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ON AN ACANTHOCEPHALAN OF THE GENUS *ACANTHOSENTIS* VERMA ET DATTA, 1929 (NEOECHINORHYNCHIDEA, QUADRIGYRIDAE) FROM A NEW HOST *MYSTUS SEENGHALA* (SYKES)

UMAPATI SAHAY*
HANSA SINHA** y
SAROJANI NARAYAN*

ABSTRACT

The authors have studied an acanthocephalan from a new fish host *Mystus seenghala* from Patna Muzaffarpur (Bihar) India. The result of the measurements of the recovered acanthocephalans shows that they are identical to *Acanthosentis indicus* Tripathi, 1959 wtih, very little of differences. These differences are in the measurements of:

1. Males and females
2. proboscis
3. The eggs.

The authors are of the opinion that these differences are variations in the species due to change of host.

RESUMEN

Los autores estudiaron un acantocéfalo de un nuevo huésped, el pez *Mystus seenghala* de Patna, Muzaffarpur (Bihar), India. El resultado de las mediciones de los acantocéfalos colectados, muestra que son idénticos a *Acanthosentis indicus* Tripathi, 1959, con muy pequeñas diferencias. Esas diferencias consisten en las dimensiones de: 1) machos y hembras; 2) proboscis y 3) huevos.

Los autores opinan que esas diferencias son variaciones de la especie debidas al cambio de huésped.

INTRODUCTION

While working on the helminth fauna of the vertebrates of Bihar (India) one of the authors (U.S.) collected from the intestine of a female *Mystus seenghala* (Sykes), a large number of males and females which on study were found to belong to the genus *Acanthosentis* Verma et Datta, 1929. The members of this genus are parasites of the alimentary canal (intestine) of the fishes and show a geographical distribution restricted to India, Morocco, Nigeria, Tanganyika, Puerto Rico, Lake Nyasa & Tembwe

* Departament of Zoology, Ranchi University, Ranchi, India.
** Departament of Zoology, Science College, Patna-5, India.

Bay. So far, the authors are aware of 11 species* of this genus.

The fishes were cut open and a thorough examination of not only the alimentary canal but also the whole body of the host was made. The parasites recovered were washed throughly in water and were fixed in 70% alcohol. Lactophenol was found to be the best clearing agent. No permanent slide was made.

Host: *Mystus seenghala* (Sykes).
Location: Intestine.
Locality: Bihar, India.
Material: numerous males and females.

Type specimens: are deposited in the helminthology section of the department of Zoology, Science College, Patna-5, BIHAR.

DESCRIPTION

The body is elongated and almost cylindrical, slightly flattened laterally and tapers at their ends. The posterior end being bluntly rounded. The fresh specimens are found to be of white colour. Sexual dimorphism is clearly marked, on an average, males are smaller than females. Regular circlets of hooks are present all over the body. In young specimens the body spines are very prominent but in mature specimens, the spines on the posterior portions are sometimes not clearly marked. The non-visibility of the spines may be due to the growth and subsequent shedding of the cuticle. The body wall is transversed by a lacunar system in the form of fine network, the transverse canals being more prominent. Body wall consists of thin cuticle as the outermost covering, beneath which is a thick hypodermal layer. The hypodermal nuclei are very prominent, 2 in the ventral and 5 in the dorsal aspect of the male and 2-3 in the ventral and 5-6 in the dorsal aspect of the female. The hypodermal layer is followed by the layers of transverse and longitudinal muscle fibers.

Proboscis is somewhat cylindrical and bears the transverse rows of recurved hooks, six in each row. The neck is almost absent The hooks of the anterior row are larger than the middle and the third posterior rows. Proboscis sheath is a single layered muscular sac and the nerve ganglion is embeded in the wall of the sheath at the posterior end. Lemnisci are two and slightly longer than the proboscis sheath.

