STUDIES ON SOME REPTILEAN TREMATODES FROM RAJASTHAN

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ABSTRACT

A new trematode, Paradistomoides hemidactylis sp. n., recovered from the gall bladder of the house lizard, Hemidactylus flaviviridis Ruppell, has been described. It is distinct allied Indian forms in size and measurements of different organs. Another trematode, Acanthostomum burminis (Bhalerao, 1926) collected from the intestine of the snake, Natrix piscator, is reported for the first time from Rajasthan.

INTRODUCTION

The study of various populations Paradistomum orientalis Narain and Das, 1929 by Arora and Agarwal (1960) and Arora, Agarwal and Agarwal (1962) with an expanded diagnosis of this species has put in doubt the validity of various species under the genera Paradistomum and Paradistomoides. The latter authors considered P. moghei Bhalerao, 1936 and P. banarasensis Baugh, 1956 as synonyms of P. orientalis. In this context Fischthal and Kuntz (1964) remarked that in this way P. mutable (Molin, 1859) Dollfus, 1922, P. gregarium Tubangui, 1929, P. gecknom Bhalerao, 1929, P. paloensis Tubangui, 1933, P. excalotes Tubangui and Masilungan, 1936; Paradistomoides ooterminosum (Bhalerao, 1929) Travassos, 1944: P. intestinalis Simha, 1958, P. lanceolatus Simha, 1958, P. spatulatus Simha, 1958 and probably other species too
would fit into the synonymy. They stressed that extensive life history studies are necessary to determine the extent of synonymy in *Paradistomum*.

Krishnaswami and Anantaraman (1956) considered *P. moghei* as a synonym of *P. orientalis* but Yamaguti (1958) and Nama and Khichi (1973) retained *P. moghei* as a distinct species. Hence, in light of Fischthal and Kuntz (1964) view, a new form, *Paradistomoides hemidactylis* sp. n., which differs from the hitherto known forms, in size and measurements of various organs, is described.

Bhalerao (1926) described for the first time *Acanthostomum burminis* in the snake, *Tropidonotus piscator*, from Rangoon (Burma). Thapar and Ali (1929) recorded this worm from the same host in Lucknow (India). Later on Agrawal (1966) redescribed *A. burminis* (Bhalerao 1926) from the same locality and type host. *A. burminis*, recovered from *Natrix piscator*, is being reported for the first time from Rajasthan.

**MATERIALS AND METHODS**

One specimen of *Paradistomoides hemidactylis* sp. n. recovered from the gall bladder of the house lizard, *Hemidactylus flaviviridis* Rupell in Jodhpur (Rajasthan). Thirty five specimens of *Acanthostomum burminis* (Bhalerao 1926) were collected from the intestine of *Natrix piscator* at Jawai Dam (Rajasthan).

The worms were fixed under slight pressure from a cover slip in 4 per cent formalin, stained with acetolmium carmine and mounted in balsam.

**OBSERVATIONS**

**DICROCOELIIDAE Odhner, 1911**

*Paradistomoides hemidactylis* sp. n.

Body elongated, with a conical anterior end and a rounded posterior extremity, smooth, dorsoventrally flattened, 2.00 mm long and 0.74 mm in greatest width at the level of the ootype. Oral sucker terminal, 0.23 mm in diameter. Prepharynx absent. Pharynx globular, muscular and 0.082 x 0.087 mm in size. Oesophagus 0.05 mm long and 0.02 mm wide. Intestinal ceca wide, extending nearly to the posterior end. Acetabulum 0.17 x 0.18 mm, situated at about one-fourth of the body length in the middle of the anterior half of the body. Genital pore and the genital atrium median and prebifurcal. Testes two, unequal, at the level of the posterior margin of the acetabulum, right 0.14 x 0.15 mm and the left 0.095 x 0.115 mm in size. Cirrus sac oval,
0.212 mm long and 0.10 mm in maximum width, containing seminal vesicle, 0.075 mm long and 0.032 mm wide; pars prostatica 0.07 mm long and 0.067 mm wide and ejaculatory duct 0.13 mm long and 0.012 mm wide, extending from the posterior point of intestinal bifurcation to slightly ahead of the anterior point of bifurcation. Ovary rounded, median, 0.135 x 0.15 mm at maximum dimensions, situated approximately at one-third level from the anterior end. Receptaculum seminis 0.105 x 0.062 mm and shell gland 0.075 x 110 mm in size. Laurev’s canal present. Vitellaria follicular, right 0.58 mm and the left 0.60 mm in linear extension, stretching laterally from a little ahead of the testes level to a little behind the median line. Transverse vitelline ducts, receiving small ductules, distinct postovarian, leading into a conical yolk reservoir, 0.04 mm long and 0.05 mm broad. Uterus long and extremely coiled tube, filling in the posterior two-thirds of the body, finally passing in between the right testis and the ovary before opening into the genital atrium.

