

FLORA AND FAUNA

2015 Vol. 21 No. 1 PP 15-20

ISSN 0971 - 6920

MORPHOTAXONOMICAL STUDY OF A NEW CESTODE, *PSEUDOCLARIASIS PANDEI* N.G., N.SP FROM CATFISH, *CLARIAS BATRACHUS* LINN

ALOK PATHAK *AND A.K. SRIVASTAV

Parasitological laboratory,
Department of Zoology,
Bipin Bihari (P.G.) College,
JHANSI - 284001 (U.P.) INDIA
*Department of Zoology,
D.V. College ORAI 285001 (U.P.)
akscks@rediffmail.com

Received : 12.1.15; **Accepted** : 18.3.15

ABSTRACT

A new cestode, *Pseudoclariasis pandei* n.g., n.sp. is described from the fresh water catfish, *Clarias batrachus*

Figures : 05

References : 15

Table : 01

KEY WORDS : Caryophyllidea, Catfish, Muhana Village Distt. Jalaun (U.P.)

Introduction

The proposed new genus has been compared with different genera of the family capingentidae⁶. Besides other characters, the present form differs from all the genera in having fan shaped ovary.

Material and Methods

During the course of investigation of piscian tapeworms fifteen *Clarias batrachus* were collected from Betwa river at Muhana village, district Jalaun. Five were found infected with seven cestodes in their intestines.

The fishes were caught by the local fisherman from Betwa river at Muhana villages. 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 millimeters unless otherwise stated.

Observation

Generic diagnosis of *Pseudoclariasis pandei* n.g., n.sp.

Medium sized worm with flat, smooth, blunt scolex without any groove and cushion or spines. Neck absent. Well developed cirrus pouch with internal seminal vesicle. Ovary fan shaped posteriorly situated lateral lobes of ovary situated in cortex and medullary regions. Receptaculum seminis absent. Postovarian vitellaria absent. Uterus extends posterior to ovary. Eggs oval, operculate. Parasites of fresh water cat fishes.

***Pseudoclariasis pandei* n.g., n.sp.
(Figs.1-5)**

(Measurements in m.m. unless otherwise stated)

Cestodes measure 6.0-13.0 [9.5] in length and 0.2-0.256 [0.228] in width. Scolex smooth, blunt, well differentiated by a constriction without any cushion or groove measures 0.4-0.484x0.414-0.5 [0.442-0.456]. neck absent. (Fig.1)

ACKNOWLEDGEMENT : The authors are grateful to the Principal and Head, Department of Bipin Bihari College, Jhansi for providing the laboratory facilities.

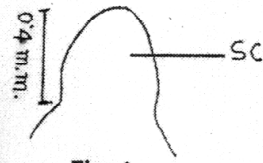


Fig. 1

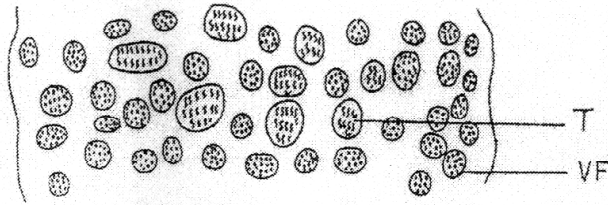


Fig. 2

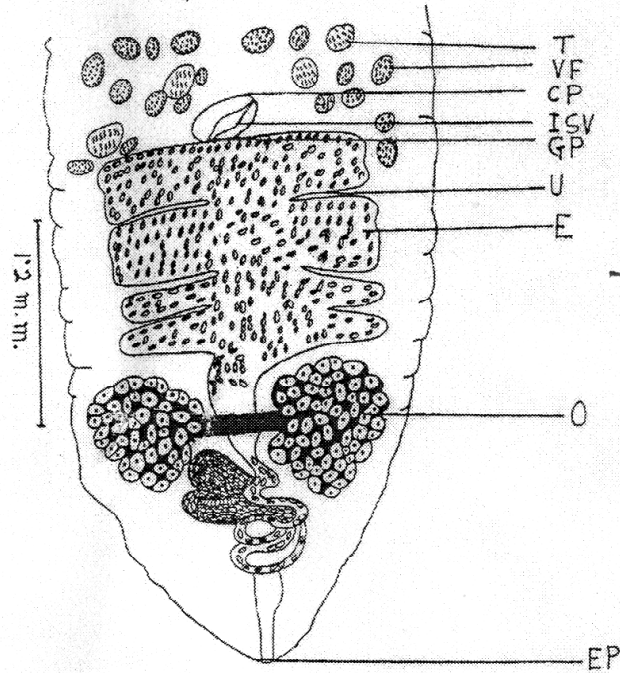


Fig. 3

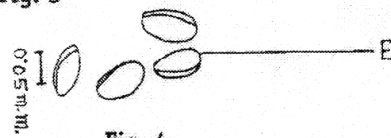
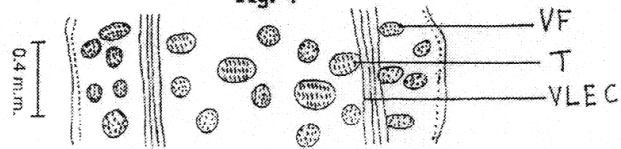


Fig. 4



Figs. (1-5) : *Pseudoclarissis pandei* n.g., n.sp.

