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***Lamproglena Nordmann 1832, in alimentary canal of fresh water fish *Schizothorax richardsoni* from Poonch river of J&K, a new species and first host record from Jammu and Kashmir UT and from India.***

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**Abstract** - The parasite under discussion has been observed to harbor the gills of freshwater fish *Schizothorax richardsoni* from Poonch river of J&K state, India. It belongs to phylum Arthropoda and class Copepoda as (i) the body of parasite is divided into head, thorax and abdomen (ii) has outer covering of semi-rigid chitinous exoskeleton (iii) has segmented thorax. *Lamproglena* (Suborder Siphonostomatoida) that includes more than 20 species, all of which inhabit the gills or the bronchial cavity of freshwater fish (Kabata 1985). When compared with the already known species of *Lamproglena* the present form came closest to *L. hospetensis* (Manohar et. al. 1992) on the basis of general appearance, but it differs from that in respect of (i) all morphometric details (ii) the shape of Cephalon which is rectangular in *L. hospetensis* but semi-spherical in present form (iii) the presence of stalk at the base of genital arms, which is merging in *L. hospetensis* (iv) presence of darkly stained ring at 6<sup>th</sup> segment of right genital arm. Moreover the present form has been recovered from the gills of freshwater fish host *Schizothorax richardsoni* from Poonch, which is a first host record of the genus *Lamproglena* not only from State of Jammu and Kashmir but from India too.

On the basis of above mentioned morphological differences as well as the difference of host and locality, it can be inferred and very safely informed that the present form is a new species for which name *Lamproglena schizothoraxi* is being proposed.

**Keyword** - *Lamproglena schizothoraxi* n. sp. fresh water fish *Schizothorax richardsoni* (Ham.) from Poonch river of J&K UT of India.

## I. Introduction

The genus *Lamproglena* was created by Nordman in 1832 with *L. pulchell* as its type species from Cyprinids in Europe, and has been reported in Germany, France, Russia and in Northern Italian lakes. It is an ecto-parasite which lives on the gills of freshwater fishes. This parasite has a direct life cycle (monoxenous), with the infectious stage represented by adult female. Subsequently many species of *Lamproglena* were reported from different parts of the world. . Markewitsch (1934, 36) reported *Lamproglena* from *Aspius aspius*, *Abramis*, *Leuciscus*, *Rutilus*, *Scardinius*. *L.nyasae* Fryer, 1956, on *Haplochromis*, *Docimodus*, *Lethrinops*, *Tilapia* , *Petrotilapia*, *Pseudotropheus*, Lake Nyasa. Female Ca. 3.6mm syn of *L.monodi* Fryer (1959).

*L.ophiocephali* Yamaguti, 1939 syn. of *L. chinensis* Yii, 1935 – Markewitsch, 1936, on *Erythroculter mongolicus*, *Culter alburnus*, *Hemiculter leucisculus*, *Pseudaspius leptcephalus*, *Hypophthalmichthys molitrix*, Amur river system. Female 2.5-2.6mm; also on *Erythroculter* spp. and *Culter* spp. near Nanking, Wang (1958). *L.robusta* Capart, 1943, on *Leiocassis bicolor*, Thailand. *L.Wilsoni* Capart, 1956 on *Clarotes laticeps*, Soudan, Female 3.8-4.0 x 0.7mm.

In India, Manohar *et.al.*, (1992) reported *Lamproglena hospetensis* from gills of fish *Silundia sykesi* from Karnataka. Vankara and Vijayalakshmi (2009) reported same parasite *Lamproglena hospetensis* from gills of *Mystus vittatus* from river Godawari.

A total of 24 worms were recovered from the Gills of *Schizothorax richardsoni* collected from Station I at Poonch. Permanent stained mounts of these were made and studied.

## II. Materials and Methods

The host *Schizothorax richardsoni* was collected from Poonch river of J&K UT. Recovery of parasites was done as per the methods employed by Moravec *et al.* (1997). The copepod was fixed in hot 70% alcohol and preserved in 10% glycerene alcohol. The specimens were cleared in lactophenol for appropriate observation. En face preparations followed the methods of Anderson (1958), and identification of these copepod specimens to species level was based on Yamaguti (1961), Moravec and Arai (1971) and Sood (1959).

**Observation:**

Phylum – Arthropoda .

Class – Copepoda.

