

**Studies on a New Monogenean, *Leptomazocraes lucknowensis* n.sp. from
Hilsa ilisha (Ham.)**

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Abstract

Leptomazocraes lucknowensis n.sp. is described herein from a clupeid fish, *Hilsa ilisha* (Ham.) from the district Lucknow, India. The new species is characterised by the presence of pharyngeal glands, the number of testes, the number and shape of genital spines and the shape of the clamp sclerites. This is the first record of the genus *Leptomazocraes* Mamaev, 1975 from a clupeid fish.

Key words: *Hilsa ilisha* (Ham.), Monogenea, *Leptomazocraes*, genital spines, clamp sclerites.

Introduction

During the course of a study of freshwater monogeneans at the district Lucknow, India, one specimen of *Hilsa ilisha* (Ham.) out of fifty examined, was found to be infected with a polyopisthocotylean monogenean belonging to the genus *Leptomazocraes* Mamaev, 1975. The parasite has been reported only from the fishes of the family Dussumerinae and Engraulidae. Our report records it as being found for the first time in the family Clupeidae.

Materials and Methods

Fishes were purchased from the local fish market and brought to the laboratory. Gills were taken out, placed in a tube half-filled with water and kept in a refrigerator for two hours. Water was subsequently poured in a petridish and examined with a binocular microscope. Monogeneans in a relaxed condition were collected by a fine glass pipette. They were fixed in hot 70% alcohol, washed, stained with Acetoalum Carmine, dehydrated and mounted in Canada Balsam. The sclerified parts were studied by temporary glycerine preparations. Camera lucida sketches were made both from perma-

nent and temporary preparations. Measurements were taken with the help of an oculometer and a stage micrometer.

Description

Elongated body (Fig. 1) is narrow anteriorly and broad posteriorly and measures 0.62 – 0.69 mm in length and 0.03 – 0.05 mm in width (n = 7). Two circular and muscular buccal suckers are present in the anterior region. Each measures 15 – 28 × 7 – 12 μm. Muscular pharynx is oval, measuring 22 – 30 × 8 – 15 μm. One pair of pharyngeal glands are present in the postero-lateral border of pharynx. The pharynx is followed by an oesophagus of 100 – 160 μm in length. The oesophagus divides into two intestinal caeca at the level of the copulatory organ. They have short lateral branches, do not unite posteriorly and extend upto the third pair of haptorial clamps.

Testes are 3 – 5 in number and located in the posterior region of the body. Each testis is oval and measures 18 – 35 × 8 – 17 μm. The copulatory organ (Fig. 4), located near the intestinal bifurcation, is somewhat oval in shape and measures 12 – 28 × 10 – 25 μm. It bears four pairs of genital spines. Each of the spines of the first pair (Fig. 5) is lateral, curves inwards and has a cylindrical base; measurements: a

= 35 – 40 μm , b = 10 – 16 μm , c = 30 – 35 μm . The genital spines (Fig. 5) of second, third and fourth pair are similar in shape and are arranged in a circle. Each spine has a broad base and a pointed tip; measurements: a = 15 – 18 μm , b = 4 – 7 μm , c = 11 – 16 μm .

The ovary is elongated and measures 100 – 160 \times 5 – 21 μm . The vaginal opening (Fig. 1) is located between the copulative organ and ovary. It (Fig. 6) is rounded, weakly muscular, opens mid-dorsally and measures 3 – 6 \times 4 – 7 μm . In each of the two parasites, 1 – 2 embryonated eggs have been found. The egg (Fig. 9) is oval, measuring 100 – 150 \times 45 – 55 μm (n = 4). Vitellaria are densely spread from behind the mid-oesophageal region upto the haptoral region.

