

RECORDS OF NEMATODES FROM COLDWATER
FISHES OF GARHWAL, HIMALAYA

By

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INTRODUCTION

An extensive survey and study of the helminth parasites of fishes from different regions of India has been made. But, the Garhwal Himalaya, being isolated, has not been explored so far for the type of helminth infection. In the present study a number of helminth parasites were collected from different coldwater fishes of Garhwal Himalaya. Of the nematodes, two species are found to be new and other species reported here, are being reported for the first time from this region. All the measurements are recorded in mm.

Family—Rhabdochonidae (Travassos, Artigas and Pereira, 1928) Skrjabin, 1946

Genus—*Rhabdochona* Railliet, 1916

Rhabdochona (Rhabdochona) hellichi (Sramek, 1901)
Chitwood, 1933

Description (Based on 30 specimens) : These nema'odes are medium sized with smooth cuticle. The mouth is convex in dorsal view. The prostome is funnel-shaped. Fourteen number of fairly long anterior teeth are present. The basal teeth are present in males. The vestibule is long and becomes contracted in older specimens forming S-shaped

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structure. The oesophagus is quite long. The tail is conical with a terminal spike.

Male : Body 5.92-10.94 long, 0.06-0.17 wide ; Prostome 0.022-0.03 long, 0.02-0.022 wide ; Vestibule 0.10-0.14 long, 0.01-0.012 wide ; Muscular oesophagus 0.35-0.53 long, 0.03-0.04 wide ; Glandular oesophagus 1.64-3.45 long, 0.045-0.07 wide ; Cervical papillae at 0.045-0.092 ; Nerve ring at 0.15-0.26 ; Excretory pore at 0.25-0.39 from anterior end ; Sixteen pairs of anal papillae of which ten pairs subvental preanal and six pairs postanal ; Spicules unequal and dissimilar ; Long spicule 0.41-0.59 with a bifurcate distal tip, small spicule 0.16-0.165 long with a Distinct dorsal barb at distal tip ; Tail conical, 0.27-0.43 long with a cuticular terminal spike.

Female : Body 6.81-10.76 long, 0.15-0.20 wide ; Prostome 0.022-0.028 long, 0.02-0.023 wide ; Vestibule 0.10-0.13 long, 0.018-0.02 wide ; Muscular oesophagus 0.38-0.49 long, 0.03-0.04 wide ; Glandular oesophagus 1.99-4.17 long, 0.08-0.12 wide ; Cervical papillae at 0.045-0.092 ; Nerve ring at 0.16-0.24, Excretory pore at 0.248-0.39 from anterior end ; Vulva post equatorial, 2.67-2.96 from anterior end ; Eggs not visible ; Tail 0.32-0.45 long.

Hosts : *Schizothorax richardsonii*, *S. plagiostomus* and *Crossocheilus latius*.

Habitat : Small intestine.

Locality : Srinagar-Garhwal (Altitude 560 m).

Remarks : This is the first report of the species from Garhwal Himalaya.

Rhabdochona (Globochone) sarana Karve and Naik, 1951

Description (Based on 10 female specimens) : These nematodes are small sized. The pharynx is barrel-shaped. Eight anterior and four basal teeth are present. The oesophagus is fairly long. The uterine branches are opposed and vagina is short. The tail bears a crown of three conical processes.

Female : Body 4.69-6.50 long, 0.12-0.14 wide ; Prostome 0.02-0.023 long, 0.013-0.015 wide ; Vestibule 0.08-0.082 long, 0.009-0.01 wide ; Muscular oesophagus 0.19-0.22 long, 0.06-0.08 wide ; Glandular oesophagus 3.045-4.126 long, 0.09-0.11 wide ; Cervical papillae at 0.12-0.13 ; Nerve ring 0.11-0.12 from anterior end ; Vulva 3.265-4.116 from anterior end ; Vagina muscular with well developed vaginal lips ; Tail with a crown of conical processes 0.14-0.16 long.

Host : *Tor putitora*

Habitat : Small intestine

Locality : Srinagar-Garhwal (Altitude 560 m)

Remarks : The present parasite differs from the original form described by Karve and Naik (1951) in body size and generic host only. This is the first report of this nematode from this locality and the host.

