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Helminth parasites of freshwater fishes. X. On two new trematode parasites of freshwater fishes from Lucknow, India.

by

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ABSTRACT: Two new species, *Gomtia bagarii* from the intestine of *Bagarius yarrellii* (Ham.) and *Polyorchitrema vachai* from the intestine of *Eutropiichthys vacha* (Ham.) from the river Gomati at Lucknow, India, are described. Keys to the species of the genus *Gomtia* Thapar, 1930 and to the genus *Polyorchitrema* Srivastava, 1939 are given.

Family OPISTHORCHIIDAE Braun, 1901

Gomtia bagarii n. sp.

(Figs. 1-2)

Nine specimens were collected from the intestine of a freshwater fish, *Bagarius yarrellii* (Ham.) from the Gomati River at Lucknow.

DESCRIPTION: Body elongated, 1.4 to 2.52 mm long, 0.32 to 0.43 mm wide, cylindrical, spinose with narrower anterior and broader posterior end. Oral sucker spherical or oval, terminal or subterminal, 0.073 to 0.09 mm long, 0.065 to 0.09 mm wide. Ventral sucker spherical, larger than oral sucker, 0.081 to 0.10 mm long, 0.081 to 0.11 mm wide, 0.45 to 0.67 mm from anterior end. Prepharynx long, 0.085 to 0.09 mm long, 0.01 to 0.015 mm wide. Pharynx muscular, ovoid, 0.05 to 0.07 mm long, 0.05 to 0.061 mm. wide. Oesophagus 0.08 to 0.15 mm long, 0.022 to 0.026 mm wide. Intestinal caeca simple, extending to anterior testis. Excretory pore terminal at posterior extremity; excretory bladder "Y" shaped. Genital pore median, lying just in front of ventral sucker 0.44 to 0.67 mm from anterior extremity.

Testes oval or spherical, one behind the other at posterior end of body. Anterior testis 0.12 to 0.26 mm long, 0.24 to 0.29 mm wide. Posterior testis

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larger or smaller than anterior testis, 0.15 to 0.30 mm long 0.20 to 0.27 mm wide. Cirrus sac absent. Vesicula seminalis a thin-walled, sinuous sac broader at posterior end and narrow tube-like at anterior end, 0.12 to 0.30 mm long, 0.09 to 0.11 mm wide, extending from ventral sucker to 0.83 to 1.145 mm from anterior end of body.

Ovary spherical or oval, pretesticular, 0.11 to 0.16 mm long, 0.14 to 0.17 mm wide, 0.29 to 0.57 mm from posterior end of body. Receptaculum seminis large, 0.11 to 0.135 mm long, 0.17 to 0.23 mm wide, between ovary and anterior testis. Vitellaria follicular, lateral, intercaecal, caecal and extracaecal, extending form 0.08 to 0.29 mm behind vesicula seminalis to anterior end of anterior testis. Uterus, intercaecal and extracaecal, lying between anterior end of ventral sucker and posterior end of ovary. Eggs oval and operculated, 0.011 to 0.023 mm long, 0.004 to 0.012 mm wide.

HOST: *Bagarius yarrellii* (Ham.)
LOCATION: Intestine
LOCALITY: Lucknow, India
HOLOTYPE (1) and *Paratype* (8) in helminthological collection of G. S. Thapar, Lucknow, India.

DISCUSSION: THAPAR (5) created the genus *Gomtia* with *G. piscicola* as its type species. MEHRA (3) doubted the validity of the genus and suggested its fusion with *Opisthorchis*. He argued that the long massive testes of *Gomtia* at the posterior end of the body do not allow space for the excretory bladder to become "S" shaped. DAYAL (1) did not agree with Mehra and considered the two genera distinct from each other; he stated that the chief character separating *Gomtia* from *Opisthorchis* is the shape and position of the excretory bladder. In *Gomtia* the stem of the excretory bladder is straight and lies dorsal to the testes, extending as far as the ovary, while in *Opisthorchis* the stem of the excretory bladder is either "S" shaped or sigmoid and does not extend to ovary. He pointed out that the shape of the excretory bladder is the least variable character in Trematoda and the position of the testes in the posterior region should not affect its shape in any way. GUPTA (2), while describing the specimens of *Gomtiotrema* and *Assamia* found that, although there is enough space in between the testes, the excretory bladder still maintains its straight stem-like structure; with two short cornua at its anterior end it extends to the ovary like that of *Gomtia* Thapar, 1930. He therefore pointed out that in *Gomtia* the shape and position of excretory bladder is a permanent character and not due to pressure or displacement as alleged by MEHRA (3). Therefore he regarded the genus *Gomtia* distinct from *Opisthorchis*.

