0.08-0.1 mm long, 0.05-0.07 mm wide. Parsprostatica long, tubular, 0.1-0.12 mm long, 0.02-0.03 mm wide and surrounded by a large number of prostate gland cells. Ejaculatory duct short, tubular, 0.05-0.07 mm long, 0.02-0.03 mm wide and opens through a small genital pore. Excretory bladder tubular extends to posterior margin of anterior testis up to the hind end of body, 0.42-0.44 long, 0.05-0.07 mm wide. Excretory pore terminal. Vitelline follicles extends pharynx up to hind end of the body. Eggs oval, operculated, 0.02-0.04 mm long, 0.03-0.05 mm wide.

**Discussion:-**

Family Opecoelidae was created by Ozaki in 1925. Stunkard (1931) erected sub family Opecelinae and included it under family Allocreadiidae, dropping the family Opecoelidae. Poche (1926) created sub family Coitocaecinae for genus *Coitococidae*. Harshey (1837) pointed out the synonymy of the families Opecolidae and Coitocaecidae in the family Allocreadae. Manter (1947) revised the family Opecoelidae, separating it from opecolidae viz. Opecolinae stunkard 1931; Plagioporinae Manter 1947; Horatrematinae Srivastava 1942 and Notoporinae Srivastava 1942. He considered coitocaecinae Poche 1926 as synonym of Opecoelidae. Yamaguti 1958 rejected the sub families Plagioporinae and Horatrematinae and included the remaining two sub families under the family Allocreadiidae, this suppressing the family Opecoelidae. Skrjabin 1958 upheld the family Opecoelidae as also the sub family Coitocaecinae. Mehra 1962 also recognised the sub family Opecoelidae. Skrjabin et Koval 1956 created the genus *Crowscrocaecum* with *Crowscrocaecum skrijabani* (Iwanitzky, 1928) (syn. *Coitocaecum skrijabini*, Iwanitzky 1928) as genotype, on the basis of the presence of
receptaculum seminis; cirrus sac enclosing vesicular seminalis, prostate cells.

The present species *Crowcroaecum cuchiinae* n. sp comes closer to *C. pandeyi* and *C. amarnathi* S.C Agarwal and U.K. Devedi (1989) but differs from it in the position of cirrus sac extending posterior lateral margin of ventral sucker and finally ends blow the intestinal bifurcation, extension of vitelline follicles pharynx up to the hind end of the body, shape and size of ovary, position of testes overlapping the excretory bladder and shape of operculated eggs.

In the view of these differences the present from is considered as a new species with a specific name *Crowcroaecum cuchiinae* n. sp.

The new species is named after the name of host from which it was collected and added a new host record.

<table>
<thead>
<tr>
<th>Host</th>
<th><em>Amphipnous cuchia</em> (Ham.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Intestine</td>
</tr>
<tr>
<td>Locality</td>
<td>Matatila dam, Jhansi</td>
</tr>
<tr>
<td>New species</td>
<td><em>Crowcroaecum cuchiinae</em> n.sp.*</td>
</tr>
</tbody>
</table>
FAMILY: ISOPARORCHIIDAE
*Isoparorchis hypselobagri* (Billet, 1898)

Odher, 1927.

(Plate No- 20)

Fig. A. Entire worm

Fig. B. Entire worm
Order : Digenea Van Beneden, 1858
Family : Isoparorchiidae Poche, 1926
Genus : *Isoparorchis hypselobagri* (Bilet, 1898) Odhner, 1927

**Metacercaria of Isoparorchis hypselobagri** (Bilet, 1898) Odhner, 1927.

(Plate No-20, Figs A & B)

Out of about ninety five specimens of *Oxygaster bacaila* (Ham.) *Gagata cenia* (Ham.) and *Xenentodon cancila* (Ham.) examined during present investigation, only four fishes of *Oxygaster bacaila*, three fishes of *Gagata cenia* and five fishes of *Xenentodon cancila* were found infected with Metacercariae of *Isoparorchis hypselobagri* These fishes were collected form Baruasager Dam, Matatila Dam, Betwa River and Pahuj Dam Jhansi. These Metacercariae were obtained from the body cavity of the hosts. These were found not encysted stage on visceral organs but in free stage, and they appeared golden yellow or brown in colour. When these parasites taken out in normal saline from the body cavity of hosts, it showed active movements of expansions and contractions of its body.