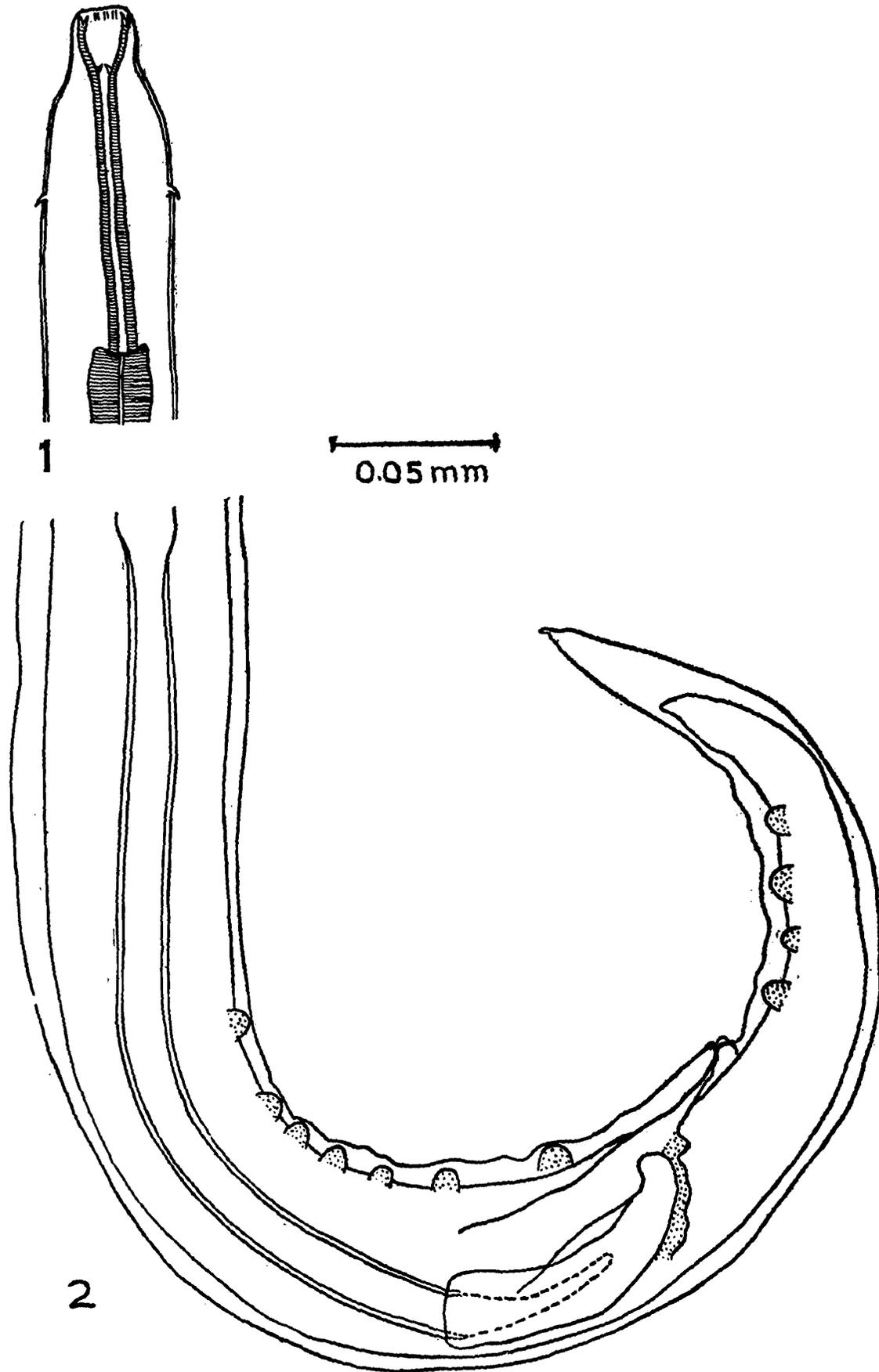
***Rhabdochona noemeeheili* sp. n.**

(Figs. 1 & 2)

Description (Based on six specimens) : These nematodes are small sized with smooth cuticle. The cervical papillae are medium sized and situated near the middle of the vestibule. The lateral teeth are arranged in couples, two pairs on each side. The vestibule is short. The spicules are unequal and dissimilar. The tail is bluntly conical.