The author is in agreement with THAPAR, (5) DAYAL (1) and GUPTA (2) in considering the genus *Gomtia* distinct from *Opisthorchis*. The present form differs from *G. piscicola* Thapar, 1930 in having the oral sucker smaller than the ventral sucker, in having intestinal caeca reaching to the anterior end of the posterior testis instead of to the middle, and in having the anterior testis

larger or smaller than the posterior testis, instead of equal. The new form differs from *G. gagatia* Dayal, 1949 in having the vitellaria extending from 0.08 to 0.29 mm behind the vesicula seminalis to the anterior margin of the anterior testis, insted of from the posterior end of the vesicula seminalis to the middle region of the anterior testis. The new from can also be distinguished from *G. lucknowia* Dayal, 1949 in having the oral sucker smaller than the ventral sucker, instead of equal, and in having the prepharynx larger than the pharynx, instead of equal. Accordingly it is regarded as new, with the specific name *G. bagarii* n.sp.

KEY TO THE SPECIES OF THE GENUS *GOMTIA* THAPAR, 1930

1. Oral sucker smaller than ventral sucker 2
   Oral sucker larger than ventral sucker ..... *G. piscicola Thapar*, 1930
2. Vitellaria extending from posterior end of vesicula seminalis. *G. gagatia* Dayal, 1949
   Vitellaria extending a little posterior to vesicula seminalis 3
3. Prepharynx equal to pharynx ..... *G. lucknowia* Dayal, 1949
   Prepharynx larger than phaiynx ..... *G. bagarii* n.sp.

Family CRYPTOGONIMIDAE Ciurea, 1933

Polyorchitrema vachai n. sp.

(Figs. 3-4)

Six specimens were collected from the intestine of a freshwater fish, *Eutropiichthys vacha* (Ham.) from the Gomati River at Lucknow, India.

DESCRIPTION: Body small, 1.5 to 2.09 mm long, 0.54 to 0.95 mm wide, espinose, subcylindrical, with narrow anterior and rounded posterior end. Oral sucker spherical, subterminal, 0.19 to 0.24 mm long, 0.19 to 0.23 mm wide. Ventral sucker spherical, larger than oral sucker, 0.31 to 0.48 mm long, 0.38 to 0.49 mm wide, 0.32 to 0.50 mm from anterior end. Prepharynx absent. Pharynx muscular, ovoid, 0.16 to 0.25 mm long, 0.17 to 0.20 mm wide. Oesophagus absent. Intestinal caeca simple, extending to end of body. Ventrogenital sinus absent. Excretory pore terminal at posterior extremity; excretory bladder tubular. Genital pore submedian, on left or right side of ventral sucker, 0.46 to 0.73 mm from anterior extremity.

Testes composed of 8 to 12 spherical or oval follicles, intercaecal, massed together in posterior part of body, overlapping one another and caeca on sides. Testicular follicles 0.04 to 0.13 mm long, 0.05 to 0.16 mm wide. Cirrus sac absent. Vesicula seminalis long, sinuous, 0.22 to 0.43 mm long, 0.07 to 0.10 mm wide, extending posteriorly to a short distance behind ventral sucker. Pars prostatica attenuated anteriorly and swollen posteriorly, 0.25 to 0.31 mm long. Ejaculatory duct 0.1 to 0.2 mm long.

Ovary oval or triangular, anterior to testicular mass, 0.015 to 0.20 mm long, 0.14 to 0.22 mm wide, 0.32 to 0. 41 mm from anterior end. Oviduct connects ovary to ootype. Ootype 0.10 to 0.11 mm long, 0.13 to 0.14 mm wide, surrounded by Mehlis's gland cells. Receptaculum seminis pear-shaped, lying

laterally on right side of ovary, 0.11 to 0.18 mm long, 0.06 to 0.07 mm wide. Vitellaria follicular, lateral, extracaecal and intercaecal, extending laterally behind ventral sucker to posterior end of body. Uterine coils between intestinal bifurcation and testicular mass. Ductus hermaphroditicus and hermaphroditic pouch absent. Eggs oval and operculated, 0.025 to 0.03 mm long, 0.09 to 0.10 mm wide.

HOST: *Eutropichthys vacha* (Ham.)
LOCATION: Intestine
LOCALITY: Lucknow, India.
HOLOTYPE (1) and PARATYPE (5) in helminthological collection of G S. Thapar, Lucknow, India.

DISCUSSION: The present form belongs to the genus *Polyorchitrema* Srivastava (4, 6), with *P. piscicola* as its type species. The new form differs from its genotype in having the vitellaria follicular instead of in grape-like bunches, in having 8 to 12 testicular follicles in the posterior part of body, instead of 35 to 50 in the posterior third of body, in the absence of ventrogenital sinus, hermaphroditic pouch and ductus hermaphroditicus. Accordingly it is regarded as new with the specific name *P. vachai* n.sp.

KEY TO THE SPECIES OF THE GENUS *POLYORCHITREMA* SRIVASTAVA 1939.