**Description:**

Body aspinose, thick and elongated, anterior end being more attenuated than posterior end. Body 1.9-1.95 mm long, 0.85-0.9 mm wide. Anterior sucker, sub-terminal, spherical and circular 0.2-0.25 mm long, 0.20.28 mm wide. Ventral sucker much larger than oral sucker, spherical, 0.32-0.44 mm long, 0.35-0.41 mm wide, at 0.5-0.54 mm from anterior extremity. Pre-pharynx, oval, well developed, 0.05-0.12 mm long 0.08-0.14 mm wide. Oesophagus short, tubular, 0.05-0.09 mm long, 0.08-
0.11 mm wide. Oesophagus runs into intestinal caeca. Intestinal caeca, broad, and appear yellow or brown with the contained food matters. They run from oesophagus up to posterior end of body. In the living condition, intestinal caeca have been observed undergoing at random condition and thereby ejecting the contents through mouth.

Testes two, rounded, spherical, intercaecal, 0.05-0.09 mm long, 0.03-0.05 mm wide, anterior testis is larger than posterior one. Vesiculaseminalis is continued into a short ejaculatory but enclosed in the so-called “Sinus sac” of Manter (1936). Genital pore median and present just below the intestinal bifurcation.

Ovary is present on the right side in oval shape structure in the hind region of the body in front of excretory bladder. A small oval shaped Receptaculum- seminis is present. Vitellaria are in the incipient stage of development are represented by dark staining cells in front of excretory bladder.

Southwell, 1913 described the excretory vesicle as club shaped. Chauhan, 1953, while giving the generic diagnosis of *Isoparorchis* mentioned the excretory bladder to be Y-shaped. Yamaguti, 1958 in the treatise “Systema helminthum” appears to have followed Chauhan, 1953 while giving the diagnostic feature of genus *Isoparorchis* as he, too states “excretory bladder Y-shaped” Dr. K. C. Pandey, 1969 described the excretory bladder to be a cylindrical shaped. But the author agreed with Dr. K.C. Pandey, 1969 because author also observed the cylindrical shaped excretory bladder during investigation of *Isoparorchis*.

Excretory bladder is cylindrical shaped between intestinal caeca, and leads to the out side by a terminal excretory pore.


**Host** : *Gagata cenia and Oxygaster bacaila*

**Locality** : Body cavity

**Locality** : Barasager Dam, Matatila Dam, Betwa River and Pahuj Dam.
FAMILY:
HEMIURIDAE
*Genarchopsis goppo* Ozaki, 1925

(Plate No- 21)

Fig. A.  Entire worm

Fig. B.  Egg enlarged.
Order : Digenea Van Beneden, 1858
Family : Hemiuridae (Looss, 1899) Luhe, 1901
Genus : *Genarchopsis goppo* Ozaki, 1925

**Genarchopsis goppo Ozaki, 1925**

(Plate No-21, Figs. A & B)

Three specimens of *Genarchopsis* Ozaki, 1925 were collected from *Channa punctatus* (Bl.) of Pahuj Dam, Jhansi.

**Description:-**

Body, elongated, fusiforms, aspinose, thick, 2.02-2.04 mm long, 0.71-0.73 mm wide. Oral sucker, sub-terminal, spherical or sub-spherical, 0.16-0.18 mm long, 0.16-0.18 mm wide. Pre-pharynx absent. Pharynx, spherical, muscular, 0.08-0.1 mm long, 0.08-0.1 mm wide. Oesophagus, small, tubular, 0.03-0.05 mm long, 0.01-0.03 mm wide. Oesophagus opens into intestinal caeca which runs posteriorly and united at posterior end of the body. Ventral sucker, sub-spherical, post-equatorial, larger than oral sucker, 0.48-0.5 mm long, 0.41-0.43 mm wide.

Testis entire, oval or oblong, unequal, post-equatorial, tandem; anterior testis, 0.16-0.18 mm long, 0.08-0.1 mm wide; posterior testis, 0.14-0.16 mm long, 0.07-0.09 mm wide, at 1.52-1.54 mm long from anterior extremity. Cirrus sac, secular, 0.16-0.18 mm long, 0.06-0.08 mm wide. Vesicula-seminalis small, 0.09-0.11 mm long, 0.05-0.07 cmm cwide. cPars-prostatica, small, 0.03-0.05 mm long, 0.02-0.03 mm wide. Ejaculatory duct, narrow, 0.05-0.07 mm long.

Ovary, spherical, post-equatorial, post-testicular, away from testis, larger than testes, 0.11-0.13 mm long, 0.11-0.13 mm wide. Vitelline follicles four in number, situated posterior to ovary, near posterior end of
body. Uterus arises from ootype, extending up to posterior end of body, opens at genital pore. Eggs small, oval, numerous, nonoperculated, 0.03-0.05 mm long, 0.01-0.02 mm wide. Genital pore, post-bifurcal. Excretory pore, sub-terminal.

