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TWO NEW SPECIES OF THE GENUS *PARAMAZOCRAES* TRIPATHI, 1959, FROM A FRESHWATER FISH, *SCIAENA COITOR* (HAM.)

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The present communication deals with two new species of monogeneans belonging to genus *Pramazocraes* Tripathi, 1959. The *P. guptai* n.sp. is characterised in having different shape of oral sucker, presence of pharyngial glands, arrangement of genital hooks and number of testis. However, *P. yogendrai* n.sp. is characterised in having difference in the shape of oral suckers, difference in organisation of clamp skeleton and disposition of genital hooks.

INTRODUCTION

While investigating, representatives of the family Mazocraediae collected by us from the gill filaments of freshwater fishes of Meerut region, we found two species of the genus *Paramazocraes* Tripathi, 1959. Both these species by their characters appear new to us, therefore, they are described herein as such.

MATERIALS AND METHODS

Parasites, for the present investigation were collected from the fishes purchased from the local fish markets of Meerut. They were removed from the gills by applying freezing technique of Mizelle (1936), they were fixed in hot 70% alcohol, stained in Acetoalum Carmine and mounted in Canada balsam. Chitinoid elements of taxonomic importance were studied in glycerine mounts. Camera lucida sketches were made. Measurements are taken with the aid of stage micrometer and occulometer and given in mm.

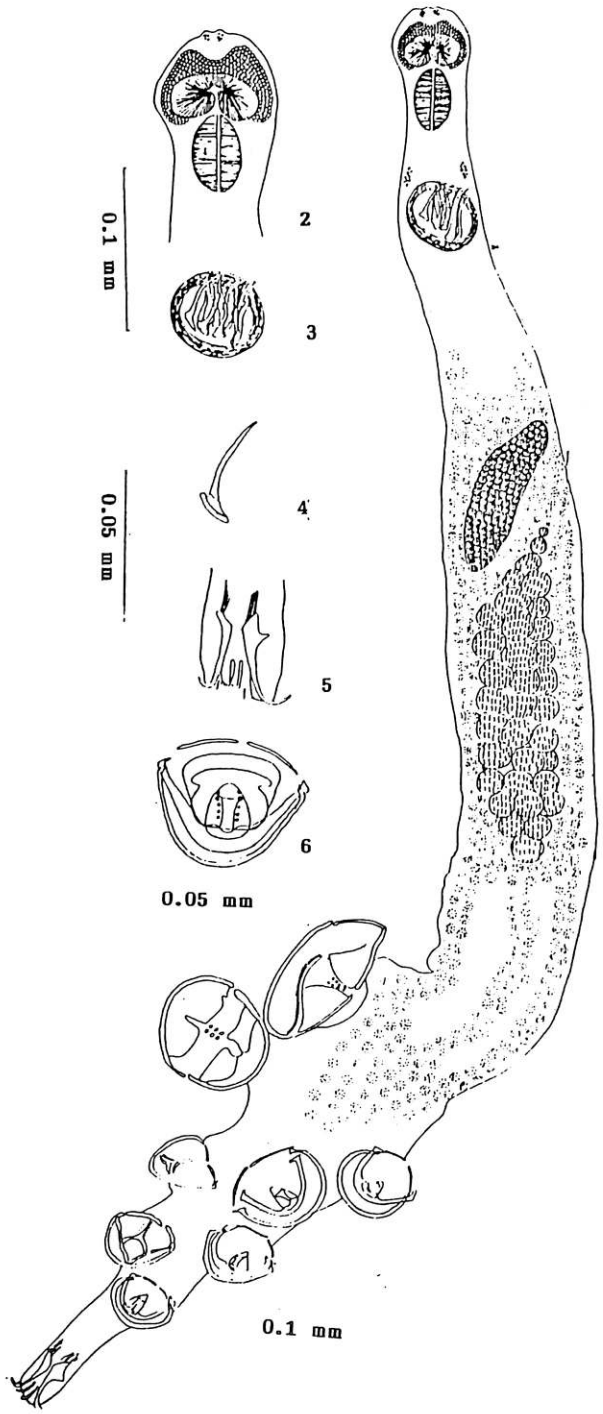
RESULTS AND DISCUSSION

Paramazocraes guptai n.sp. (Figs. 1 - 6)

Host : Sciaena coitor (Ham.); No. of host examined : 16; No. of host found infected : 1; No. of worms recorded : 02; Date of examination : 17.7.92.

