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# ON A NEW ACANTHOCEPHALA *NEOECHINORHYNCHUS MACRORCHIS* SP. NOV. (NEOECHINORHYNCHIDAE) FROM A FRESHWATER FISH OF HALEJI LAKE, SINDH, PAKISTAN

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## ABSTRACT

Nine male worms collected from the intestine of freshwater fish *Mastacembelus armatus* from Haleji Lake, Sindh, Pakistan are being described. The present species, when compared with the previously reported species, differs in several morphological characters such as body size, size of proboscis hooks, shape of the body, size of bursa and presence of two bursal glands. On the basis of the above morphological as well as morphometric differences worm in hand and previously described species, it is concluded that the worm is new to science and therefore designated as *Neoechinorhynchus macrorchis* n.sp.

**Keywords:** *Neoechinorhynchus macrorchis* n.sp., freshwater fish, Sindh, Pakistan.

## INTRODUCTION

Several species of Acanthocephala from freshwater fish of Pakistan have previously been described (Bilqees and Khan, 1997, 1993; Khatoon *et al.*, 2007). In the present survey specimens were collected from freshwater fish *Mastacembelus armatus* from Haleji Lake, Sindh, Pakistan. Due to unique and unusual taxonomic features not reported previously these specimens are being described in detail.

## MATERIALS AND METHODS

The reported material was collected by one of us (G.S.S.) from a fish *Mastacembelus armatus* from Haleji Lake, Sindh, Pakistan during July 2009. The worms were placed in water for 2-5 hr or until fully extended and then fixed in F.A.A. (a solution of formalin, acetic acid and 50% alcohol in the ratio 5:3:92) and stained in Mayer's carmalum. Subsequently cleared in graduated concentrations of ethanol. The whole worms were mounted in Canada balsam. Measurements in millimeters. The slides are in the possession of the first author.

***Neoechinorhynchus macrorchis* n.sp.**
(Fig. 1)
Host: *Mastacembelus armatus*
Location: Intestine
Locality: Haleji lake
No. of specimens: 9 males from a single host 49 fish examined.

## DESCRIPTION

**Male:**

Body stout, aspinose rounded anteriorly, in all the specimens proboscis and associated structures were very clear but inside the body. Posterior region relatively narrow with flat posterior end. Body length 3.45–4.84, width 0.75–0.79, with greater width behind proboscis. Proboscis globular 0.56–0.57 × 0.24–0.26 in size with three circles of hooks six in each row. Anterior circle has large hooks, middle and posterior rows of hooks become progressively smaller. Anterior hook 0.014–0.016 × 0.004–0.005, middle hooks 0.013–0.014 × 0.0020–0.0021, posterior 0.012–0.013 × 0.0018–0.002. Proboscis receptacle muscular double-walled small as compared to body size. Testes in posterior half of body, large, 0.80–1.0 in length, 0.39–0.45. Cement gland swollen anteriorly and elongated posteriorly 0.56–0.61 × 0.24–0.27 in size. Saeftigen's pouch also rounded anteriorly 0.42–0.47 × 0.14–0.16. Two bursal glands are present anterior to bursa 0.20–0.24 × 0.21–0.24. Bursa well developed with three bursal ray. Bursa 0.41–0.44 × 0.20–0.24.

