

**Schwartzitrema anhingii sp. nov. from the Indian Darter, *Anhinga melanogaster* Pennant, with a remark on the taxonomic position of the genus *Schwartzitrema* (Vigueras, 1940) Vigueras, 1941 (Trematoda: Strigeidae)\***

by

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Family.—STRIGEIDAE Railliet, 1919  
Subfamily.—Schwarzitreminae nov. subfam.  
*Schwartzitrema anhingii* sp. nov.

Four specimens of this fluke were obtained from the small intestine of an Indian Darter (Snake bird), *Anhinga melanogaster* Pennat, taken in the vicinity of Lucknow. The infection with this parasite is rare.

The body (Fig. 1) of this parasite is large and distinctly bisegmented. The forebody is spindle-like in outline, and it appears marsupiform on account of its ventral wall being about half of the entire length of this segment. It measures 1.350-1.500 mm in length and 0.638 mm in maximum breadth. The hindbody is long and cylindrical, and it is broad posteriorly (due to the gonads), with a short stump at its end. It measures 3.030 - 4.560 mm in length and 0.562 - 0.641 mm in maximum breadth.

The suckers are well developed. The oral sucker is subterminal and measures 0.120 - 0.131 mm by 0.114 - 0.131 mm. The ventral sucker, situated in the posterior half of the forebody, measures 0.200 - 0.229 mm by 0.149 - 0.215 mm. A pair of large, protractile lobes arise from the inner side of the dorsal wall of forebody and project conspicuously from its opening. According

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to VIGUERAS (4) and DUBOIS (2), these lobes are comparable to pseudosuckers. Numerous conspicuous gland cells are present at the distal margins of these lobes. The holdfast organ consists of a large, funnel-like protractile main lobe and a pair of slender accessory lobes situated at the ventrolateral regions of the main lobe.

The mouth leads, through a short prepharynx, into a small muscular pharynx measuring 0.073 - 0.090 mm by 0.071 - 0.082 mm. Oesophagus and intestinal caeca are greatly obscured by various organs and, hence, they are not clear in whole mounts.

The testes are located one behind the other in the broad posterior region of the hindbody. The anterior testis is smaller than the posterior one and appears roughly triangular in shape. It measures 0.290 - 0.314 mm by 0.371 - 0.428 mm. The posterior testis is slightly constricted at its middle and, thereby, appears bilobed. It measures 0.321 - 0.389 mm by 0.450 - 0.462 mm. The vas deferens runs posteriorly where it is continued into a saccular seminal vesicle situated just behind the posterior testis. A short ductus ejaculatorius leaves the seminal vesicle and meets the terminal part of the uterus inside the genital cone (Fig. 2) to form a hermaphroditic duct.

The ovary is a small subglobular structure situated on one side just in front of the anterior testis. It measures 0.133 - 0.151 mm by 0.120 - 0.146 mm. The vitellaria consist of numerous small follicles which extend from the posterior part of the forebody up to the region of copulatory bursa in the hindbody. The follicles are extremely dense in the anterior part of the hindbody, but are comparatively sparse in the testicular region. The vitelline reservoir and the ootype complex are inter-testicular. The uterus runs anteriorly for a short distance in front of the ovary, and then turns back towards the posterior end. It contains a few eggs (four to six) which are pale yellow and oval, measuring 0.0825 - 0.0934 mm by 0.0510 - 0.0607 mm. The uterus enters the genital cone and joins the terminal part of the male genital duct within the cone (Fig. 2) to form a hermaphroditic duct which opens at the tip of the genital cone placed within a large copulatory bursa. The genital cone is small. The copulatory bursa opens to the exterior through a wide and terminal opening.

DISCUSSION: VIGUERAS (4) created the genus *Schwartziella* with *S. schwartzi* as the genotype for certain strigeids obtained from the intestine of *Anhinga anhinga* (Linnaeus). Subsequently, VIGUERAS (5) changed the generic name to *Schwartzitrema*, because the name *Schwartziella* was preoccupied for a nematode parasite. CHANDLER (1) described the second species viz., *Schwartzitrema seamsteri* from *Fregata magnificens rothschildi*, the man-o-war bird. The present author (3) described two species from India viz., *S. nigericus* from *Phalacrocorax niger* (Vieillot) and *S. perezii* from *Anastomus oscilans* (Boddart). Of all these species, the present form resembles the genotype, *S. schwartzi* (Vigueras, 1940) Vigueras, 1941. It can, however be distinguished from the genotype by its larger size, smaller eggs, and the presence of a prepharynx. Furthermore, the present form has its eggs smaller than the ovary, whereas the eggs of *S. schwartzi* are larger than the ovary.

Evidently, the present form represents a new species of the genus *Schwartzitrema* (Vigueras, 1940) Vigueras, 1941, and the name *S. anbingi* is proposed for it.