Haptor (Fig. 1) is broad and measures 100 – 160 \times 50 – 90 μm . It bears four pairs of similar clamps and ends as a small lappet. Each clamp (Fig. 2) is of the closed type (See Mamaev, 1975) and measures 45 – 70 \times 55 – 85 μm (n = 7). A ctenoid strip is present around the margin of each clamp except at the anterior margin. The clamp skeleton consists of five sclerites and the nomenclature adopted for the clamp sclerites is that of Mamaev, 1981. The sclerites are Scleritum Arcuatum Anterius (SAA), Scleritum Antero Supplementarium (SAS), Scleritum Medio Basale (SMB), Scleritum Medio Supplementarium (SMS) and Scleritum Labiatum (SL). SAA (Fig. 3) is thin, having club shaped tips, formed by the fusion of two sclerites, each of which measures 45 – 50 μm , SAS (Fig. 3) is broad and measures 30 – 40 \times 40 – 55 μm . SMB (Fig. 3) is rectangular, perforated by apertures and measures 54 – 65 \times 63 – 70 μm . The apertures are six in number and arranged in two parallel rows. SMS (Fig. 3) is transversely elongated, having pointed tips and measures 75 – 85 \times 8 – 12 μm . SL (Fig. 3) is formed by the fusion of two Scleritum Postero Lateralia (SPL) and a triangular Scleritum Postero Supplementarium (SPS) and measures 110 – 135 μm in length.

The lappet (Fig. 7) bears two pairs of anchors and one pair of marginal hooklets and measures 75 – 100 \times 90 – 155 μm . The outer

pair of anchors (Fig. 8) is large, each having a broad base, a medium spur and a pointed tip; measurements: a = 45 – 55 μm , b = 11 – 17 μm , c = 28 – 35 μm , d = 10 – 15 μm . The inner pair of anchors (Fig. 8) is smaller in size, each having a short handle and a curved tip; measurements: a = 28 – 32 μm , b = 15 – 20 μm , c = 9 – 15 μm . The pair of marginal hooklets (Fig. 8) is very small; each of these has a pointed tip; measurements: 11 – 16 μm (a).

