



Further Observations on *Contracaecum aori*, Khan and Yaseen (1969) Recovered from the intestine of *Channa punctatus* in India

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ABSTRACT

Present communication deals with the morphological description of parasitic nematode, *Contracaecum aori*, Khan and Yaseen (1969) collected from the intestine of *Channa punctatus* (Siluriformes, Channidae) at Muzaffarnagar. During a survey of helminth parasites of freshwater fishes in Muzaffarnagar region a known species of Nematode belonging to genus *Contracaecum* was isolated. Light microscopic drawings and photomicrographs taken by the Motic microscope helped the morphological redescription of the species.

Keywords: Parasitic nematode; *Contracaecum*; Fish; *Channa punctatus*.

INTRODUCTION:

The parasitic nematode, *Contracaecum* spp. belongs to the family Anisakidae (Railliet & Henry 1912), Subfamily Filocapsulariinae. *Contracaecum* exhibits worldwide distribution (Anderson 2000) and is capable to infect both, terrestrial and aquatic animals which include wide range varieties of invertebrates and vertebrates. It is a diverse genus of the Anisakidae family. A wide range of host species are involved in their life cycles and they are known to have adverse health impacts on host. In particular, there is limited knowledge of these parasites in Uttar Pradesh. In general, life history pattern is variable and there may be difference in the types of intermediate or definitive hosts among different species of *Contracaecum* (Shamsi, 2007). Information on geographical variation of *Contracaecum* species is limited and some reported variation clearly requires further analysis.

MATERIALS AND METHODS:

Fishes for the present work were procured from local fish markets and water bodies of the Muzaffarnagar region. 473 fishes were examined in total. They were transported to the laboratory and maintained in aquaria. The fishes were taken out from water and anaesthetized with clove oil in another container. The fishes were identified according

to Day (1958). Dissection and examination of the fishes for parasites were performed under dissecting microscope using standard methods.

The fishes were dissected longitudinally and were thoroughly examined for the presence of parasites. The parasites if found were collected. Fixation of the collected parasites was done as per the method suggested by Eiras *et al.* (2000) and Marcogliese (2004). For morphological studies, nematode parasites were mounted in glycerine on glass slides.

Slides were then observed under Olympus OIC 41231 light microscope using different magnifications of eyepiece and objective lenses. According to the size of the parasite and type of specimen, Motic microscope was used with various magnifications of eyepiece and objective.

Diagrams for morphological and morphometrical observations, were drawn with the help of camera lucida and Motic microscope. Various body parts of parasites under observation were measured using a measuring scale in the eyepiece of the light microscope and through the photographic print of measuring scale in Motic microscope.

Pictures of the mounted parasites were obtained with the help of Motic DMB1-223ASC-B High Resolution

digital compound microscope (Motic images plus 2.0) using W10x /18 oculars and 4x, 10x, 40x, and 100x objectives as per size and requirement of the specimen.

OBSERVATION AND DESCRIPTION: -

Host	: <i>Channa punctatus</i>
Locality	: Muzaffarnagar
Site of infection	: Intestine
No. of hosts examined	: 473
No. of hosts infected	: 01
No. of worms collected	: 01 (female)

DESCRIPTION:

Yellowish white in colour. Cuticle striated, arise immediately behind lips. Lateral alae well developed. Posterior end bluntly pointed, lightly curved, ventrad, terminating into a papilla bearing three small blunt processes at tip.