1. Vitellaria composed of 7 to 9 grape-like bunches of small follicles; testicular follicles 35 to 50 ..... *P. piscicola* Srivastava, 1939
   Vitellaria follicular; testicular follicles 8 to 12 ..... *P. vachai* n.sp.

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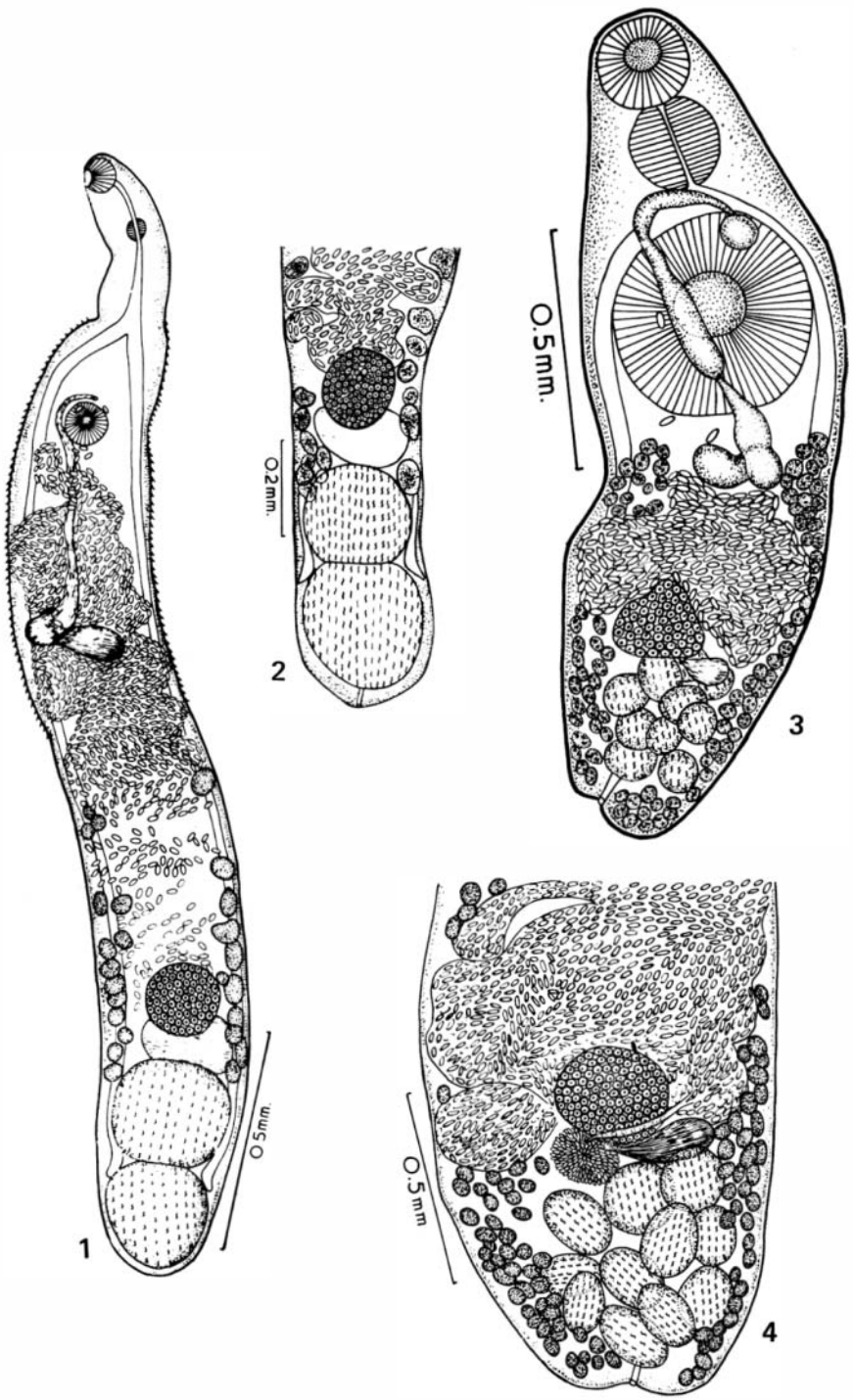
Figs. 1-2. *Gomtia bagarii* n.sp. Holotype.
Fig. 1. Ventral view.
Fig. 2. Posterior extremity showing anterior testis smaller than posterior. Dorsal view.
Figs. 3-4. *Polyorchitrema vachai* n.sp. Holotype.
Fig. 3. Dorsal view.
Fig. 4. Posterior extremity. Dorsal view.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RESUMEN

Se describen dos nuevas especies de tremátodos, *Gomtia bagarii* del intestino del pez *Bagarius yarrellii,* y *Polyorchitrema vachai* del intestino del pez *Eutropiichthys vacha;* ambos peces son del Río Gomati de Lucknow, India. Se acompañan claves para la especie del género *Gomtia* Thapar, 1930 y para el género *Polyorchitrema* Srivastava, 1939.

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