Order – Caligidea

Family – Eudactylinidae

Genus – *Lamproglena***Phylum** – Arthropoda

**Class** – Copepoda

**Order** – Caligidea

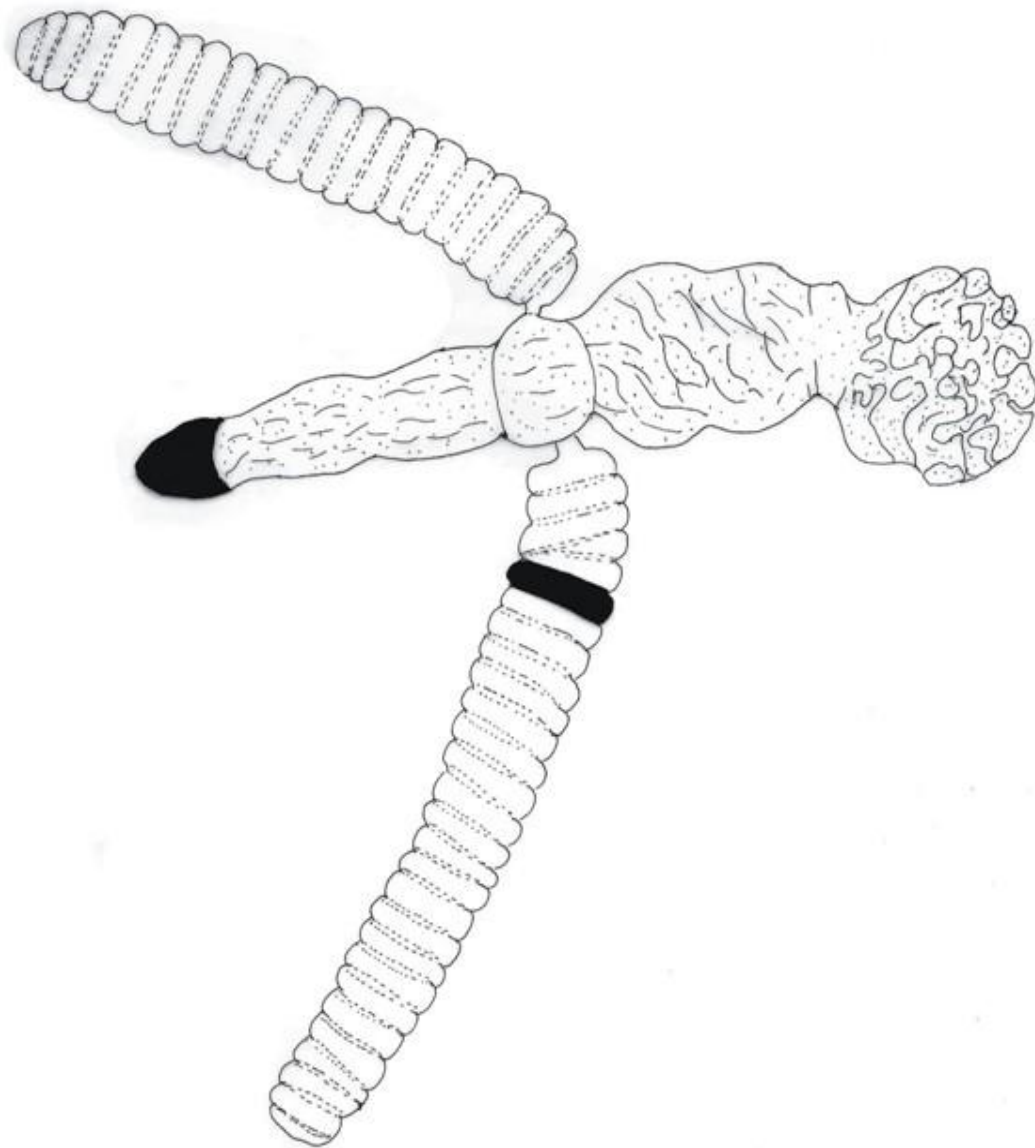
**Family** – Eudactylinidae

**Genus** – *Lamproglena*

**Descriptive Note:**

Based on 12 randomly selected parasites belonging to *Lamproglena schizothoraxi* from host fish *Schizothorax richardsoni* from station –I Poonch. Fig.1 to 5, Table-1 and 2.

