

Two new trematodes from the intestine of a yellow bat, *Nycticeius kuhlii* from Lucknow, India

by

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A large number of trematodes were collected from the small intestine of a yellow bat, *Nycticeius kuhlii* from Lucknow, India. As they differ from known species they are being described as new species under the respective genera.

Family: LECITHODENDRIIDAE Odhner, 1910

Prosthodendrium (Paralecithodendrium) thapari sp. nov.

(Figs. 1-3)

DESCRIPTION: Body more or less oval, narrower anteriorly, broader and notched at posterior end, smooth, 0.56-1.32 mm long by 1.05-1.20 mm wide. Oral sucker subterminal, oval or spherical, 0.10-0.17 mm long by 0.10-0.18 mm wide. Ventral sucker preequatorial, spherical, smaller than oral sucker, 0.07-0.11 mm long by 0.08-0.11 mm wide at 0.27-0.47 mm from anterior extremity. Prepharynx absent; pharynx 0.25-0.055 mm long by 0.025-0.070 mm wide; esophagus short, 0.01-0.03 mm long; intestinal ceca nearly transverse extending up to anterior margin of testes.

Excretory pore a little anterior to posterior end of body. Excretory bladder V-shaped.

Genital pore in front of ventral sucker, 0.27-0.49 mm from anterior extremity.

Testes equal or subequal, spherical or triangular, symmetrical, lying in

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acetabular region. Right testis 0.14-0.27 mm long by 0.12-0.34 mm wide, at 0.26-0.45 mm from anterior extremity. Left testis, 0.15-0.25 mm long by 0.14-0.33 mm wide at 0.25-0.50 mm from anterior extremity. Cirrus pouch elongated or flask shaped, lying transversely anterior to acetabulum, 0.19-0.27 mm long by 0.07-0.09 mm wide. Bipartite seminal vesicle, broader at posterior end and narrower at anterior end, 0.100-0.112 mm long by 0.032-0.050 mm wide; pars prostatica well developed, 0.21-0.25 mm long by 0.01-0.11 mm wide; ejaculatory duct, 0.082-0.120 mm long, opening into genital atrium.

Ovary deeply lobed, pretesticular, inter-testicular or may overlap margins of testes, 0.10-0.24 mm long by 0.22-0.53 mm wide at 0.13-0.40 mm from anterior extremity. Oviduct arises from posterior side of ovary and enters oötype which lies close to ventral sucker. A large number of small Mehlis's gland cells surround oötype. Vitellaria follicular, extending from anterior region of oral sucker either anterior to testes or overlapping them. The right and left vitelline ducts meet to form a common duct opening at oötype. Uterus arises from posterior end of oötype, with transversely coiled limbs occupying entire space of hindbody. Eggs, 0.010-0.11 mm long by 0.005-0.006 mm wide.

DISCUSSION: The present form belongs to the genus *Prosthodendrium* (*Paralecithodendrium*) Dollfus, 1931. DUBOIS (1) revised the subgenus *Paralecithodendrium* Odhner, 1911 and considered the following six species as valid with their synonymy: *Prosthodendrium* (*Paralecithodendrium*) *glandulosum* (Looss 1896), syn. *Distomum glandulosum* Looss, 1896, *D. obtusum* Looss, 1896 et probablement *D. chefrenianum* Looss, 1896; *P. (P.) nokomis* Macy, 1937, syn. *Prosthodendrium* (*Paralecithodendrium*) *lucifugi* Macy, 1937; *P. (P.) ovimagnosum* (Bhalerao, 1926), syn. *Lecithodendrium ovimagnosum* Bhalerao, 1926, *L. asadai* Fuki et Ogata, 1938, *Paralecithodendrium magnioris* Gupta et Bhardwaj, 1958; *P. (P.) aranhai* Lent, de Freitas et Proença, 1945 syn. *Paralecithodendrium brachycolon* de Freitas et Dobbin, 1960; *P. (P.) molenkampii* Lie Kian Joe, 1951 and *P. (P.) hepaticum* Chen, 1954, syn. *Lecithodendrium ovimagnosum* Tubangui, 1928 nec. Bhalerao, 1926, *Prosthodendrium ovimagnosum compactum* Chen, 1954. He removed the following from the subgenus: *P. liliputianum* Travassos, 1928 which is accepted as a species of *Edcaballerotrema* Freitas, 1960; *P. skrjabini* Shaldibin, 1948 which may be a member of *Limatulium* Travassos, 1921; *Prosthodendrium* (*Paralecithodendrium*) *tetralobulatum* Caballero, 1943, and *P. (P.) paeminosum* Caballero, 1943 are considered synonyms of *P. (P.) naviculum* Macy, 1936. *Lecithodendrium anticum* Stafford, 1905 attributed to *Paralecithodendrium* by Ohdner, 1905 is considered a *species inquirenda*.