Male genitalia: The male reproductive organs consist of a pair of testes, a syncytial prostatic gland, a prostatic reservoir, a seminal vesicle and a pair of vasa-deferentis, a vas deferens, a muscular penis and an eversible bursa. The two testes are in close approximation and are placed one behind the other. An efferent duct arises from each testis, runs posteriorly and joins with its fellow at the commencement of the seminal vesicle to form a vas deferens. The vas deferens ends in the muscular penis. The prostatic gland bears 6 to 8 nuclei. The ducts of the prostatic gland and that of the seminal vesicle open at the base of the penis.

Female genitalia: consist of an ovary, uterine bell, elongated uterus, vagina and vaginal glands. The uterine bell is a thin funnel shaped organ opening into the body cavity and is kept in position by the genital ligament anteriorly extending to the base of the proboscis sheath. At the posterior side of the uterine bell lie few guard cells which control the passage of the mature ova from the uterine bell to the uterus. The uterus is muscular and is an elongated tubular structure which opens into a muscular vagina. The vaginal glands are club-shaped structures which end near the vaginal opening. The genital opening is situated somewhat ventral at the posterior end of the worm.

* (1) *Acanthosentis antspinis* Verma et Datta, 1929. (2) *Acanthosentis holospinus* Sen, 1937. (3) *A. dattai* Poddar, 1938. (4) *A. sarkari* Poddar, 1941. (5) *A. tilapiae* Baylis, 1948. (6) *A.* (?). *macroccanus* Dollfus. 1951. (7) *A. acanthuri* Cable et Quick, 1954. (8) *A. giuris* Soota et Sen, 1956. (9) *A. nigeriensis* Dollfus et Golvan, 1956. (10) *A. indicus Tripathi,* 1959 and (11) *A. betwai* Tripathi, 1959.

DISCUSSION

Of the eleven species of the genus *Acanthosentis* only seven, namely *Acanthosentis antspinis* Verma et Datta, 1929; *A. holospinus* Sen, 1937; *A. dattai* and *A. sarkari* Poddar, 1938 and 1941 respectively; *A. giuris* Soota and Sen, 1956; *A. indicus* and *A. betwai* Tripathi, 1959 are known from India. The parasites under reference differs remarkably from all the species of the genus *Acanthosentis* but show some similarity to *Acanthosentis indicus* Tripathi, 1959, in the following points:

1. Body lengths of the males and females (In *A. indicus* males measure 7.48-8.26 mm and the females 7.26-8.55 mm while in our worms males are 5.87-7.27 and females are 6.47-8.75).
2. In the proboscis.
3. The eggs (In *A. indicus* eggs measure 26-30 x 7.9-9.5 μ in our worms eggs measure 24-32 μ 10-18 μ).

The little differences mentioned above are considered to be due to change of host or variations within the species. Therefore we take the liberty of considering this worm as a synonym to the worm, *A. indicus* Tripathi, 1959.

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ABREVIATIONS

BS. Body spines; BUR. Bursa; HN. Hypodermic nuclei; LEM. Lemnisci; LN. Large nuclei; PE. Penis; PD. Prostatic duct; PRS. Probosis sheath; PR.G. Prostatic gland; PR. R. Prostatic reservoir; TES. Testes; UT. Uterus; VAG. Vagina; VD. Vas Deferens; VG. Vaginal gland.