**Body:** divided into three regions namely; head, thorax and abdomen. These regions are covered by semi-rigid chitinous exoskeleton. Head: partially separated from first thorax segment and divided by lateral sinuses into an anterior and a posterior portion. First thoracic segment: only half as wide as head, very short, forming a neck; second, third and fourth segments: increasing in size posteriorly; last thoracic segment; fused to genital segment which is nearly spherical or quadrangular, narrower than last abdominal segment.



**Figure 1: Camera lucida drawing of *Lamproglena schizothoraxi* n.sp. (showing general organization).**

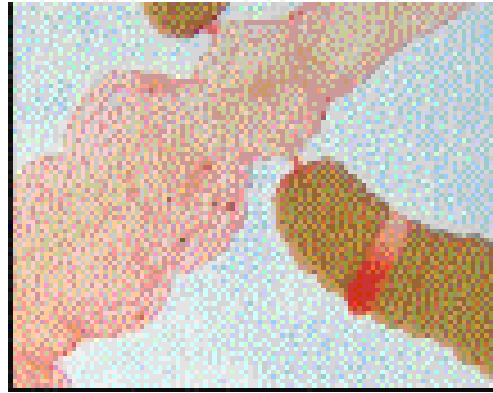
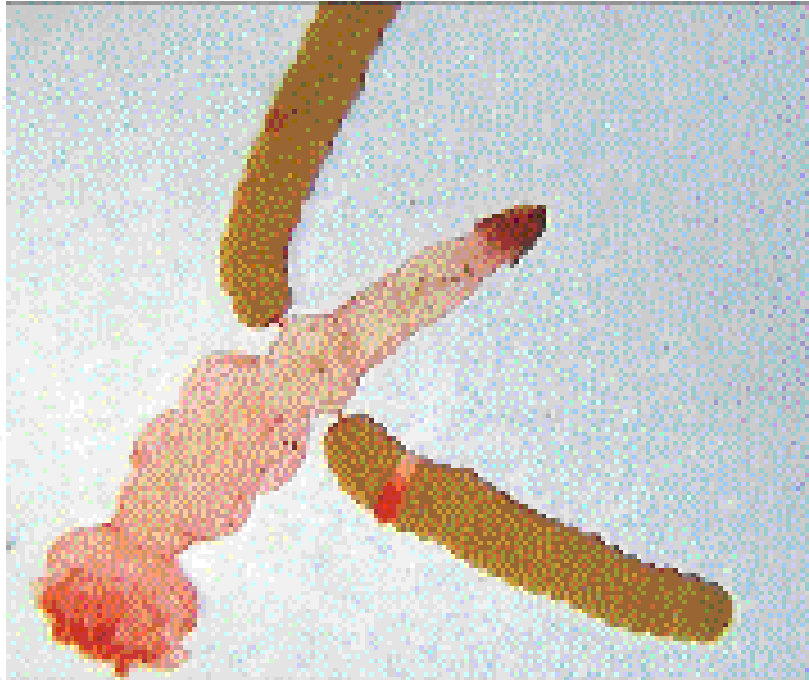
H-Head ; T-Thorax ; A-Abdoman ; G.A-Genital aim ; R-Ring  
L-Last abdominal segment (cone shaped)

**Table- 1 : Morphometric data of *Lamproglena schizothoraxi* n. sp.**

S.No.	Body Character	Measurements (mm)
1	Host	<i>Schizothorax richardsoni</i>
2	Location	Gills
3	Locality	River Poonch J&K State, District Poonch
4	Body size	1.92-2.75 ± 0.05 x 0.58-0.69 ± 0.07
5	Cephalon	0.51-0.53 ± 0.01 x 0.34-0.56 ± 0.1
6	Genital Segment	1.2-1.8 ± 0.42
7	Size of genital arms	1.20-1.89 ± 0.48
8	Abdomen	0.82-1.20± 0.26 x 0.20-0.28 ± 0.05
9	Caudal rami	0.18-0.23± 0.03 x 0.08 ± 0.01

**Abdomen:** considerably long, its 3 segments diminish in length and slightly in width also from front backwards, three abdominal segments together are shorter than rest of body; tail: segment is darkly stained.