Male : Body 3.40-3.98 long, 0.12-0.13 wide Prostome 0.015-0.017 long, 0.019-0.021 wide ; Vestibule 0.099-0.12 long, 0.01 wide ; Muscular oesophagus 0.21-0.23 long ; Glandular oesophagus 1.43-1.50 long ; Cervical papillae at 0.16-0.17 from anterior end ; Twelve pairs of caudal papillae of which seven pairs preanal, five pairs postanal ; Spicules unequal and dissimilar ; Smaller spicule, boat-shaped and relatively wide with rounded end, 0.096-0.099 long ; Longer spicule 0.36-0.37 with bluntly pointed distal tip ; Tail bluntly pointed, 0.164-0.169 long.

Host : *Noemacheilus montanus*



Figs. 1-2. *Rhabdochona noemacheili* sp. n. ; Fig. 1. male (anterior end, lateral view). Fig. 2. male (posterior end, lateral view).

Habitat : Small intestine

Locality : Srinagar-Garhwal (Altitude 560 m)

Remarks : Hitherto two species viz. *Rhabdochona* (*Rhabdochona*) *sellichi* (Sramek 1901) Chitwood, 1933 (cited Moravec 1975) and *Rhabdochona* (*Globochona*) *minima* Moravec and Daniel, 1976 are known under the genus from the same generic host. The new species comes close to *R. (Rhabdochona) hellichi* in the number of caudal papillae but differs from it in the size of the body and shape of both spicules. It also differs from *R. (Globochona) minima* in the number of caudal papillae and shape of the spicules. It however comes very close to *Rhabdochona (Rhabdochona) glyptothoracis* Karve and Naik, 1951, in the shape of spicules but differs in body size and in the number and arrangement of caudal papillae. The species has been named after the name of the fish *Noemacheilus montanus*.

Family Cucullanidae Cobbold, 1164.

Genus **Cucullanus** Muller, 1777

Cucullanus thrai sp.n.

(Figs. 3 & 4)

Description : (Based on 10 specimens) : The head bears to prominent lateral lips, each provided with three papillae and bounding a slit-like mouth. The oesophagus is muscular throughout, dilated anteriorly forming false buccal capsule and is also enlarged posteriorly. The intestine is simple. The vulva is situated in the posterior half of the body. The lower lip of the anus is prominent. The tail is bluntly conical with a terminal spike.

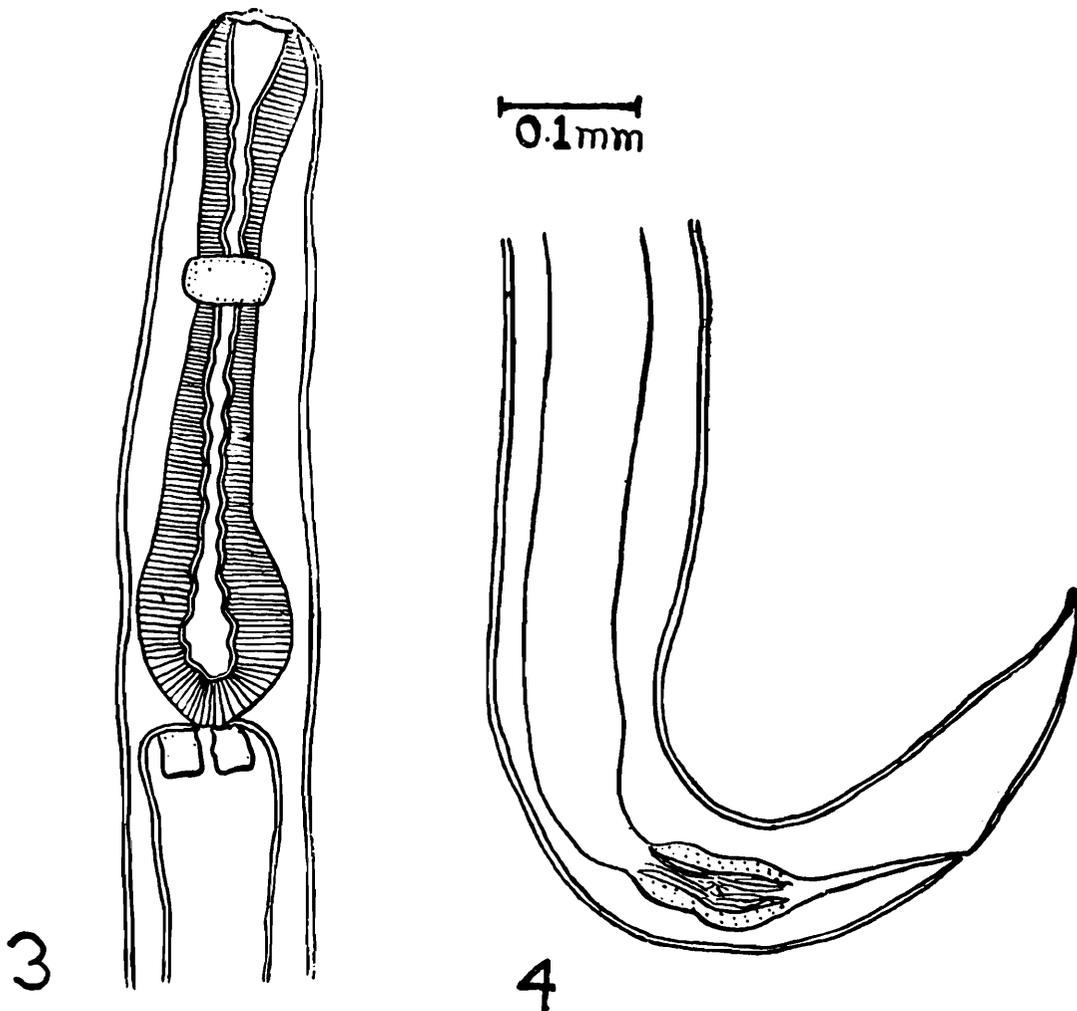
Female : Body 3.75-4.02 long, 0.15-0.16 wide ; Buccal capsule 0.075-0.076 long, 0.07-0.071 wide ; Oesophagus 0.43-0.45 long ; Nerve ring at 0.18 and vulva at 2.37-2.56 from anterior extremity ; Tail 0.21-0.23 long.