Body is elongated tapering both anteriorly and posteriorly, measuring 1.50-1.55 x 0.11- 0.12. Head is equiped with a pair of muscular buccal suckers semicircular in shape, fused at the center, each measuring 0.027 - 0.028 x 0.024 - 0.025. Anteriorly and laterally it is surrounded by large number of darkly stained cephalic glands. Pharynx is oval, muscular and measures 0.04-0.05 x 0.03-0.04. Oesophagus and intestine is not visible in the specimens as this region is occupied by vitelline follicles. Testes are post ovarian, equatorial, 28-35 in number. They are round to oval in shape and their diameter ranges from 0.01-0.03. Genital atrium is rounded, muscular and localized pre-equatorially, slightly behind the pharynx. Size of atrium ranges from 0.051 - 0.052 in diameter. In the genital atrium, there exists five pairs of hooks, upwardly directed with broad roots. The size of the genital hooks ranges from 0.03-0.042. On the either anterior side of the genital atrium, darkly stained reproductive glands are present. Ovary is pretesticular, pre-equatorial, elongated measuring 0.14-0.15 x 0.041-0.052. Vitelline follicles are well developed scattered from behind the genital atrium upto haptor.

The haptor is distinctly set off from the body. It measures 0.53 - 0.54 including lappet. It comprises four pairs of unequal pedunculated clamps. The proximal clamps are larger as compared to distal. The clamps are typical mazocraes type. The clamps skeleton consists of six sclerites :



Figs. 1 - 6. 1 *Paramazocraes guptai* n. sp.; **2**. Head enlarged; **3**. Genital atrium enlarged; **4**. Genital hook enlarged; **5**. Haptor lappet enlarged; **6**. Clamp enlarged.

1. Scleritum arcuatum anterior (SAA) elongated, braket shaped, two in number.
2. Scleritum medio-supplementarium (SMS) is wide bilobed having notch in anterior part.
3. Scleritum postero-supplementarium (SPS) is triangular, plate like structure having a wide central perforation.
4. Scleritum arcuatum posterium (SAP) thin, elongated, arched with club shaped ends and swollen in middle.
5. Scleritum medio-basalis (SMB) is wide broad plate having five pairs of perforation arranged in parallel rows.
6. Scleritum postero-lateralis (SPL) is thin, elongated, inwardly pointed.

Lappet is armed with two pairs of circular anchors and a pair of hook. Outer pair of anchor is stout, robustus type with powerful roots and smooth transition of shaft into point. Inner anchors are small juvenile type with slightly recurved point and with root. Hooks are straight, dactylogyrus type. Details of measurements are as under.

Clamps : Diameter of proximal clamp : 0.10 - 0.11 : Diameter of distal clamps : 0.060 - 0.061; SAA Length : 0.022-0.023; SMS Length : 0.025 - 0.026; SMS Width : 0.027-0.028; SPS Length : 0.021-0.022; SPS Width : 0.017 - 0.018; SAP length : 0.079-0.080; SMB Length : 0.029-0.030; SMB Width : 0.033-0.034; SPL Length : 0.084-0.085.

Lappet : Length of Lappet : 0.10-0.11; Width of Lappet : 0.037-0.038.

Outer anchor : Total length of anchor : 0.035-0.036; Length of anchor root : 0.008-0.009; Length of anchor shaft : 0.027-0.028; Length of anchor point : 0.007-0.008.

Inner anchor : Total length of anchor : 0.009-0.010; Length of anchor shaft : 0.011-0.013; Length of anchor point : 0.002-0.003.

Hook : Length : 0.004-0.005.

DISCUSSION

The present form belongs to the *Paramazocraes* Tripathi, 1959 on the basis of following characters : Elongated body, tapering at both the ends. Haptor with four pairs of unequal pedunculated clamps and an elongated digitiform lappet having three pairs of hooks. Clamps mazocraeid in structure with perforated middle piece. Testes not numerous, postovarian, intercaecal, genital atrium muscular with five pairs of hooks. Single ovary and vitellaria extending behind the vagina upto caecal ends.

