

**MORPHOTAXONOMICAL STUDY OF A NEW CESTODE *GANGESIA (GANGESIA) CHOPARAI* N.SP. FROM A FRESH WATER FISH, *WALLAGO ATTU* FROM JALAUN (U.P.) INDIA**

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**ABSTRACT**

The worm was procured from intestine of fresh water fish, *Wallago attu* at Ragaulai, Distict Jalaun, Uttar Pradesh, India. After morphological study of worm we reach on the conclusion that present species differs from all known species of genus *Gangesia* in the presence of internal seminal vesical, uterus 3-7 diverticula on either side and other characters.

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KEY WORDS : Jalaun (U.P.), Proteocephalidae, Ragaulai, Wallago .

**Introduction**

Fishes contribute a highly nutritive food value for human being. However these edible fishes known to harbour a number of cestode parasites. Single *Wallago attu* harbored unique cestode parasite which belongs to genus *Gangesia*, sub-family Gangesiinae, Family Protocephalidae.

**Material and Methods**

The fishes were caught by the local fishman from Ragaulai Village, District Jalaun. Usual techniques for collection and preservation of the cestode were employed. Whole mounts were stained in Haemalum and cleared in xylol. Figures were drawn with camera lucida. All the measurements have been given in milimeters unless otherwise stated.

**Observation**

*Gangesia (G.) choparai* n.sp. (Figs. 1-6)

Cestode measures 29.0x1.3, Scolex well

developed, oval to round measures 0.370x0.328. Suckers oval to round unarmed measure 0.170-0.184x0.1. 0.191(0.177x0.156). Rostellum oval to round, protrusible measures 0.084x0.170. Rostellum armed with double rows of rostellar hooks. Rostellar hooks 32 in number measure 0.0205-0.0373 (0.0285) in length. Neck distinct measure 0.0556x0.3.(Figs.1-2)

Proglottids broader than long, Immature proglottids measure 0.156-0.184x0.6-0.8 (0.170x0.7), mature proglottids measure 0.2-0.6x0.756-0.842(0.4x0.8) and gravid proglottids measure 0.842-0.870x0.9-1.342(0.856x1.143). (fig.3)

Testes oval to round 120-150 in number measure 0.014-0.028x0.007-0.028(0.021x0.018) located in partly cortical and partly medullary regions, scattered throughout the proglottids in single field. Testes cross the ventral longitudinal excretory canals and postovarian testes absent. Cirrus pouch measures 0.2-0.356x0.084-0.156(0.284x0.128).

Internal seminal vesicle measures 0.163-0.3x0.042-0.070(0.270x0.056). Cirrus present. Vas deferens present.(fig.3)

Female genitalia posteriorly situated. Bilobed ovary in medullary region measures 0.114-0.256x0.328-0.528(0.184x0.428). Vagina measure 0.070-0.014 (0.011) in diameter, opens posterior to cirrus pouch in the genital atrium. Receptaculum seminis oval to round measures 0.035-0.056x0.042-0.063(0.042x0.049). (Fig.3)

Vitelline follicles in two lateral bands in medullary region, overlapped on the ventral longitudinal excretory canals. Vitelline follicles measure 0.014-0.028x0.014-0.028(0.021x0.021). (Fig.3)

Genital atrium measures 0.056-0.077x0.021-0.042(0.070x0.035) deep and wide respectively. Genital pores irregularly alternating in the anterior half of the proglottid margin. (Fig.3)

Uterus initially tube like later on branched with 3-7 lateral diverticulate. Uterus measure 0.4-0.470x0.042-1.1(0.435x0.570) and filled with numerous eggs. (Fig. 4)

Eggs oval to round, nonoperculate measure 0.014-0.021x0.021-0.042(0.018x0.031). (Fig.5)

Ventral longitudinal excretory canals measures 0.042-0.056(0.049) in diameter.

### Result and Discussion

The present form comes closer to *Gangesia (Gangesia) macrones*<sup>7</sup>, *Gangesia (Gangesia) lucknowia*<sup>5</sup>, *Gangesia (Gangesia) kashmirensis*<sup>1</sup>, *Gangesia mehamdabadensis*<sup>3</sup> and *Gangesia (Gangesia) indica*<sup>2</sup>. (Table - 1).

The present form differs from *Gangesia (Gangesia)*<sup>7</sup> in having larger scolex, smaller number of rostellar hooks, distinct neck, larger number of testes, internal seminal vesicle and lesser number of uterine diverticulae.

From *Gangesia (Gangesia) lucknowia*<sup>5</sup> it differs in having larger scolex, smaller number of rostellar hooks, internal seminal vesicle, larger cirrus pouch, smaller ovarian lobes with smaller isthmus.

From *Gangesia (Gangesia) kashmirensis*<sup>1</sup> it differs in having larger worm, larger scolex, larger neck, larger proglottids, internal seminal vesicle, larger ovarian lobes and lesser number of uterine diverticulae.