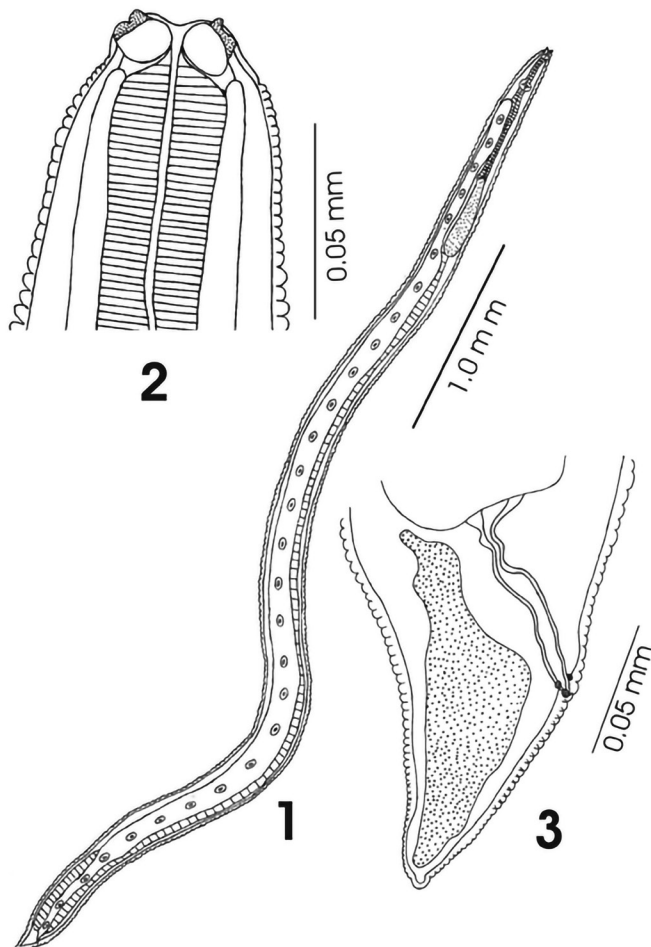


PLATE - 1

Contracaecum aori (Female) 1. W.M. (50X)
2. Anterior region (1000X) 3. Posterior region (1000X)

Female: (Plates 1-2) Body stout, tapering gradually towards cephalic end, measuring 5.45 x 0.25. Head 0.055 mm wide. Mouth surrounded by three lips, without any dentigerous ridges. Interlabia well developed. Club shaped oesophagus measuring 0.39 x 0.04 mm. Nerve ring at 0.2 mm from anterior end. Reduced, rounded ventriculus measuring 0.74 mm. Intestinal caecum measuring 0.84 x 0.06 mm. Vagina well developed, muscular tube, measuring 0.076 x 0.025 mm. Tail 0.09 mm in length.

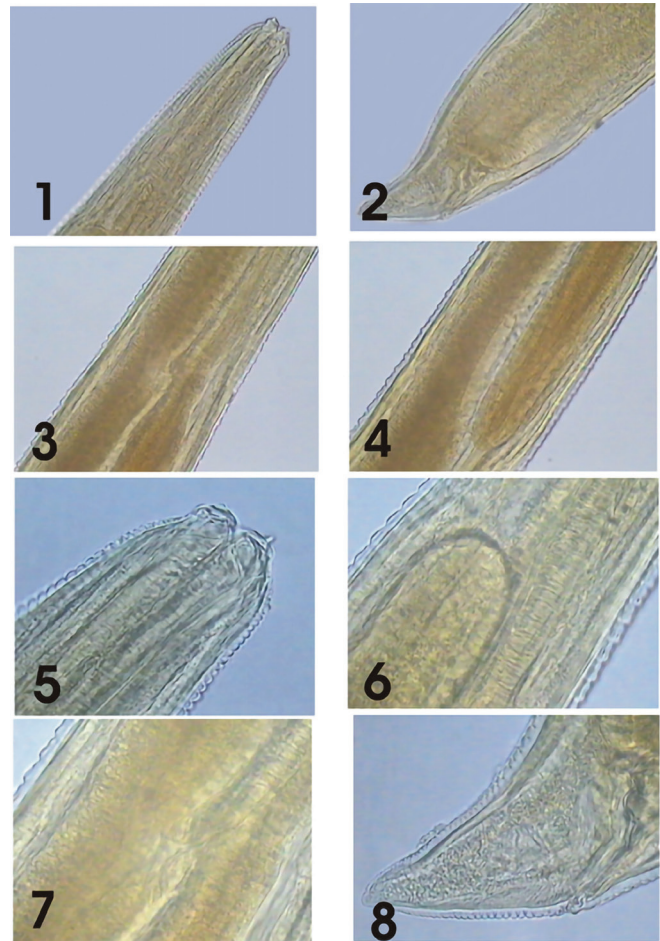


PLATE - 2

Photographs of *Contracaecum aori* (Female) 1. Anterior regio (400X) 2. Posterior region (400X) 3. Intestinal caecum (400X) 4. End of the intestinal caecum (400X) 5. Anterior region showing lips and oesophagus (1000X) 6-7. Intestinal Caecum (1000X) 8. Posterior region showing anus and tail (1000X)

DISCUSSION:

Railliet and Henry (1912), first of all reported a new genus *Contracaecum* from South Asia. Mosgovoy (1951), Skrjabin, Schikhobalova and Mosgovoy (1951) divided the genus *Contracaecum* into three subgenera *Ornitocaecum* (Mosgovoy, 1951), *Erschovicaecum* (Mosgovoy, 1951) and *Contracaecum* (Railliet and Henry, 1912).

