MONOGENEA OF INDIAN FRESH-WATER FISHES

III. Urocleidus notopterus n.sp. (Subfamily Tetraonchinae), from the Gills of Notopterus notopterus (Pallas), from Lucknow

BY S. L. JAIN, M.SC.  
(Research Scholar, Zoology Department, Lucknow University, Lucknow)

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In earlier two communications (1952 a, 1952 b) I have described a new species and a new genus of the subfamily Tetraonchinae, being the only representatives from the fresh-water fishes of India. The work was started in 1952 and the present communication is the third in the series dealing with a new species of the same subfamily.

Mizelle's (1936) refrigeration technique was followed. The host material was obtained from the fish market, Lucknow. All measurements except length and width of the body were made in glycerine mounts of fresh material. Curved surfaces were measured as straight lines extending between two most distant parts of the same.

Urocleidus notopterus n.sp.

A number of specimens were recovered from the gill filaments of a Feather Back, Notopterus notopterus (Pallas). Ten specimens of the host were examined and only seven were found infected, the infection was moderate and the number of ectoparasites recovered from one fish ranged from nineteen to thirty-six. The worms are easily recognised under a binocular microscope by the dense vitellaria spread over the body of the ectoparasite. The worms are soft, elongated and semi-transparent. The body consists of an elliptical anterior end, oblong body proper and a discoidal haptor.

An average sized worm (Fig. 1) is 0.38–0.42 mm. long, with width at the cephalic lobes 0.045 mm. and maximum body width being 0.07 mm. The cephalic lobes are not very well differentiated. There are four pairs of head organs and members of each side are fused together. The eye-spots are in two pairs, the anterior and the posterior pair, the latter with a larger number of melanistic granules. Pharynx is oval, 0.025 × 0.03 mm. Pharyngeal glands are situated on both sides of the pharynx and are made up of small globular glands. The outlines of the gut are obscured by the large amount of vitellaria spread in that region.
Haptor (Fig. 2) is discoidal, 0.085×0.065 mm. Peduncle is short and stout. The haptor is furnished with two pairs of anchors, a pair of bars, a pair of stout supporting bars and seven pairs of hooks. Anchors are almost similar in shape and size, differing only with respect to the bases. Each dorsal anchor consists of a stout rounded base with two or three indentations but there is no differentiation of a superficial and a deep root. Each anchor has stout shaft, fine recurved points and is winged. Each is 0.04–0.041 mm. in length (not following the curved surface) with width of the base 0.008–0.01 mm. The dorsal bar is a straight transverse shaft with dentitions in the middle anterior portion. Each is 0.04–0.041 mm. in length. Associated with the dorsal anchors are a pair of supporting bars. Each has a flattened proximal end and a conical distal end. The members
of the pair do not articulate with each other in the middle. Each is 0.022–0.024 mm. in length. Each ventral anchor consists of a deep bifurcate base, a stout shaft and fine recurved points. The base has a short blunt deep root and a similar superficial root. Each anchor is winged, 0.035–0.042 mm. in length (not following the curve) with width of the base 0.014–0.016 mm. The ventral bar is a transverse shaft with a depression in the middle and measures 0.035–0.037 mm. in length. The seven pairs of hooks are all similar in shape and size. The seventh pair lies at the base of ventral anchors. Each is sickle-shaped, consisting of a rounded oblong base, a short stout shaft, a sickle-shaped portion and a moderately long apposable piece. Each is 0.014–0.017 mm. in length.

Testis is median, oval. Vesicula seminalis is an elongated body terminating a short distance before the pharynx. The copulatory complex (Fig. 4) consists of a stout tubular, coiled cirrus and a prong-like accessory piece, non-articulate at the base. The cirrus is thick-walled throughout its length and terminates in fine points. There is a large prostate gland terminating at the base of the cirrus. Cirrus is 0.055–0.06 mm. in length (following the curved surface) and accessory piece is 0.028–0.03 mm. in length. Ovary
is median and pre-testicular. Receptaculum seminis not located. Vagina (Fig. 5) is dextral, highly chitinised with a large opening in it. Single egg (Fig. 5), oval with a short blunt projection, present near the vagina and enclosed in a semi-transparent uterus. It is $0.071 \times 0.04$ mm. exclusive of the length of the projection which is about $0.008$ mm. in length.

Discussion.—The genus *Urocleidus* was created by Mueller in 1934. Mizelle (1938) redefined *Urocleidus sensu stricto*. Mizelle and Hughes (1938) redefined *Urocleidus sensu lato* with a key to the valid species. In the same paper they synonymised the Muellerian genera *Aristocleidus, Onchocleidus, Tetracleidus, Haplokleidus* and *Pterocleidus* with *Urocleidus*. Hargis (1952) revived *Haplokleidus* Mueller, 1937 by excluding *U. furcatus, U. parvicirrus, U. affinis* and *U. dispar* from the genus *Urocleidus* and assigning them to *Haplokleidus*. In the same communication Hargis also emended the characteristics of *Urocleidus* thus: “the dorsal and ventral anchors are equal or subequal in length and anchor bases are usually closely similar.” The latter statement may not be strictly true.

There exist about 37 valid species of the genus *Urocleidus* to the present date, almost all of them being reported from North American fresh-water fishes. The present form while possessing the essential characteristics of *Urocleidus* Mueller, 1934, differs from all the known species in these chara-
teristics: (1) Additional supporting bars in the haptor, (2) An enormous sized egg with a knob-like projection in the uterus, (3) Peculiar nature of the vagina, (4) Peculiar coiled, thick-walled cirrus and a prong-like accessory piece.

Taking into consideration the above important characteristics a new species of the genus *Urocleidus* Mueller, 1934 is created as *U. notopterus* after the name of the host. It is also interesting to note here that this is the first time when the genus *Urocleidus* is reported from India.

Host: *Notopterus notopterus* (Pallas).

Location: Gill filaments.

Locality: Lucknow, India.

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EXPLANATION OF FIGURES

Figs. 1-5. *Urocleidus notopterus* n.sp. Fig. 1. Entire worm (dorsal view). Fig. 2. Haptor. Fig. 3. Elements of the haptor. Fig. 4. Copulatory complex. Fig. 5. Egg and vagina.

*a.e.*, anterior eye-spot; *a.p.*, accessory piece; *cir.*, cirrus; *d.a.*, dorsal anchor; *d.b.*, dorsal bar; *e.*, egg; *h.*, hook; *hap.*, haptor; *h.1-h.7*, hooks of left side; *ov.*, ovary, *p.e.*, posterior eye spot; *ph.*, pharynx; *ph. gl.*, pharyngeal glands; *pr.*, prostatic gland; *s.b.*, supporting bar; *t.*, testis; *v.a.*, ventral anchor; *vag.*, vagina; *v.b.*, ventral bar; *ves. sem.*, vesicula seminalis; *vit.*, vitellaria.