From *Gangesia mehamdabadensis*<sup>3</sup> it

differs in having smaller worm, smaller scolex, smaller number of rostellar hooks, larger neck, larger proglottids, larger number of testes, internal seminal vesicle, smaller ovarian lobes and lesser number of uterine diverticulae.

From *Gangesia (Gangesia) indica*<sup>2</sup> it differs in having smaller worm, more number of rostellar hooks, smaller neck, broader than long proglottids, greater number of testes, internal seminal vesicle and lesser number of uterine diverticulae.

In the light of above discussion, the present form may be accommodated as a new species *Gangesia (Gangesia) choparai* n. sp.

The new species is named after great helminthologist, Prof. A.K.Chopra Ex Head of the Zoology Department, Gurukul Kangari University Haridwar, (UK) India.

Type species	- <i>Gangesia (Gangesia) choparai</i>
Host	- <i>Wallago attu</i>
Habitat	- Intestine
Locality	- Ragauli, District Jalaun (U.P.)
Date of collection	- 25/03/2000
Number of specimens	- 01
Deposition	- Parasitological laboratory, Department of Zoology, Bipin Bihari (P.G.) College, Jhansi (U.P.) INDIA

### REVISED KEY TO SPECIES OF GENUS GANGESIA WOODLAND,1924.

1. Hooks on rostellum of scolex lie in two rows.....2  
-Hooks on rostellum of scolex lie in one row..... 3
2. Testes number 200 or more; uterus gives off 10-15 diverticula on either side.....  
.....*G. bengalensis*<sup>6</sup>.  
-Testes number 103-135; uterus gives off 15-17 diverticula on either side .....  
.....*G. lucknowia*<sup>5</sup>.
3. Rostellar crown consists of regularly spaced hooks of various sizes of which the largest are twice as large as the smallest ..... *G macrones*<sup>7</sup>.

TABLE- 1 : Comparison of the characters of the species closer to *Gangesia (Gangesia) choparai* n.sp.

S.N.	Structure	<i>Gangesia</i> (G.) <i>macrones</i> <sup>7</sup>	<i>Gangesia</i> (G.) <i>lucknowia</i> <sup>5</sup>	<i>Gangesia</i> (G.) <i>kashmirensis</i> <sup>1</sup>	<i>Gangesia</i> <i>mehamdabadensis</i> <sup>3</sup>	<i>Gangesia</i> (G.) <i>indica</i> <sup>2</sup>	<i>Gangesia</i> (G.) <i>choparai</i> n.sp.
1	Size	-	20.0-40.0x2.6	10.0-20.0x1.1	90.0-140.0x0.5-2.0	70.0-90.0x0.85-0.90	29.0x1.3
2	Scolex	0.11x0.194	0.2x0.3	0.2x0.28	0.392x0.416	0.27-0.30x0.25-0.29	0.370x0.328
3	Suckers	-	0.18 in diameter	-	0.199x0.198	0.12-0.014 in diameter	0.170-0.184 x0.1-0.191
4	Rostellum	-	-	0.52x0.14	0.154x0.164	0.11-0.13x0.19-0.21	0.084x0.170
5	No. of Rostellum hooks	66	50	30	46	24-26	32
6	Size of rostellum hooks	-	0.018x0.028	0.026x0.021	0.0156-0.0292 (in length)	0.010-0.025 (long)	0.0205-0.0373 (long)
7	Neck	Absent	Short 0.62-1.5 x0.34-0.51	Short 0.36x0.22	Short 0.56x0.24	0.90 to 0.92	0.556x0.3
8	Proglottid	Broader than long	Broader than long	Broader than long	Slightly Broad and Slightly long	Slightly longer than broad	Broader than long
9	Immature proglottids	-	-	0.67x0.85	0.042-0.56 x0.112-0.84	-	0.156-0.184 x0.6-0.8
10	Mature proglottids	-	-	-	0.142-2.38x0.112-2.38	1.00-1.20x0.88-0.92	0.2-0.6x0.756-0.0842