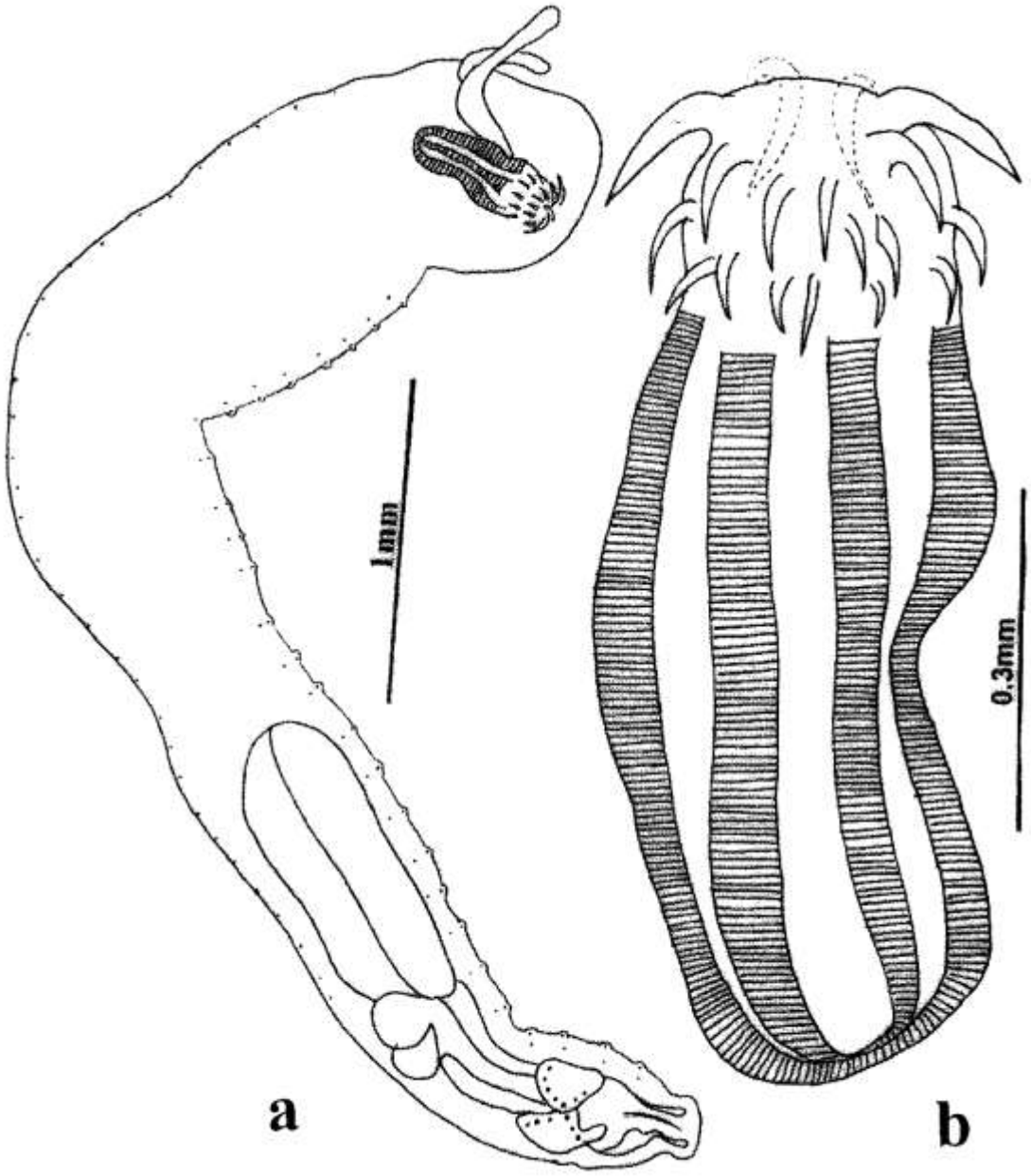


Fig.1. *Neoechinorhynchus macrorchis* n.sp.; a.Entire holotype, male; b. Proboscis region enlarged.

**DISCUSSION**

The male are smaller (3.48–4.84) in the present species as compared to *Neoechinorhynchus bangoni* Tripathi, 1959 (9–12) in *Mugil tade*; *N. buttnerae* Golvan, 1956 (22) in *Myletes macropomus*; *N. coiliae* Yamaguti, 1939 (6–9) in *Coilia mystus*; *N. distractum* Van Cleave, 1949 (5.9–7.3) in *Iciobus* sp.; *N. elongatum* Tripathi, 1959 (5.3–7.1) in *Mugil subvirdis*; *N. formosanum* (Harada, 1938) Bilqees, 1972 (8.5–10.4) in *Zacco temmincki*; *N. hutchinsoni* Datta, 1936 (7.8–8.2) in *Diptychus maculatus*; *N. longilemniscus* Yamaguti, 1934 (5–9); *N. macronucleatum* Machado Filho, 1954 (5–7) in *Licengraulis* sp.; *N. prolixum* Van Cleave *et* Timons, 1952 (5.5–11.9) in *Carpiodes carpio*; *N. topseyi* Podder, 1937 (upto 28.5) in *Polynemus heptadactylus*; *N. tylosuri* Yamaguti, 1939 (16–42) in *Tylosurus schismatorhynchus*; *N. yalei* Datta, 1939 (Kaw, 1951) (5.39) in *Schizothorax esocinus*; *N. agilis* (Rudolphi, 1819) Petrotschenko, 1956 (7.13–8) in *Mugil persia* and *M. cephalus*; *N. glyptosternumi* Dhar and Kharoo, 1984 (5.05) in *Glyposternum* sp.; *N. hutchinsoni* (Datta, 1936) Kaw, 1951 (7.8–8.2) in *Diptychus maculatus*