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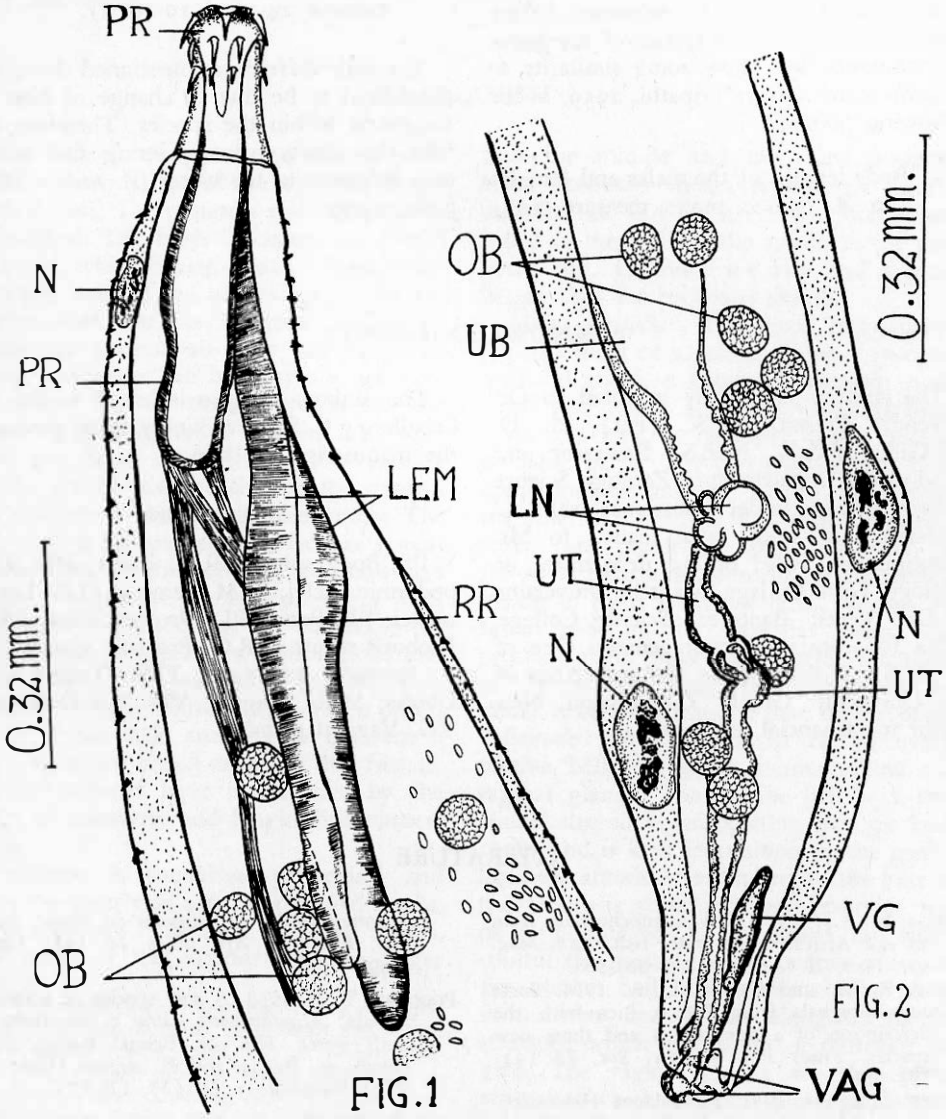

Fig. 1: Anterior end female (x100).

Fig. 2: Posterior end female (x100).