11	Gravid proglottids	-	-	-	0.20-2.0x 0.168-1.26	1.40-1.44x 0.98-1.00	0.842-0.870x 0.9-1.342
12	Number of testes	100	More than 100	More than 148	More than 100(41-105) 0.07 x0.112in diameter	100-110 (0.03-0.05) in diameter	120-150
13	Cirrus pouch size	1/4 th-1/6th across the segment	1/3rd across the segment	1/3 across the segment	-	1/3 across the segment	1/2 <sup>th</sup> -1/4 <sup>th</sup> across the segment
14	Internal seminal vesicle	Absent	Absent	Absent	Absent	Absent	Present 0.163-0.3x 0.042-0.070
15	Ovary lobes	-	0.14x0.65	0.31x0.15	0.099x0.89	0.34-0.36 x0.2-0.23	0.114-0.256x -0.256-0.514
16	Isthmus	-	Long	Short	-	Short	Short
17	Receptaculum seminis	-	-	0.070 diameter	0.019-0.28 x0.01-0.15	0.070x0.070	0.035-0.056 x0.042-0.063
18	Genital atrium	-	-	-	0.012-0.115 x0.0140-0.195	0.38x0.42	0.056-0.077 x0.021-0.042
19	Uterine diverticulae number	20-30	5-7	9-14	13-30	18-20	3-7
20	Host	<i>Maerones seenghala</i>	<i>Eutropichthys vacha</i>	<i>Glyptostenum</i> sp.	<i>Mystus tengra</i>	<i>Wallagonia attu</i>	<i>Wallago attu</i>

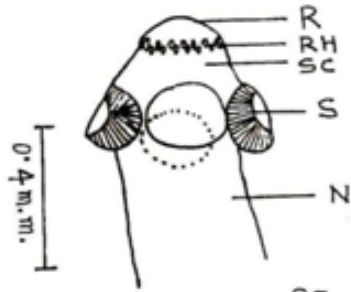


Fig. 1

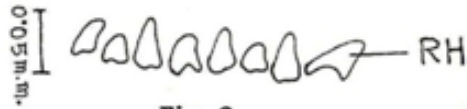
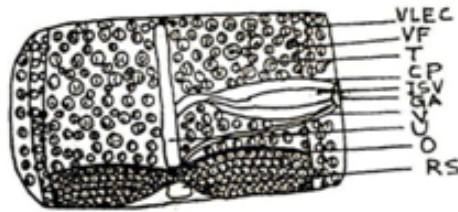


Fig. 2



0.4 m.m.

Fig. 3

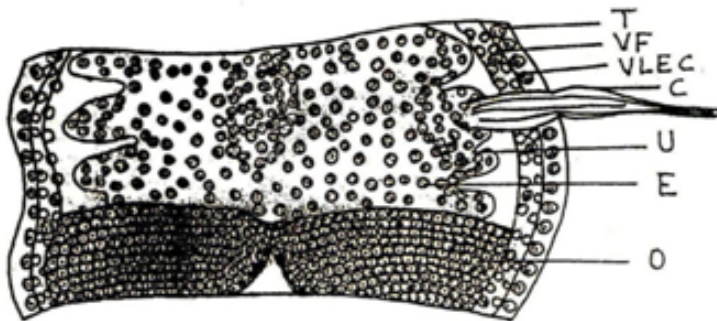


Fig. 4

0.4 m.m.

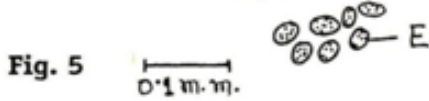


Fig. 5

0.1 m.m.

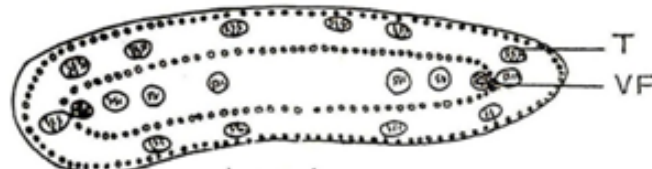


Fig. 6

0.1 m.m.

*Gangesia* (*Gangesia*) *choparai* n.sp.

Fig. 1 - Scolex with neck (5x10)

Fig. 2 - Rostellar hooks (5x45)

Fig. 3 - Mature Proglottid (5x10)

Fig. 4 - Gravid proglottid (5x10)

Fig. 5 - Egg (10x10)

Fig. 6 - Transverse section - A portion through testes and vitellaria (10x10)

- All hooks in rostellar crown of equal size ..... 4
4. Rostellar hooks upto 30 in number .....G. *oligonchis*<sup>4</sup>  
-Rostellar hooks 31-66 in number..... 5
5. Scolex covered with spines.....G. *polyonchis*<sup>4</sup>  
-Scolex not covered with spines..... 6
6. Cirrus pouch less than 0.40 mm. In length .....7  
-Cirrus pouch more than 0.40 mm. In length.....8
7. Rostellar hooks upto 0.02 mm. long.....G. *parasiluri*<sup>8</sup>  
-Rostellar hooks 0.023-0.031 mm. long .....G. *pseudobagrae*<sup>8</sup>  
-Sucker spines 1-2 rows; eggs 0.066 mm. dia.....G. *agraensis*<sup>6</sup>
8. Sucker spines 3-9 rows; eggs 0.021 mm. dia.....G. *mehamdabadensis*<sup>3</sup>.
9. Internal seminal vesicle present, uterus gives of 3-7 diverticula on either side .....  
.....*Gangesia* (G.) *choparai* n.sp.

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