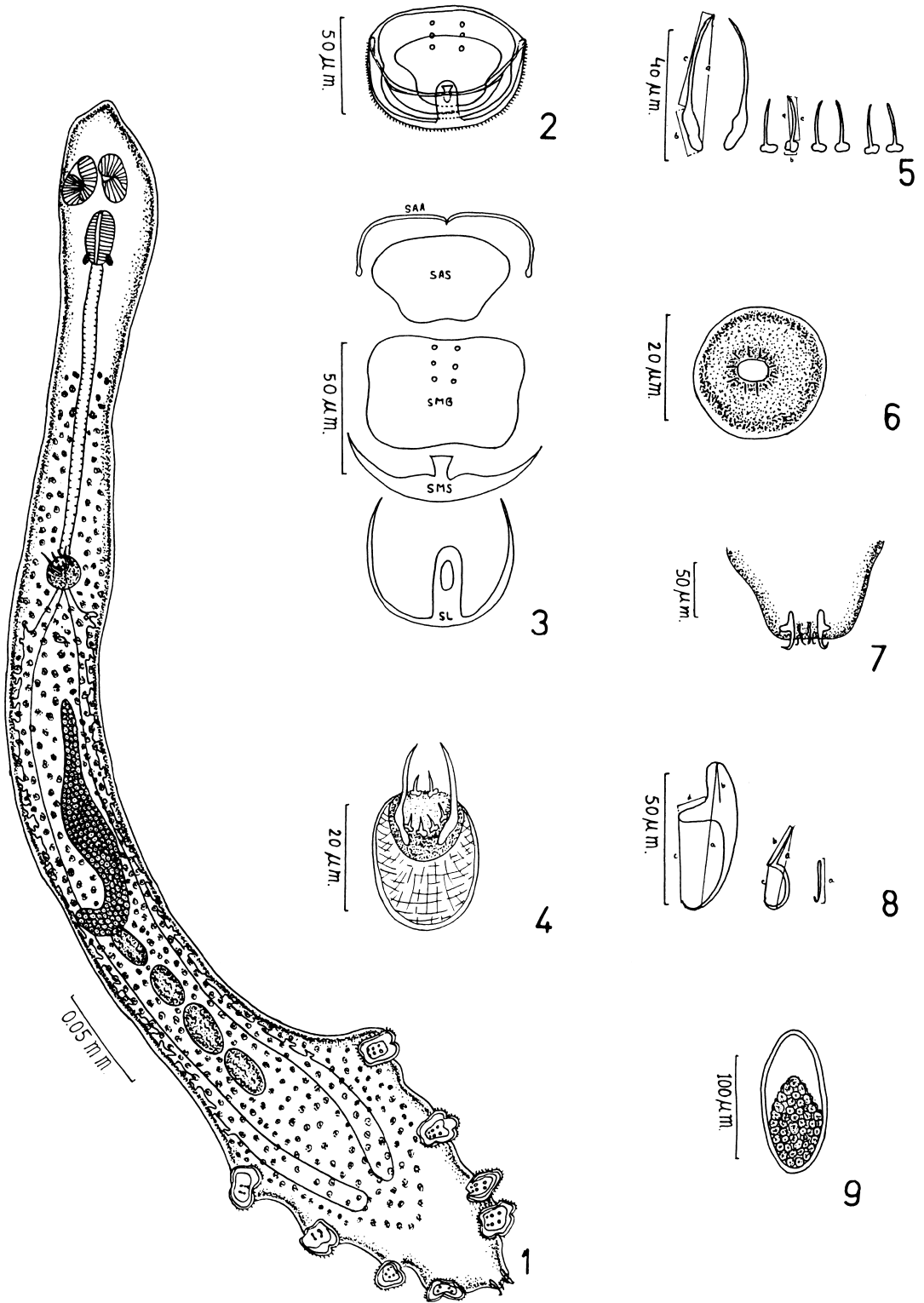
Discussion

The genus *Mazocraes* was erected by Hermann, 1782 with *M. alosae* as its type species. Subsequently, *M. harengi* (V. Ben & Hesse, 1863) Nicoll, 1915; *M. pilchardi* (V. Ben & Hesse, 1863) Sproston, 1946; *M. orientalis* Chauhan, 1950; *M. vildelelai* Tandeiro & Valdez, 1955; *M. gonialosae* Tripathi, 1959; *M. trispina* Unnithan, 1964; *M. chauhani* Kumar and Agarwal, 1981 and *M. elongatus* Khan and Karykarte, 1982 were added to this genus.

Mamaev (1975) erected the genus *Leptomazocraes* and separated the genus *Mazocraes* on the basis of structure of copulatory organ and details of clamp skeleton. He transferred *M. orientalis* in the genus *Leptomazocraes* on the basis of the 1 – 5 lateral hooks, tubercle-like medial hooks and four pairs of similar clamps with five sclerites. Further, Mamaev (1981) has redescribed *L. orientalis* (Chauhan, 1950) Mamaev, 1975 and transferred *M. trispina* in the genus *Leptomazocraes*. To the best of our knowledge, so far three species have been described under the genus *Leptomazocraes* Mamaev, 1975 viz., *L. orientalis* (Chauhan, 1950) Mamaev, 1975; *L. trispina* (Unnithan, 1964) Mamaev, 1981 and *L. arabica* Mamaev, 1981. *L. lucknowensis* n.sp. differs from all the above mentioned species in the presence of pharyngeal glands, number and shape of genital spines, number of testes and shape of clamp sclerites.

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- Fig. 1 *Leptomazocraes lucknowensis* n.sp., whole mount.
 - Fig. 2 Single haptorial clamp, drawn from a glycerine mount.
 - Fig. 3 Dissected view of clamp, drawn from a glycerine mount.
 - Fig. 4 Copulatory organ, drawn from a glycerine mount.
 - Fig. 5 Isolated genital spines, drawn from a glycerine mount.
 - Fig. 6 Vaginal opening, drawn from a glycerine mount.
 - Fig. 7 Lappet, drawn from a glycerine mount.
 - Fig. 8 Isolated anchor and marginal hooklet of the lappet, drawn from a glycerine mount.
 - Fig. 9 Egg, drawn from a glycerine mount.