MORPHOTAXONOMICAL STUDY OF A NEW CESTODE, PSEUDOCLARIASIS PANDEI N.G., N.SP FROM CATFISH, CLARIAS BATRACHUS LINN 17

Testes innumerable in number, oval to round measures 0.128-0.191x0.1-0.242[0.163x0.170] in medullary region (Fig.2) extend up to the level of cirrus pouch. Cirrus pouch oval to round. Median measures 0.2-0.3x0.3-0.3-0.370 (0.256x0.342). internal seminal vesicle measures 0.070-0.1x0.1x0.084-0.128 (0.084x0.114). (Fig.3).

Female genitalia posteriorly situated. Ovary fan shaped measures 0.7-1.1x1.6-1.8 (0.9x1.7) behind the cirrus pouch. Lateral lobes of ovary situated in cortex and in medullary regions and isthmus in medullary region [fig.3]

Vitellaria partly cortical partly medullary. Innumerable, anterior to uterus measures 0.056-0.142 (0.077x0.114) (Fig.5). Receptaculum seminis absent.

Uterus long, nonglandular, coiled medullary situated posterior and anterior to the ovarian isthmus. Uterus extended 2.6-2.9 (2.856) in length and 1.3-1.6 (1.456) in width. [fig.3] male and female gonopores separately situated behind the cirrus pouch. Eggs oval, operculate measure 0.1373-0.05x0.0664-0.0914 (0.0436x0.0727). (Fig.4) excretory pore measures 0.014-0.021x0.070-0.084 (0.018x0.077).

Result and discussion

Presently twenty genera have been included in the family Capingentidae order Caryophyllidea

This form comes closer to genera *Pseudolytocestus*, *Pseudocaryophyllus*, *Pseudoadenoscolex*, *Pseudoinverta*, *Pseudobatrachus*, *Pseudobilobulata*, *Pseudobeanata*, *Pseudoauricularia* and *pseudouneventa*

This form differs from *Pseudolytocestus* in having well developed conical scolex, external seminal vesicle absent, internal seminal vesicle present, ovary fan shaped and uterus extend up to postovarian region.

The present form differs from *Pseudocaryophyllus* in having well developed scolex without neck, ovary fan shaped and operculated eggs.

The present form differs from *Pseudoadenoscolex* in having medium size worm with well developed scolex, fan shaped ovary, uterus extend up to post ovarian region and operculated eggs.

Present form differs from *Pseudoinverta*

having medium size of worm, fan shaped ovary in absence of mehlis gland and operculated eggs.

The present form differs from *Pseudobatrachus* in having well developed scolex without neck, internal seminal vesicle present and fan shaped ovary.

This form differs from *Pseudobilobulata* in having larger worms, absence of neck, presence of internal seminal vesicle and fan shaped ovary.

The present form differs from *Pseudoauricularia* in having internal seminal vesicle, fan shaped ovary and operculate eggs.

The present form differs from *Pseudouneventa* in having fan shaped ovary and operculate eggs.

Thus the proposed new genus. *Pseudoclariasis* n.g. differs from all known genera of the family Capingentidae. In the light of above discussion the genus *pseudoclariasis* n.g. may be provisionally accommodated as a new genus.

New genus is named on the name of host, while species is named after the great helminthologist of India, Prof. K.C. Pandey Ex-Vice Chancellor C.C.S. University Meerut, [U.P.] India.

Type species : *Pseudoclariasis pandei*
 Host : *Claris batrachus* (Linn.)
 Habitat : Intestine
 Locality : Betawa river at Mugana Village, District-Jalaun [U.P.]
 Date of : 15/04/2000
 Collection Number of : 07
 Specimen Accession : ?
 Deposition : Parasitological laboratory
 Department of Zoology Bipin
 Bihari (P.G.) College Jhansi
 (U.P.) India

Revised Key to the various genera of the family Capingentidae⁶¹

1. Post-ovarian median vitellaria present-----2
 Post-ovarian median vitellaria absent-----6
2. Uterine coils extend anterior to cirrus pouch, scolex with two large bothria-----*Capingen*⁴
 Uterine coils not extending anterior to cirrus pouch, scolex lacking bothria-----3