and *N. oreini* Fotedar, 1968 in *Oreinus sinuatus* (8–11.75) in *Oreinus sinuatur*. As compared to size of proboscis hooks the hooks in 3 row of 6 hooks each the anterior row measure (0.014–0.016 by 0.04–0.05), middle (0.013–0.014 by 0.0020–0.0021); posterior (0.012–0.013 by 0.0018–0.020) are different as compared to the other species reported from Pakistan viz. *N. gibsoni* Khan & Bilqees, 1989 anterior hooks (0.056 by 0.012); middle hooks (0.048 by 0.0096) and posterior (0.046 by 0.0073); *N. karachiensis* Bilqees, 1972 anterior (0.05–0.06); middle (0.039–0.04); posterior (0.38–0.39) from *N. nickoli* Khan *et al.*, 1999 anterior hooks (0.025–0.027 by 0.0061–0.0068); middle (0.0176–0.021 by 0.0034–0.0040) and posterior (0.00153–0.020 by 0.0030–0.0034); *N. longiorchis* Shahina and Bilqees, 2007 anterior hooks (0.17–0.18 by 0.01–0.02), middle row (0.02–0.03 by 0.005–0.01) and posterior (0.02–0.03 by 0.005–0.1). Similarly as compared to the species reported from elsewhere viz. *N. agilis* anterior hooks (0.0875–0.095 by 0.012); middle (0.0625–0.07 by 0.0125) and posterior (0.03–0.075 by 0.005); *N. chilkaensis* Podder, 1937 anterior row (0.07); middle (0.03) posterior (0.027); *N. dattai* Golvan, 1994; anterior row (0.080); middle (0.040); posterior (0.037); *N. derdevi* (Datta, 1936) Kaw, 1951 anterior (0.09); middle (0.045) and posterior (0.040); *N. elongatus* Tripathi, 1959 anterior (0.048); middle (0.03) and posterior (0.019); *N. johnii* Yamaguti, 1939 anterior (0.089–0.093); middle (0.020–0.024); posterior (0.02–0.024); *N. kallarensis* George *et al.*, 1978 anterior (0.060–0.10 by 0.015–0.030); middle (0.030–0.040) and posterior (0.015–0.020 by 0.006–0.010); *N. manabalensis* Kaw, 1951 anterior hooks (0.046–0.06); middle (0.03–0.038); posterior hooks (0.028–0.034); *N. nematolusi* Tripathi, 1959 anterior (0.076–0.083); middle (0.035–0.044), posterior (0.026–0.030); *N. oreini* Fotedar, 1968 anterior (0.075–0.088); middle (0.073–0.085), posterior (0.048–0.053); *N. ovalis* Tripathi, 1959 anterior (0.060–0.068); middle (0.060–0.068) and posterior (0.053); *N. rigidus* (Van Cleave, 1928) Yamaguti, 1963 anterior (0.131), middle (0.05) and posterior (0.045); *N. sootai* Bhattacharya, 1999 anterior (0.03); middle (0.016) and posterior (0.016), *N. ningalooensis* Pichelin and Cribb, 2001, anterior (0.066–0.088), middle (0.050–0.055); posterior (0.040–0.044); *N. topseyi* Podder, 1937, 1937 anterior (0.095), middle (0.025) and posterior (0.024); *N. tylosuri* Yamaguti, 1939 anterior (0.065–0.1); middle (0.025–0.03) and posterior (0.025–0.03); and *N. argentatus* Chandra *et al.*, 1987 anterior (0.096), middle (0.018), posterior (0.012). Furthermore the present species differ from *N. idahoensis* Amin and Heckmann, 1992 which possess a posteriorly notched proboscis receptacle and anteriodorsal trunk bump bend; *N. formosanum* (Haruda, 1938) Bilqees, 1972 differs in having smaller proboscis length (0.14–0.17); *N. nickoli* differs in having smaller proboscis (0.110–0.112 by 0.096–0.098) and larger bursa (0.57 × 0.16–0.2); *N. gibsoni* differs in having smaller bursa (0.26–0.27 by 0.23) and having no bursal glands; *N. longiorchis* differs in having spindle shaped testis and a much bigger bursa (0.74–0.75 by 0.25–0.26).

The above mentioned differences especially having small size of proboscis hooks, shape of the body, presence of bursal glands, shape of testes separate the present specimens from the previously described species of the genus and accordingly it is regarded as a new species with the specific name *N. macrorchis* referring to the size of testis.

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