Fig. 1. Whole mount, holotype, ventral view, Anterior half of body.

Fig. 2. Posterior half of body, holotype.
Eggs small, numerous, operculate, whitish to pale brown and ultimately dark brown, 0.02–0.022x0.03–0.037 mm in size. Excretory vesicle and excretory pore visible.

Host: *Hemidactylus flaviviridis* Ruppell

Location: Gall bladder

Locality: Jodhpur, Rajasthan

Holotype: UDZ N No. 164 deposited in the Department of Zoology, University of Jodhpur, Jodhpur.

*P. hemidactylus* sp. n. resembles closely to *P. maghei* in general topography but varies, besides the host, in having smaller size of testes and ovary, acetabulum being smaller than oral sucker and in having numerous uterine coils. The new species varies from other Indian forms, namely *P. orientalis*, *P. medius* and *P. brevis* (Nama and Khichi, 1973), recovered from *H. flaviviridis*, in size of the body and measurement of various organs.
P. hemidactylis sp.n. is recognised from P. orientalis by:
1. Greatest width being at the level of ootype and not in acetabular region.
2. Acetabulum not juxtabfurcal but a little behind.
3. Ovary median.
4. Smaller ventral sucker.
It differs from P. medius and P. brevis in having a larger ventral and oral sucker ratio, in genital pore being prebifurcal and in larger size of the eggs.

ACANTHOSTOMIDAE Poche, 1926

Acanthostomum burminis (Bhalorao, 1926)

Fig. 4. Whole mount, dorsal view, Anterior half of body
Body elongated, cylindrical, 1.72-2.2 mm long and 0.30-0.38 mm in maximum breadth. Oral sucker terminal, cupshaped, 0.12-0.15x0.16-0.18 with a row of 26-23 spines, each 0.037-0.039 mm long and 0.010-0.011 mm in greatest width. Prepharynx 0.060-0.080 mm long and 0.020-0.022 mm wide. Pharynx large, muscular, globular and 0.075-0.095 x 0.090-0.105 mm. Oesophagus short, 0.022-0.025x0.014-0.015 mm. Intestinal caeca asymmetrical, left narrower than the right, opening respectively, at 0.15-0.20 mm and 0.14
0.18 mm from the posterior end. Acetabulum circular, 0.077-0.080 x 0.080-0.00 mm in size, situated at 0.41-0.45 mm from the anterior end, i.e., about one-fourth of the body length. Ratio of oral to ventral sucker is about 3.5:1. Genital pore lies in front of the ventral sucker at 0.41-0.43 mm from the anterior end. Testes two, postovarian, tandem in posterior one-fourth of the body, anterior 0.15-0.17 x 0.17-0.19 mm and the posterior 0.16-0.18 mm in diameter, lying respectively, at 0.32-0.46 mm and 0.21-0.30 mm form the hind end. Vesicula seminalis large, consisting of a basal sac-like portion, 0.06 x 0.09 mm in size and a long coiled tubular anterior part about 1.0 mm long, opening at the genital pore.

Ovary oval, anterior to testes, lying on left of the median line, 0.09-0.11 x 0.11-0.13 mm in size and situated at 0.51-0.66 mm from the hind end. Receptaculum seminis nearly pear-shaped, smaller than the ovary and measures 0.06-0.08 x 0.08-0.10 mm. Vitellaria extend behind the vesicula seminalis to the anterior end of the anterior end of the ovary, the left 0.38-0.75 mm and the right 0.48-0.65 mm in linear extension. Uterus much coiled. Eggs, elliptical or oval, non-operculated and 0.032-0.04 x 0.015-0.20 mm in size. Excretory vesicle and the excretory pore not distinct.

Host: *Natrix piscator*

Location: Intestine

Locality: Jawai Dam, Rajasthan.

The present form differs from *Acanthostomum burminis* (Bhalerao, 1926) in length, number and size of spines, oeso-phageal length and size of vesicula seminalis. Thapar and Ali (1929) did not notice any difference to add to the description given by Bhalerao (1926) but Agrawal (1966) pointed out certain variations. Our specimens also vary markedly from Agrawal’s account (1966) in having a smooth body surface, devoid of spines (which is in accordance to Morosov (1955) but unlike Agrawal’s (1966) figure showing spines on the body surface), size of pharynx, oesophagus, testes, asymmetrical diameter of intestinal caeca, ratio of oral ventral sucker, besides an added information on spine length, extent of vitellaria and distance of anal openings which according to Carter and Etges (1972) are of taxonomic value.
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REFERENCES


