**ON RHABDOCHONA DASI SP. NOV. (THELAZIIDAE, RHABDOCHONINAE,
RHABDOCHONA, RAILLIET, 1916) FROM A FRESH WATER
FISH CALLICHOUS PABDA (HAMILTON)**

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INTRODUCTION

The family *Thelaziidae* was created by Railliet in 1916 to include a number of genera of the superfamily *Spiruroidea* parasitic in mammals, birds and fishes with *Thelazia* Bose., 1819, as the type genus. The genera *Ceratospira* Schneider, 1866; *Cystidicola* Fischer V. Waldheim, 1798; & *Oxyspirura* Drasche, 1897 were subsequently transferred by Railliet to this family. He also included genera *Galeiceps*, *Schistorophus*, *Serticeps* and *Rhabdochona* in this family.

In 1928 Travassos, Artigas and Pereira erected a new subfamily called *Rhabdochoninae*. They included three genera in the new sub family *Rhabdochoninae*, viz., *Rhabdochona* Railliet, 1916; *Spinitectus*, Fourment, 1883 and *Cystidicola* Fischer, 1798. The authors did recognize the fundamental similarity of structure among these genera besides their common property of being parasitic in the same group of hosts—the fishes. Only those forms were included in this that showed the following characters:

1. Bicuspid mouth with lips pronounced in some cases and rudimentary in others.
2. Pharynx, an elongated chitinated tube widened slightly anteriorly.
3. Two spicules unequal and dissimilar in length and in nature respectively.
4. Absence of a gubernaculum.
5. Presence of numerous pre- and post-anal papillae.

The genera *Capillospirura* Skrjabin, 1924; *Metabronema* Yorke and Maplestone, 1926; & *Comephoronema* Layman, 1933 were regarded by Skrjabin as being related to *Rhabdochoninae*. Skrjabin admitted the validity of *Rhabdochoninae* but at the same time he vehemently protested the inclusion of *Rhabdochoninae* in the family *Spiruridae* Cerley, 1885 because of the morphological differences from *Spirura* Blanchard, 1849, the type genus of the family.

In 1946 he included all *Spirurata* of fishes (Showing thin delicate body, funnel-shaped oral cavity, elongated pharynx, cervical papillae present, double oesophagus, dissimilar and unequal spicules & numerous postanal papillae.) into a new family *Rhabdochonidae* which consisted of three subfamilies viz., *Rhabdochoninae*, *Cystidicolinae* & *Spinitectinae*. This attitude of including three subfamilies into the family *Rhabdochonidae* was adopted by Skrjabin in order to support and emphasize the host relationship between them.

1. *Rhabdochoninae*: Included two genera namely *Rhabdochona* and *Sterliadochona* and were recognized by a smooth cuticle and non-filamented eggs.
2. *Cystidicolinae*: Included 5 genera namely *Cystidicola*, *Capillospirura*, *Metabro-*

nema, *Comephoronema* and *Pseudocystidicola* Layman, 1933 and were recognized by filamented eggs.

3. *Spinitectinae*: Included a single genus—the *Spinitectus* and was recognized by a series of tranverse spined rings.

Choquette, 1951, however, didnot admit the validity of the characteristic used by Skrjabin, 1949 in his differentiation of the various families; for example polar filaments are present in some species of *Rhabdochona* and lacking in some species of *Cystidicola*. According to Choquette, *Rhabdochoninae* and *Spinitectinae* should be the subfamilies of *Rhabdochonidae* Skrjabin, 1946. *Rhabdochoninae* should include the genera with smooth cuticle viz., *Rhabdochona*, *Sterliadochona*, *Cystidicola*, *Capillospirura*, *Metabronema*, *Comephoronema* and *Pseudocystidicola* and *Spinitectinae* with a single genus *Spinitectus*.

The present paper gives an account of one species of the genus *Rhabdochona* Railliet, 1916 (*Thelaziidae*, *Rhabdochoninae*, *Rhabdochona* Railliet, 1916) collected from the intestine of a fresh water fish *Callichrous pabda* at Patna. Only a few of the large number of the fishes examined harbored these nematodes. Their incidence, therefore, appears to be poor. The number of the specimens recovered from one host was 3 females only and from other host two females and two males. The heads of the males were unfortunately crushed, while studying under the microscope.