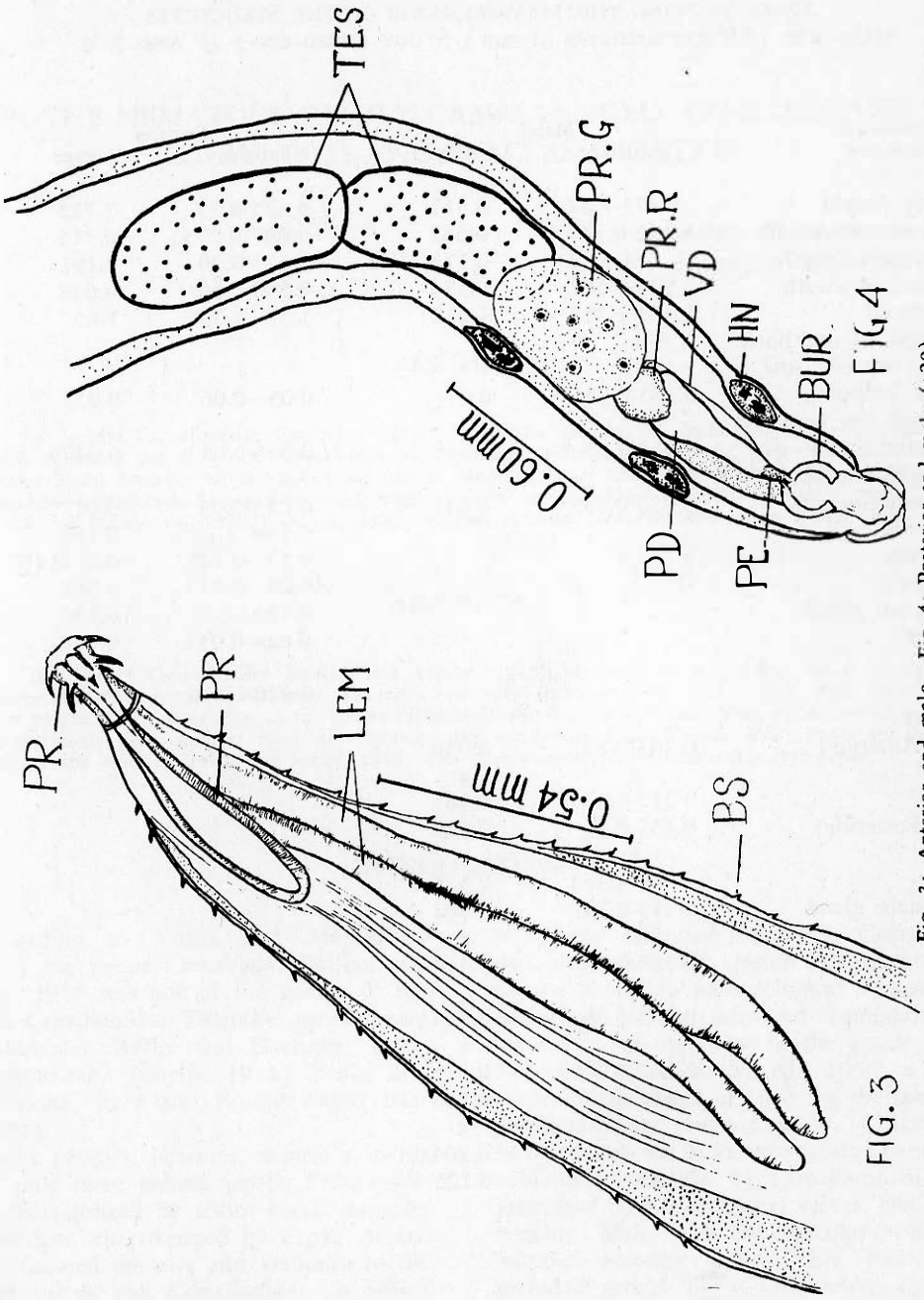

Fig. 3: Anterior end male. Fig. 4: Posterior end male (x20).

TABLE SHOWING THE MEASUREMENTS OF THE STRUCTURES MEASURED (All measurements in mm) STUDY BASED ON 5 ♂ AND 5 ♀

Structures measured	Males		Females	
	Extremes	Average	Extremes	Average
Body lenght	5.875-7.27	6.513	6.475-8.75	7.722
Maximum breadth	0.562-0.737	0.662	0.687-0.775	0.715
Proboscis length	0.144-0.20	0.173	0.175-0.20	0.191
Proboscis sheath	0.525-0.587	0.554	0.590-0.66	0.638
Lemnisci	1.437-1.712	1.612	1.5 -1.75	1.65
Length of one hook on anterior row of proboscis	0.045-0.055	0.05	0.05 -0.06	0.055
Length one hook middle row	0.045-0.05	0.048	0.045-0.05	0.0475
Length one hook posterior row	0.030-0.035	0.031	0.025-0.03	0.027
Uterine bell			0.180	0.180
Uterus			0.55 -0.725	0.62-0.107
Vagina			0.05 -0.075	0.061
Vaginal gland			0.150	0.150
Eggs			0.024-0.032 x 0.010-0.018	0.028 x 0.0129
Testes (Anterior)	0.463-0.837 x 0.212-0.475	6.936 x 0.365		
(Posterior)	0.437-0.80 x 0.30 -0362	7.028 x 0.328		
Prostate gland	0.313-0.537 x 0.287-0.437	0.362 x 0.434		
Prostate reservoir	0.175-0.25 x 0.162-0.212	0.215 x 0.178		
Bursa	0.162-0.20 x 0.20 -0.212	0.183 x 0.204		
Penis	0.125	0.125		