Host : *Tor pntitora*.

Habitat : Small intestine.

Locality : Srinagar-Garhwal (Altitude 560 m).

Remarks : Hitherto four species, viz. *C. jaiswali* (Ali, 1957) Petter, 1974, *C. jalnaensis* (Kalyankar, 1971) Petter, 1974, *C. lucknowi*, Campana-Rouget, 1961 and *C. pseudcutropi*, Agrawal, 1967 of the genus *Cucullanus* are known from Indian



Figs. 3-4. *Cucullanus torai* sp. n. ; Fig. 3. female (anterior end, laterla view), Fig. 4. female (tail end, lateral view).

freshwater fishes. The present spencies differs from the above species in the body size and shape of the tail. This is the first generic from this host and from the locality, Garhwal Himalaya. It has been named after the name of the fish *Tor putitora*.

Family ANISRKIDAE (Ralillet and Henry, 1912)

Skriabin and Karokhin, 1945

Genus *Goezia* Zeder, 1800

Goezia sp.

Description (Based on 20 specimens): The body is medium sized. The cuticle has a series of rings provided with backwardly directed spines. The lips are flattened and expanded outwards, separated from the body by a constriction. The oesophagus is slightly swollen into a bulb giving off posteriorly a long ventricular appendage. The intettinal caecum is present. The vulva is situated in the middle of the body. The tail is abruptly tapering to a blunt process.

Female : Body 5.55-6.36 long, 0.25-0.27 wide ; Oesophagus 0.64-0.73 long, 0.05-0.055 wide ; Intestinyl caecum forwardly directed 0.36-0.40 long ; Oesophageal or ventricular appendage backwardly directed, 0.74-0.78 long ; Vulva 3.02-3.25 from anterior end ; Tail 0.11-0.13 long.

Hosts : *Garra gotyla*, *Crossocheilus latius* and *Schizothorax* spp.

Habitat : Small intestine.

Locality : Srinagar-Garhwal (Altitude 560 m).

Remarks : Identification upto the species level could not be done. This is the first generic record from these hosts and from the locality of Garhwal Himalaya.

SUMMARY

The study deals with an account of five species of nematodes from coldwater fishes Garhwal Himalaya. Two nematodes, *Rhabdochona noemacheili* from *Noemacheilus montanus* and *Cucullanus torai* from *Tor putitoro* were new to science. *Rhabdochona* (*Rhabdochona*) *hellichi* (Sramek, 1901) Cnitwood, 1933 from *Schizothorax richardsonii*, *S. plagiostomus* and *Crossocheilus latius* ; *Rhabdochona* (*Globochona*) *sarana* Karve *latius* and *Schizothorax* ssp. have been reported for the first time from this area.

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