**Discussion:**

The present form is referred to genus *Genarchopsis* Ozaki, 1925 with genotype *G. goppo* but differs from it in having larger ventral sucker, in shape, size and position of testes, cirrus sac well developed, position of ovary between testes and vitelline gland, and number and position of vitelline gland cells. These characters have been considered as individual variations.

- **Host**: *Channa punctatus* (Bl.)
- **Location**: Intestine
- **Locality**: Pahuj Dam, Jhansi
Genarchopsis cameroni Kakaji, 1969

(Plate No- 22)

Fig. A.    Entire worm
Fig. B.    Egg enlarged.
Order : Digenea Van Beneden, 1858
Family : Hemiuridae (Looss, 1899) Luhe, 1901
Genus : *Genarchopsis cameronii* Kakaji, 1969

**Genarchopsis cameronii** Kakaji, 1969

(Plate No.-22, Figs A & B)

Three specimens of *Genarchopsis* Kakaji 1969 were collected from *Channa marulius* (Ham.) of Pahuj Dam, Jhansi.

**Description:** -

Body elongated, fusiform without tail, aspinose, thick, 1.14-1.16 mm long, 0.044-0.046 mm wide. Oral sucker sub-terminal, oval, 0.15-0.17 mm long, 0.17-0.19 mm wide. Prepharynx absent; pharynx, spherical, muscular, 0.06-0.08 mm long, 0.06-0.08 mm wide. Oesophagus absent. Intestinal caeca united at posterior end of the body. Ventral sucker, spherical or sub-spherical, post-equatorial, larger than oral sucker, 0.43-0.45 mm long, 0.39-0.41 mm wide.

Testes, entire, spherical, equal, post-equatorial, situated behind of ventral sucker. Anterior testis, 0.04-0.06 mm long, 0.04-0.06 mm wide. Posterior testis, 0.04-0.06 mm long, 0.04-0.06 mm wide. Cirrus sac, sac like, 0.08-0.1 mm long, 0.05-0.07 wide. Vesicular seminalis elongated 0.06-0.08 mm long, 0.03-0.05 mm wide. Pars prostatica and ejaculatory duct not distinguished from vesiculase seminalis.

Ovary, post-testicular, smaller than testis, present between vitelline follicles and testis, spherical, 0.03-0.05 mm long, 0.03-0.05 mm wide. Vitelline follicles two in number situated at the posterior end of the body. Uterus arises from ootype, extending anteriorly and opens at
genital pore. Eggs small, non-operculated, 0.02-0.04 mm long, 0.02-0.04 mm wide. Genital, pore just post-bifurcal. Excretory pore terminal.

**Discussion:**

The present form is referred to genus *Genarchopsis* Ozaki, 1925. The present form closely resembles with *G. cameroni* Kakaji, 1969. But slightly differs in having genital pore post-bifurcal, cirrus sac, sac like, vielline follicles in the form of small follicles situated near posterior end of the body. These characters have been observed in present form but the present form obtained from different host *Channa marulius* and has been considered as individual variation.

**Host** : *Channa marulius* (Ham.)

**Location** : Intestine

**Locality** : Baruasager Dam, Jhansi
FAMILY:

OPISTHOLEBETIDAE
Pycnadena parichaii n. sp. *

(Plate No- 23)

Fig. A. Entire worm
Fig. B. Egg enlarged
Order : Digenea Van Beneden, 1858
Family : Opistholecetidae Fukui, 1929
Genus : Pycnadena Linton, 1911

*Pycnadena parichnii* n. sp *

(Plate No- 23, Figs. A & B)

The two specimens of genus *Pycnadena*, Linton, 1911 were collected from fresh water fish *Channa punctatus* (Bl.) from Paricha Dam, Jhansi.

**Description:** -

Body, elongated, aspinose, with narrow anterior and broad posterior ends, 1.60-1.80 mm long, 0.39-0.41 mm wide. Oral sucker sub-terminal, sub-spherical 0.11-0.13 mm long, 0.12-0.14 mm wide. Pre-pharynx absent. Pharynx oval, muscular, 0.03-0.05 mm long, 0.06-0.08 mm wide. Oesophagus tubular, 0.06-0.08 mm long, 0.03-0.05 mm wide. Ventral sucker spherical, 0.1-0.12 mm long, 0.1-0.12 mm wide, and smaller than oral sucker.