MORPHOTAXONOMICAL STUDY OF A NEW CESTODE, PSEUDOCLARIASIS PANDEI N.G., N.SP FROM CATFISH, CLARIAS BATRACHUS LINN 19

3. Ovary inverted A-shaped -----*Adenoscolex*² Ovary inverted U-shaped ----- *Pseudoinverta*¹²
 Ovary not as above-----4 Ovary ear-shaped ----- *Pseudoauricularia*⁷
4. Ovary dumbbell-shaped; scolex quite reduced; neck absent-----*Breviscolex*⁸ Ovary uneven bilobed ----- *Pseudounevenata*⁷
 Ovary otherwise; scolex well developed, neck present-----5 Ovary bean shaped ----- *Pseudobeanata*¹⁸
5. Ovary H-shaped----- *Edlintonia*¹¹ 9. Neck small, ovary-bilobed----*Pseudobilobulata*¹⁷
 Ovary band-shaped-----*Capingentoides*³ Neck Medium, ovary inverted A-shaped-----
 -----*Pseudoheteroinverta*¹⁵
6. Ovary U-shaped, Uterine coils extending anterior to cirrus pouch-----*Spartoides*⁵ Neck Medium, ovary omega-shaped-----
 -----*Sukhpatae*¹⁶
- Ovary U-shaped, uterine coils not extending anterior to cirrus pouch-----*Mystoides*⁹ Neck medium, ovary M-shaped with long arms-----
 -----*Sudhaena*⁷
- Ovary not U-shaped, uterine coils not extending anterior to cirrus pouch-----7 Very long neck, ovary band-shaped-----
 -----*Pseudocaryophyllaeus*³
7. Neck absent ----- 8 Very long neck, ovary H-shaped-----
 -----*Pseudobatrachus*¹³
- Neck present ----- 9 Very long neck, ovary inverted A-shaped-----
 -----*Heeradevina*¹⁴
8. Ovary H-shaped ----- *Pseudolytocestus*⁵
 Ovary inverted A-shaped-----*Pseudoadenoscolex*¹⁰
 Ovary fan-shaped-----*Pseudoclariasis* n.g.

References

- BENEDEN, P.I. VAN AND OLESSON, M.(1893) Kgl Sevenska vetenskapsakad hand. **25**:1-41.
- FOTEDAR, D.N. (1958) On a new cestode parasite (Proteocephalidae: Cestoda) *Kashmir Sci.*,**31**:17-32.
- GUPTA, S.P. (1961) Caryophyllaeids (cestoda) from freshwafer fishes of India. *Proc. Helminthol.Soc.*,**73**:183-186.
- HUNTER, G.W. III (1927) Notes on the Caryophyllaeidae of North America. *J. Parasitol.*,**14**:16-26.
- HUNTER, G. W. III (1929) New caryophyllaeidae from North America.*J. Parasitol.*, **15**: 185-192.
- HUNTER, G. W. III and Hunter, W.S. (1930) Studies on the parasites of fishes of the Lake Champlain watershed. Annu. Rep. N.Y. state conservancy Dep. *Bioi Surv. Suppl.*, 197-216.
- KHARE, R.K. (2006) 'Morphotaxonomy of Piscian cestodes and ecological observations of *Mastacembelus armatus* (Lacepede) in relation to parasitic infestation' Ph. D. Thesis, Bundelkhand Univ., Jhansi (U.P.) India 1-185.
- KULAKOV ASKA YA, O.P. (1962) *Breviscolex orientalis* n.g., n.sp. (Caryophyllaeidae. Cestoda) from fish in the Amur basin (In Russian). *Dokl. Acad. Nauk SSSR*, **143**:1001-1004.
- MATHUR, N. (1992) 'Morphotaxonomy of piscian cestodes and their ecological study in *Heteropneustes fossilis* (Bloch)' Ph.D. Thesis, Bundelkhand Univ., Jhansi (U.P.) India, 1-166
- MATHUR, N. AND SRIVASTAV, A.K. (1994) Study of a new cestode, *Pseudoadenoscolex fossilis* n.g., n.sp. from freshwater cat fish, *Heteropneustes fossilis* (Bloch) U.P. *J Zool.*, **14** (1): 33-36.

20

ALOK PATHAK AND A.K. SRIVASTAV

- 11 MACKIEWICZ, J.S. (1970) *Edlintonia ptychocheila* gen. n., sp.n. (Cestoidea: Capingentidae) and other caryophyllid tapeworms from cyprinid fishes of North America *Proc. Helminthol Soc. Wash.* **37**: 110-118.
- 12 PATHAK, A. (2002) 'Studies on the morphology, taxonomy and ecology of piscian cestode parasites of district Jalaun' Ph.D. Thesis, Bundelkhand Univ., Jhansi (U.P.) India 1-244
- 13 PATHAK, A. AND SRIVASTAV, A.K. (2005) Morphotaxonomical study of a new cestode, *Pseudobatrachus chandrai* n.sp. from freshwater cat fish, *Clarias batrachus* (Linn.) *Ind.J Environ. Sci.*, **9**(2):141-143.
- 14 SRIVASTAV, A.K. AND LOHIA, S. (2002) Status of *Pseudobilobulata* n.g. (Capingentidae Hunter, 1930) with description of a new species from freshwater fish of Jhansi, Uttar Pradesh, India *Flora and Fauna*, **8**(2): 75-76.
- 15 SRIVASTAVA, A.K., SAHU, V.K. AND KHARE R.K. (2007) First report of a new Caryophyllid worm, *Pseudobeanata paleraensis* n.g., n.sp. from *Clarias batarachus* (Linn.) *Flora and Fauna*. **13** (2) 439-444.