MATERIALS AND METHODS

The fishes were cut open and a thorough examination of the alimentary canal and the whole body of the host was made. The nematodes were taken out, washed thoroughly in water and were fixed in hot 70 % alcohol. The worms were finally preserved in 70 % alcohol and glycerine solution. Lactophenol was found to be the best clearing agent. The study was made after fifteen days of the preservation. No permanent stained preparation of the specimens was made.

DESCRIPTION

These are small and slender bodied worms possessing extremities. Cuticle is devoid of transverse striations anteriorly and posteriorly but slight striation was marked on the middle region of the body. Head end presents a knob-like appearance. Excretory pore is invisible. The head is not separated from the body by a neck. The lips are not visible, either. The mouth leads into a pharynx divided into an anterior bell-shaped portion and a posterior tubular one, the two however not being distinctly separated by anything like constriction or depression. The walls of the pharynx are thick and chitinised. The bell-shaped portion of the pharynx measures 0.034 mm in length and 0.014–0.019 mm in breadth in the female. The tubular pharynx is relatively long and measures about 0.10 mm in the female worms. The oesophagus is divided into two parts, a smaller anterior muscular part and a long glandular part. The two portions measure 0.46 mm and 2.33 mm in length in the female worms.

The nerve ring encircles the muscular portion of the oesophagus and is 0.18 mm from the head end in the female. Cervical papillae seem to be four at the most anterior region of the head.

Male: The tail of the male measures 1.27 mm, its tip being blunt and rounded. There are fifteen pairs of papillae on the tail, 11 being pre-anal and four post-anal in position. The pre-anal papillae are almost equidistant. The spicules are dissimilar in

Fig. 1. Anterior end of female

Fig. 2. Portion of the body of the female, showing vagina and uterus.

Fig. 3. (a) Posterior end of the male.
(b) Spicules of the male.

Fig. 4. Posterior end of the female

Abbreviation: RECT - Rectum; AN - Anus; TAIL - Tail; L. SPI - Left Spicule; R. SPI - Right spicule; C. PAP - Caudal papillae; T. PH - Tubular portion of the pharynx; B. PH - Bulb portion of the pharynx; M. OES - Muscular Oesophagus; N. R - Nerve ring; VUL - Vulva; VAG - Vagina; E - Eggs; UT - Uterus.

shape and distinctly unequal in length. The right spicule is short, broad proximally, tapering gradually to a blunt pointed distal end and measures 0.098 mm in length, the left 0.21–0.27 mm in length. The caudal alae in the male are lacking.

Female: The female worms measure 10.5 to 11.4 mm in length, maximum width being 0.12–0.13 mm. There are altogether four cervical papillae. Vulva is situated at a distance of 5.08 mm from the posterior end. The vulva is flushed with the body surface. The vagina runs posteriorly from the vulva forming a distinct U-shaped loop, one arm of which being slightly shorter. Vagina in turn is connected with the ovijector which gives origin to two uteri. The uteri are connected by short oviducts with the filamentous ovaries. The posteriorly placed ovary extends almost into the anal region of the body ending straight at the base of the rectum, but before doing so it forms a loop. The other ovary at the opposite end reaches the vicinity of the oesophagus. In the end it forms a loop before ending with its tip pointed anteriorly. The worms are oviparous, the uterus being heavily filled up with thick shelled eggs. The eggs measure 0.02 mm in width at the middle and 0.034 mm in length.

DISCUSSION

The genus *Rhabdochona* was created by Railliet in 1916 for Dujardin's worm *Dispharagus denudata* which forms the type of the genus. At present the genus comprises 38 species* of which 5 have been reported from India by Thapar (1950), Karve and Naik (1951) Ali (1956), Sahay and Prasad (1964) and Sahay (1965). The present worm differs from all the known species in the arrangement of the caudal papillae and the ratio of the spicule length in the male.