Testes entire spherical or sub-spherical, post-equatorial, intercaecal, tandem, unequal in size, close or apart from each other; anterior testis 0.1-0.12 mm long, 0.08-0.01 mm wide, posterior testis 0.08-0.1 mm long, 0.1-0.12 mm wide. Cirrus sac anterior to ventral sucker, elongated, 0.11-0.13 mm long, 0.06-0.08 mm wide. Vesiculoseminalis sac like 0.05-0.07 mm long, 0.03-0.05 mm wide. Pars-prostatica, small, 0.02-0.04 mm long, 0.01-0.02 mm wide, surrounded by a large number of prostate gland cells. Ejaculatory duct short, narrow, 0.01-0.02 mm long.
Ovary, oval, oblong, post-equatorial, at the level of anterior testis, 0.07-0.09 mm long, 0.05-0.07 mm wide. Vitelline follicles extending from posterior level of ventral sucker up to hind end of body. Uterus arises from ootype, intercaecal, extends up to middle of anterior testis then turned anteriorly and opens at genital pore. Eggs oval, larger in size, operculated, 0.04-0.07 mm long, 0.02-0.05 mm wide. Genital pore extracaecal, just below the intestinal bifurcation. Excretory bladder simple, tubular; excretory pore terminal.

Discussion:


The present form resembles *P. betwai* and *P. indica* in having small, tubular oesophagus; ventral sucker is smaller than oral sucker. But it differs from *P. betwai* and *P. indica*, in position and size of ovary which is parallel to anterior testis. The new form also resembles with *P. pokhrayansis*, in the position of cirrus sac which is anterior to ventral sucker, position of vitelline follicles, extending from posterior region of ventral sucker up to hind end of body. But it differs from *P. pokhrayansis*, in presence of oesophagus, post-equatorial tandem testes, position and size of ovary which is parallel to anterior testis and in the size of eggs.
Therefore, a new species *P. parichaii* n. sp is formed for its reception. The new species is named after the name of the place from which the host is collected.

**Host**: *Channa punctatus* (Bl.)

**Location**: Intestine

**Locality**: Paricha Dam, Jhansi

**New species**: *Pycnadena parichaii* n.sp*
**KEY TO LETTERING IN FIGURES**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>A</td>
<td>Acetabulum</td>
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<tr>
<td>AS</td>
<td>Anterior sucker</td>
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<tr>
<td>AT</td>
<td>Anterior testis</td>
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<tr>
<td>CP</td>
<td>Copulatory complex</td>
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<tr>
<td>CS</td>
<td>Cirrus sac</td>
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<tr>
<td>DA</td>
<td>Dorsal Anchor</td>
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<tr>
<td>EB</td>
<td>Excretory bladder</td>
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<td>ED</td>
<td>Ejaculatory duct</td>
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<td>EG</td>
<td>Egg</td>
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<tr>
<td>EP</td>
<td>Excretory pore</td>
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<tr>
<td>ES</td>
<td>Eye spot</td>
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<tr>
<td>GP</td>
<td>Genital pore</td>
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<tr>
<td>IC</td>
<td>Intestinal caeca</td>
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<tr>
<td>LVL</td>
<td>Left vitelline lobe</td>
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<tr>
<td>LV G</td>
<td>Left vitelline gland</td>
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<tr>
<td>O</td>
<td>Ovary</td>
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<tr>
<td>OES</td>
<td>Oesophagus</td>
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<tr>
<td>OS</td>
<td>Oral sucker</td>
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Taxonomical and pathological studies on Trematodes parasitic of some economically important fishes of Bundelkhand Region.
<table>
<thead>
<tr>
<th>Abbr</th>
<th>Description</th>
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<tbody>
<tr>
<td>PG</td>
<td>Prostate gland cells</td>
</tr>
<tr>
<td>PH</td>
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<tr>
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<td>Pars-prostatica</td>
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<tr>
<td>PPH</td>
<td>Pre-pharynx</td>
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<tr>
<td>PT</td>
<td>Posterior testis</td>
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<td>Receptaculum seminis</td>
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<td>RVL</td>
<td>Right vitelline lobe</td>
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<td>RVG</td>
<td>Right vitelline gland</td>
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<td>SP</td>
<td>Spines</td>
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<td>VFD</td>
<td>Vitelline follicular duct</td>
</tr>
<tr>
<td>VS</td>
<td>Ventral sucker</td>
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</table>

*Taxonomical and pathological studies on Trematodes parasitic of some economically important fishes of Bundelkhand Region.*