### A KEY TO THE SPECIES OF THE GENUS *SCHWARTZITREMA* (VIGUERAS, 1940) VIGUERAS, 1941

1. Vitelline follicles not entering into forebody ..... 2  
 Vitelline follicles entering into the basal part of forebody ..... 3
2. Forebody bowl-like. Main lobe of holdfast organ deeply notched .....  
 ..... *S. nigericus* Gupta, 1962  
 Forebody marsupiform. Main lobe of holdfast organ not notched .....  
 ..... *S. seamsteri* Chandler, 1951
3. Testes appear collar-like with ventrally folded lateral margins..... *S. perezi* Gupta, 1962  
 Testes not collar-like ..... 4
4. Eggs larger than ovary. .... *S. schwartzi* (Vigueras, 1940) Vigueras, 1941  
 Eggs smaller than ovary ..... *S. anbingi* sp. nov.

#### Schwartzitreminae Nov. Subfam.

The holdfast organ of the genus *Schwartzitrema* (Vigueras, 1940) Vigueras, 1941 consists of a main dorsal lobe and a pair of slender ventro-lateral lobes, whereas in the other genera included in the subfamilies Strigeinae Railliet, 1919 and Duboisellinae Baer, 1938 of the family Strigeidae Railliet, 1919, the holdfast organ consists of a dorsal and ventral lobes. Furthermore, in the genus *Schwartzitrema*, there are two additional lobes arising from the dorsal wall of the forebody. In the opinion of the present writer, a separate subfamily, the Schwartzitreminae, should be established for the genus *Schwartzitrema* on the basis of the structure of the holdfast organ and the presence of the additional lobes. A brief diagnosis of Schwartzitreminae nov. subfam. is given below:

#### DIAGNOSIS OF THE SUBFAMILY *SCHWARTZITREMINAE* NOV. SUBFAM.

STRIGEIDAE: Body distinctly bisegmented. Suckers well developed. Holdfast organ composed of a main dorsal lobe and a pair of slender, protractile ventro-lateral lobes. A pair of large and protractile additional lobes, which arise from the dorsal wall of the forebody, are present. Gonads in the hind-body. Ovary pretesticular. Vitellaria profusely developed in the hindbody. Parasites of birds.

TYPE GENUS: *Schwartzitrema* (Vigueras, 1940) Vigueras, 1941.

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## SUMMARY

*Schwartzitrema anbingi* sp. nov. is described from the small intestine of an Indian Darter (Snake bird), *Anbinga melanogaster* Pennant. A key to differentiate the five species of the genus *Schwartzitrema* (Vigueras, 1940) Vigueras, 1941 is given. A new subfamily, Schwartzitreminae, is proposed for the genus.

## RESUMEN

Se describe *Schwartzitrema anbingi* sp. nov., del intestino delgado de *Anbinga melanogaster* Pennant, de la India. Se da una clave para el género *Schwartzitrema*, y se propone una nueva subfamilia, Schwartzitreminae, para el mismo.

## BIBLIOGRAPHY

1. CHANDLER, A. C.  
1951. Trematodes from the man-o'-war bird, *Fregata magnificens rothschildi*, on the Texas coast, with a description of a new species, *Schwartzitrema seams-teri*. *Texas Jour. Sci.*, 3: 186-189.
2. DUBOIS, G.  
1952. Revision de quelques Strigéidés (Trematoda). *Bull. Soc. neuchateloise Sci. nat.*, 75: 73-86.
3. GUPTA, R.  
1962. Two new species of the rare genus *Schwartzitrema* (Vigueras, 1940) Vigueras, 1941 (Trematoda: Strigeidae). *Proc. Nat. Aca. Sci. India*, 32: 387-392.
4. VIGUERAS, P. I.  
1940. Notas sobre algunas especies nuevas de trematodos y sobre otras poco conocidas. *Publ. Rev. Univ. Habana*, 28: 217-242.
5. VIGUERAS, P. I.  
1941. *Schwartzitrema* n. n. para *Schwartziella* Vigueras, 1940 (Trematoda, Strigeidae), nec *Schwartziella* Leroux, 1936. *Mem. Soc. Cubana Hist. Nat.*, 15: 263.
6. VIGUERAS, P. I.  
1944. Tremátodos de la superfamilia Strigeoidea: descripción de un género y siete especies nuevas. *Publ. Rev. Univ. Habana*, 52-54: 293-314.
7. YAMAGUTI, S.  
1958. The digenetic trematodes of vertebrates. In *Systema Helminthum* Vol. I (2 parts), XI + 1575 pp. Interscience Publishers, Inc., New York.
8. SUDARIKOV, B. E.  
1960. Order Strigeidida (La Rue, 1926) Sudarikov, 1959 in Sktrjabin, *Trematody životny i cheloveka, Osnovy trematodologii*. XVII, pp. 155-530. Isdeltstvo Akademii Nauk SSSR Moskva (In Russian).

Figs. 1-2. *Schwartzitrema anbingi* sp. nov.

Fig. 1. Ventral view.

Fig. 2. Frontal section of posterior end.