The new form differs from *P. (P.) aranhai* in not having the ventral sucker larger than oral sucker. It resembles *P. (P.) glandulosum* *P. (P.) nokomis*, *P. (P.) ovimagnosum*, *P. (P.) Molenkampii* and *P. (P.) hepaticum* is having ventral sucker smaller than oral sucker. The new form however differs from all these forms in the structure and position of the cirrus pouch, in the position of the genital pore and in the extension of vitellaria up to anterior region of oral sucker.

The present form is, therefore, new and designated as *P. thapari* sp. nov., in honor of Dr. G. S. Thapar, retired Professor of Zoology, University of Lucknow, Lucknow, U. P. India.

HOST: *Nycticeius kublii* Rafinesque, 1819.

LOCATION: Small intestine.

LOCALITY: Lucknow.

Family: DICROCOELIIDAE Odhner, 1911

Anchitrema lucknowensis sp. nov.

(Fig. 4)

DESCRIPTION: Body elongate; portion of body anterior to testes spinose, with rounded extremities, 1.3-2.6 mm long by 0.54-0.71 mm wide. Oral sucker subterminal, round, 0.12-0.30 mm long by 0.225-0.275 mm wide. Ventral sucker spherical, smaller than oral sucker, close to anterior border of testes, 0.14-0.20 mm long by 0.14-0.21 mm wide at 0.31-0.67 mm from anterior extremity. Prepharynx absent; pharynx well developed, 0.08-0.10 mm long by 0.75-0.100 mm wide; esophagus short, 0.025-0.040 mm long; intestinal ceca simple, extending parallel to body wall to posterior end of body.

Excretory pore at posterior end of body. It leads into a short wide tube which divides into two lateral limbs one on either side.

Genital pore submedian, lying on anterior border of aperture of ventral sucker at 0.35-0.70 mm from anterior extremity.

Testes oval, subequal, symmetrical, preequatorial; right testis 0.25-0.45 mm long by 0.17-0.25 mm wide at 0.43-0.79 mm from anterior extremity. Left testis 0.25-0.51 mm long by 0.14-0.22 mm wide at 0.38-0.82 mm from anterior extremity. Cirrus sac flask-shaped, 0.30-0.52 mm long by 0.10-0.11 mm wide lying medially in front of ventral sucker either close to or overlapping its anterior border, at 0.37-0.49 mm from anterior extremity. Vesicula seminalis tubular, spirally coiled or S-shaped, 0.26-0.45 mm long by 0.02-0.03 mm wide. Cirrus short, muscular, 0.65-0.125 mm long, opening at genital pore. A large number of prostate gland cells fill entire space in cirrus sac around vesicula seminalis.

Ovary nearly medio, lying either between testes or immediately post-testicular, measuring 0.15-0.22 mm long by 0.14-0.21 mm wide at 0.55-1.12 mm from anterior extremity. From its posterior end arises oviduct which opens into oötype. A pear shaped receptaculum seminis 0.038-0.10 mm long by 0.045-0.050 mm wide lies at posterior end of ovary and opens into oötype. Vitellaria follicular, arranged on sides of body extending from middle region of testes to 0.38-0.48 mm from posterior end of body. Two transverse vitelline ducts of each side join together to form a common yolk duct which opens at oötype. A large number of unicellular Mehil's gland cells surround oötype and open into it. Uterus arises from posterior end of oötype, filling the posterior half of body, consisting of

several transverse coils with ascending and descending limbs. Ascending limb passes forward on left or right side of ventral sucker and opens at genital pore. Eggs 0.020-0.025 mm long by 0.10-0.15 mm wide.