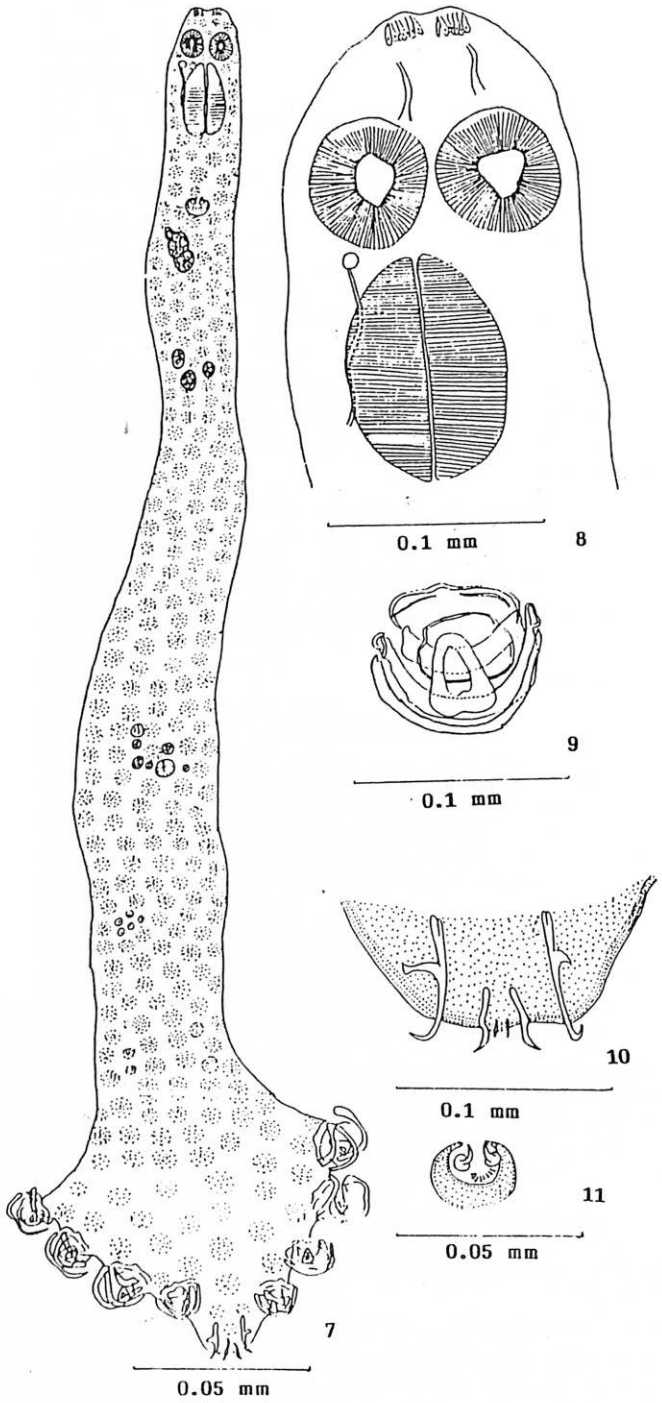
To the best of my knowledge, following species are known under the genus *viz. P. thrissocles* Tripathi, 1959; *P. phasae* Tripathi, 1959; *P. kozikodiensis* Gupta and Khullar, 1967; *P. indica* Gupta and Krishana, 1975; *P. pricei* Gupta and Krishna, 1979; *P. gorakhnathai* Agarwal and Singh, 1985; *P. vinodae* Gupta and Masoodi, 1985 and *P. kasiensis* Agarwal and Kumar, 1990.

The present from differs from all the known species except *P. kozikodiensis* in shape of oral sucker, presence of pharyngeal glands, arrangement of hooks and number of testes. Morever, it differs from *P. kozikodiensis* in clamp skeleton, shape of ovary, number of testes and shape of anchors in lappet. The present form is therefore, described here in as a new species *viz. P. guptai* n. sp. named in honour of Prof. N. K. Gupta, for valuable contribution in this field.

Paramazocraes yogendrai n.sp. (Figs. 7 - 11)

Host : Sciaena coitor (Ham.); No. of host examined : 16; No. of host infected : 1; No. of parasites recorded : 5; Date of examination : 17.7.92.