The worm in question resembles *R. bosei* (Sahay, 1965 in press) in having an equal number of caudal papillae, i. e., 11 pairs pre-anal and 4 pairs postanal. It however differs from *R. bosei* and *R. kashmirensis* (Thapar, 1950) in the spicule ratio and the nature of the spicule. The spicules in *R. kashmirensis* and *R. bosei* are bifurcated at the tips but in the worms recovered from *Callichrous babda* (Hamilton) this nature is not observed. The spicules in our worm tapers gradually to a blunt-pointed end. Besides the spicule ratio in the three species of worms i. e., *R. kashmirensis* (Thapar), *R. bosei* (Sahay) and *R. dasi* (Sahay & Prasad) is 5:1, 3:1 and 2.2:1, respectively. The eggs in *R. dasi* are not provided with polar filaments or cuticular projection. The males are not provided with the caudal alae.

The vulva divides the body length in the female in the ratio of 2:1 in the worm in

* (1) *Dispharagus denudata* Dujardin, 1845 (2) *R. acuminata* Molin, 1860; Gendre, 1922 (3) *R. turkestanica* Skrjabin, 1927; Yorke & Maplestone, 1926 (4) *R. cascadiella* Wigdor, 1918; Choquette, 1951 (5) *R. gambiana* Gendre, 1922 (6) *R. macrolaima* Gendre, 1922 (7) *R. anguillae* Spaul, 1927 (8) *R. salvelini* Fujita, 1927 (9) *R. elegans* Travassos, Artigas & Pereira, 1928 (10) *R. paski* Baylis, 1928 (11) *R. uca* Pearse, 1933 (12) *R. opiensis* Hsu, 1933 (13) *R. fortunatowi* Dinnik, 1938 (14) *R. conoura* Linstow, 1885; Chitwood, 1933 (15) *R. hellichi* Sramak, 1901, Chitwood, 1933 (16) *R. zacconis* Yamaguti, 1935 (17) *R. amago* Yamaguti, 1935 (18) *R. girellae* Yamaguti, 1935 (19) *R. gymnocrani* Yamaguti, 1935 (20) *R. kidderi*, Pearse, 1936 (21) *R. ovifilamenta* Weller, 1938 (22) *R. laurentiana* Lyster, 1940 (23) *R. oncorhynchi* Fujita, 1940 (24) *R. jaenschi* Jhonston & Mawson, 1940 (25) *R. tridentigeris* Yamaguti, 1941 (26) *R. coelorhynchi* Jhonston and Mawson, 1945 (27) *R. decaterensis* Gustafson, 1949 (28) *R. pellucido* Gustafson, 1949 (29) *R. cotti* Gustafson, 1949 (30) *R. euchilglansis* Wu, 1949 (31) *R. kashmirensis* Thapar, 1950 (32) *R. hospiti* Thapar, 1950 (33) *R. glyptothoracis* Karve & Naik, 1951 (34) *R. sarana* Karve & Naik, 1951 (35) *R. barbi* Karve & Naik, 1951 (36) *R. singhi* Ali, 1956 (37) *R. mazedeei* Sahay & Prasad 1964 (38) *R. bosei* Sahay, 1965 (in press).

question. In *R. decaterensis* (Gustafson, 1949) also the ratio is 2:1.

The occurrence of *Rhabdochona* species in the intestine of *Callichrous pabda* is a new record.

The worm in question here shows the following peculiarities:—

- (1) Male with 11 pairs of pre-anal and 4 pairs of post-anal papillae.
- (2) Spicule ratio in the male is 2·2:1 with no bifurcation at the tip.
- (3) Eggs thick shelled and without any plear filaments or cuticular projection.

In view of the above discussion the authors feel justified in creating a new species for its reception. It is proposed to name the worm under reference as *Rhabdochona dasi* after Dr. S. M. Das, University Professor, University of Jammu and Kashmir, India.

The type specimen of the species are deposited in the Helminthology Section of the Department of Zoology, Science College Patna-5, Bihar, India.

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