DISCUSSION: Sonsino (1894)* described *Distomum sanguineum* from the gut of *Chameleo vulgaris*. LOOSS (2) erected a new genus *Anchitrema* to accommodate this species as type. Subsequently two other species were assigned to this genus, viz. *A. latum* Gedoelst, 1919 and *A. sokolowi* (Skrjabin, 1914) Dollfus, 1929, syn. *Mesocoelium sokolowi*. THAPAR (4) reported the occurrence of a new trematode, *Exorchoelium indicum*, from the intestine of a yellow bat *Nyctcejus kublii* from Lucknow. PANDE (3) considered it synonymous with *Anchitrema sanguineum* Looss, 1899.

THAPAR (5) obtained a few more specimens from the same host and made a critical study, besides other characters, mainly of the morphology of the excretory system. He distinguished this genus from the genus *Anchitrema* in the complete absence of body spines, in the presence of a distinct cirrus sac and the presence of the receptaculum seminis and in the possession of a typical Y-shaped excretory system, characteristics of the family Dicrocoeliidae. The author does not agree with THAPAR and considers that the characters mentioned by him are also present in the genus *Anchitrema*. In the genus *Anchitrema* the cirrus pouch is occupied by a convoluted seminal vesicle immediately preacetabular, the receptaculum seminis is formed by dilation of basal portion of Laurer's canal, and the excretory system is Y-shaped. The presence or absence of spines is a variable character even within the species. Hence there is no character quoted by THAPAR that can be used to separate *Exorchoelium* from *Anchitrema* and the two therefore are identical.

YAMAGUTI (6) lists 5 species in the genus *Anchitrema*, of which two have been transferred from other genera considered by YAMAGUTI to be synonymous with *Anchitrema*, viz. *Platynosomum philippinorum* Tubangui, 1928 and *Platynosomum philippinorum congolense* Sandground, 1937.

Under the genus *Anchitrema*, the new form resembles closely *A. indicum* (syn. *Exorchoelium indicum*) but differs from it in having spines on the anterior border of body, in the extension of vitellaria from middle region of testes to some distance short of posterior extremity, in having genital pore in the anterior border of acetabulum, in having subequal testes, in having a flask-shaped cirrus sac and in the smaller size of eggs. (Thapar gave the size of receptaculum seminis as 0.42 mm by 0.16 mm which should, probably, read 0.042 mm by 0.016 mm; the eggs are said to measure 0.19 mm in length and 0.02 mm in breadth; this should, probably, read 0.019 mm in length and 0.02 mm in breadth).

The present form is, therefore, new and designated *A. lucknowensis* sp. nov.

* Original literature not consulted.

HOST: *Nycticeius kublii* Rafinesque, 1819.

LOCATION: Small intestine.

LOCALITY: Lucknow.

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RESUMEN

Se describen dos especies nuevas de tremátodos, parásitos intestinales del murciélago amarillo *Nycticeius kublii*: *Prosthodendrium* (*Paralecithodendrium*) *thapari*, y *Anchitrema lucknowensis*.

SUMMARY

Prosthodendrium (*Paralecithodendrium*) *thapari* sp. nov. and *Anchitrema lucknowensis* sp. nov., from the small intestine of a yellow bat, *Nycticeius kublii* are described.

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Figs. 1 to 3. *Prosthodendrium (Paralecithodendrium) thapari* sp. nov.

Fig. 1. Dorsal view.

Fig. 2. Cirrus pouch enlarged.

Fig. 3. Oötype enlarged.

Fig. 4. *Anchitrema lucâncuensis* sp. nov. Ventral view.