Contracaecum larvae have been reported from catfishes and other fish species from many water bodies in South Africa (Whitfield & Heeg 1977; Mashego & Saayman 1981; Boomker 1982, 1994 a, b; Saayman et al. 1991), East Africa (Malvestuto & Ogambo-Ongoma 1978; Aloo 2001) and Zimbabwe (Douellou 1992; Barson 2004). It is a cosmopolitan parasite, of piscivorous birds and mammals (Hartwich, 1974; Anderson, 1992) and can reach alarming intensities without affecting the condition of the host (Mashego & Saayman 1981; Boomker 1982, Paperna 1996), an adaptation that probably ensures that the larvae survive to reach the final host without killing the intermediate host.

Sood (1989) described 11 species of the genus *Contracaecum* named as *Contracaecum incurvum* (Rudolphi, 1819), *Contracaecum plagiostomorum* (Linstow, 1905), *Contracaecum trichiuri* (Thwaite, 1927), *Contracaecum collieri* (Chandler, 1935), *Contracaecum aori* (Khan and Yaseen, 1969), *Contracaecum brevispiculum* (Khan and Yaseen, 1969), *Contracaecum synapillus* (Bilqees, Khanum and Jehan, 1971), *Contracaecum vittati* (Khan and Begum, 1971), *Contracaecum otolithi* (Bilqees and Rashid, 1982), *Contracaecum engraulisi* (Gupta and Srivastava, 1984 b) and *Contracaecum equulai* (Gupta and Srivastava, 1984 b) and 9 different larvae of the genus *Contracaecum*.

Contracaecum aori was first described by Khan and Yaseen (1969) on the basis of presence of three blunt processes at tip in tail, from Sylhet in the host *Mystus aor*. The present specimen is collected from the different host *Channa punctatus* at Muzaffarnagar. In the present specimen cuticle striations are present throughout the body while in previous specimen described by Khan and Yaseen (1969) cuticle is striated at anterior - most region only. The specimen described here is smaller and exhibit minor variations besides measurements from those described earlier. In previous specimen, the body is 30.64 - 35.75 mm long and 0.54 - 0.58 mm wide while in the present specimen 5.45 mm long and 0.25 mm wide. In previous specimen, the Oesophagus is 1.82 - 1.84 mm long and 0.120.14 mm wide while in the present specimen 0.39 mm long and 0.04 mm wide. In previous specimen, nerve ring is 0.5 mm from the anterior end while in the present specimen 0.2 mm from the anterior end. In previous specimen, ventriculus is 0.89 mm long while in the present specimen 0.74 mm long. In previous specimen, intestinal caecum is 0.99 - 1.12 mm long and 0.08 - 0.12 mm wide while in the present specimen 0.84 mm long and 0.06 mm wide. In previous specimen, vagina is 0.80 mm long and 0.06 mm wide while in the present specimen 0.076 mm long and 0.025 mm wide. In previous specimen, tail

is 0.24-0.25 mm long while in the present specimen 0.09 mm long. Therefore, it is briefly described here as such. Differences in various measurements of body of the worm from worms described earlier is given in Table 1.

Table 1: Measurements of various body parts of *Contracaecum aori*, Khan and Yaseen (1969)

	<i>Contracaecum aori</i> Khan and Yaseen, 1969	<i>Contracaecum aori</i> present study
Body	30.64-35.75x0.54-0.58	5.45x0.25
Head	-	0.055
Oesophagus	1.82-1.84x0.12-0.14	0.39x0.04
Nerve ring	0.5	0.09
Ventriculus	0.89-0.10	0.08
Intestinal caecum	0.99-1.12x0.08-0.12	0.74
Vulva	9.30-9.50 from anterior end	-
Vagina	0.80x0.06	0.076x0.025
Tail	0.24x0.25	0.09

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