Body elongated tapering both anteriorly and posteriorly, measuring 2.5-2.8 x 0.26-0.27. Head is provided with a pair of rounded, muscular buccal suckers each measuring 0.050-0.051. Pharynx is oval, muscular and measures 0.138-0.140 x 0.080-0.082. Oesophagus and intestine is not visible in the specimens as this region is occupied by vitelline follicles. Testes are post-ovarian, post equatorial and five to six in number. They are rounded, oval and their diameter ranges from 0.035-0.037. Gential atrium is rounded, muscular and localized pre-equatorially, slightly above the receptaculum seminis. Receptaculum seminis is three lobed, irregularly shaped and measures 0.080-0.085 x 0.040-0.045. Size of the atrium ranges from 0.021-0.024. In the atrium there exists five pairs



Figs. 7 - 11.7. *Paramazocraes yogendrai* n. sp.; **8**. Head enlarged; **9**. Clamp enlarged; **10**. Haptor lappet enlarged; **11**. Genital atrium enlarged.

of spines, two of which are large with broad base, pointed and curved tip. The size of curved hooks ranges from 0.008-0.009. The four pairs of smaller hooks are also with base arranged in a line in the cup shaped depression measuring 0.0002-0.0003. Ovary is pre-testicular pre-equatorial and three to four in number. They are oval and measuring 0.02-0.04 x 0.01-0.03. Vitelline follicles are well developed, scattered from behind the genital atrium upto haptor.

The haptor is distinctly set off from the body. It measures 0.49 - 0.50 x 0.59 - 0.60 inculding lappet. It comprises four pair of clamps and an armed lappet. The clamp skeleton consists of six sclerites like *P. guptai* n. sp. These are (SAA) elongated and bracket shaped, supplementry (SAA) is also elongated, bracket shaped and two in number, (SMS) is rectangular plate like, (SPS) is triangular plate like structure having a wide central perforation, (SAP) is thin, elongated, arched with club shaped ends and swollen in middle. (SMB) is wide broad plate and (SPL) is thin, elongated and pointed. Lappet is armed with two pairs of anchors and a pair of hook. Outer pairs of anchor is merus type with pointed and curved tips and roots with bifid base diverging at right angle to the shaft. Anchors are dactylogyrus type, sickle shaped, with root. Hooks are also straight and dactylogyrus type. The details of measurements are as under.

Clamps : Diameter of proximal clamp : 0.120-0.121 x 0.054-0.055; Diameter of distal clamp : 0.053-0.054 x 0.051-0.052; SAA Length : 0.090-0.091; Suppl. SAA Length : 0.022-0.023; SMS Length : 0.034-0.035; Width : 0.043-0.044; SPS Length : 0.039-0.040; Width : 0.032-0.033; SAP Length : 0.11-0.12; SMB Length : 0.011-0.012; Width : 0.068-0.069 and; SPL Length : 0.120-0.121.

Lappet : Length of lappet : 0.09-0.10 and Width of lappet : 0.130-0.135.

Anchor : Total length of outer anchor : 0.065-0.066 Length of anchor shaft : 0.061-0.062; Length of anchor point : 0.005-0.006; Inner anchor : Total length of inner anchor : 0.026-0.027; Length of anchor shaft : 0.028-0.029; Length of anchor point : 0.004-0.005.

Hook : Length : 0.010-0.011

DISCUSSION

The present form differ from all the known species except *P. gorakhnathi* in having different shape of oral suckers. However, it differs from *P. gorakhnathi* in having different organization of clamps skeleton, in having more than one ovary and difference in disposition of small genital hooks (in case of *P.gorakhnathai* it is arranged in the form of ring. however, in present form it is arranged in linear fashion).

Morever, it differs form *P. guptai* n.sp., in having difference in organization of oral sucker, presence of pharyngeal glands, difference in shape and organization of genital hooks, having single ovary, large number of tests and different organization of clamp skeleton. Besides this, it also differs from *P. guptai* in having difference in shape of anchors. The present form is therefore, regarded as a new species *viz., P. yogendrai* n.sp., named in honour of Dr. Y. R. Tripathi, for his valuable contribution in the study of Indian monogenoidea.

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