**Genital arms:** have a stalk at the base which is 0.1 in length and 0.01 in breadth; right genital arm: 1.20 in length and 0.20 in width; genital arms are segmented (23-26 segments). The 6<sup>th</sup> segment of right genital arm is darkly stained and forms a conspicuous ring; left genital arm: 1.37 in length and 0.21 in width and does not have any dark ring, like that of right genital arm. The last abdominal segment is cone-shaped and measures 0.18 in length by 0.11 in width.



**Figure 2 – 5 : Microphotographs of *Lamproglena schizothoraxi* n.sp**

Fig.2: Entire dorsal view of *Lamproglena schizothoraxi* n.sp

Fig.3: Anterior end showing head region.

Fig.4 : Middle part showing gonadial arms attached with fourth segment by stalk

Fig.5: Posterior part showing conical posterior most segment

**Host:** *Schizothorax richardsoni* (Gray)

**Location:** Gills

**Locality:** Poonch

### III. Discussion

The parasite under discussion has been observed to harbour the gills of freshwater fish *Schizothorax richardsoni* from Poonch river of J&K state, India. It belongs to phylum Arthropoda and class Copepoda because the parasite has (i) the body divided into head, thorax and abdomen (ii) outer covering of semi-rigid chitinous exoskeleton (iii) thorax segmented - the last thoracic segment known as genital segment includes the *external genitalia* (iv) the lines of division between the body segments are fused in the parasitic species. The abdomen is composed of three segments which are fused together. The parasite belongs to order *Coligidea* and family Eudactylinidae because of following characters (i) the body of female is more or less distinctly segmented and usually cylindrical (ii) head fused with the first thoracic segment, (iii) fourth segment as wide as third (iv) genital segment smaller (v) egg sacs straight tubular. The parasitic copepod belongs to family Eudactylinidae because (i) the female head is fused with first thoracic segment and covered with carapace (ii) there are three or four thoracic segments (iii) fifth segment fused with genital segment which is spherical in shape (iv) caudal rami cylindrical. The parasite under discussion belongs to the genus *Lamproglena* (Suborder Siphonostomatoida) that includes more than 20 species, all of which inhabit the gills or the branchial cavity of freshwater fish (Kabata 1985). When compared with the already known species of *Lamproglena* the present form came closest to *L. hospetensis* (Manohar *et.al.*, 1992) on the basis of (i) general appearance, (ii) shape of cephalon, (iii) neck, (iv) 3<sup>rd</sup> & 4<sup>th</sup> segment of body, (v) three segmented abdomen and (vi) general shape of genital arms but it differs from that in respect of (i) all morphometric details (Table-23) (ii) the shape of Cephalon which is rectangular in *L. hospetensis* but semi-spherical in present form (iii) the presence of stalk at the base of genital arms, which is merging in *L. hospetensis* (iv) presence of darkly stained ring at 6<sup>th</sup> segment of right genital arm and (v) shape of 3<sup>rd</sup> abdominal segment. Moreover the present form has been recovered from the gills of freshwater fish host *Schizothorax richardsoni* from Poonch, which

is a first host record of the genus *Lamproglena* not only from State of Jammu and Kashmir but from India as well.

**Table-2 : Comparison between *L. hospetensis* and present form**

S.No.	Body Character	<i>L. hospetensis</i> Manohar <i>et.al.</i> , (1992)	Present form
1	Host	<i>Silundia sykesi</i> , <i>Mystus vittatus</i> .	<i>Schizothorax richardsoni</i>
2	Location	Gills	Gills
3	Locality	Karnataka & River Godavari	River Poonch J&K State, District Poonch
4	Body size	1.40-1.54 x 0.34-0.38	1.92-2.75 ± 0.05 x 0.58-0.69 ± 0.07
5	Cephalon	0.30-0.38 x 0.27-0.29	0.51-0.53 ± 0.01 x 0.34-0.56 ± 0.1
6	Genital Segment	0.13-0.15	1.2-1.8 ± 0.42
7	Size of genital arms	-	1.20-1.89 ± 0.48
8	Abdomen	0.51-0.52 x 0.18-0.20	0.82-1.20± 0.26 x 0.20-0.28 ± 0.05
9	Caudal rami	0.03-0.04 x 0.03	0.18-0.23± 0.03 x 0.08 ± 0.01

On the basis of above mentioned morphological differences as well as the difference of host and locality, it can be inferred and very safely stated that the present form is a new species for which name *Lamproglena schizothoraxi* is being proposed.

#### IV. Acknowledgements

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