

Two New Helminth Parasites from Pakistan, with Redescription of the Acanthocephalan *Centrorhynchus fasciatum* (Westrumb, 1821)

FATIMA MUJIB BILQEES* AND ALY KHAN

Department of Parasitology, Baqai Medical University, Karachi-74600 (FMB) and
Crop Diseases Research Institute, PARC, University of Karachi, Karachi-75270 (AK)

Abstract:- Three helminth parasites are reported here including an acanthocephalan *Centrorhynchus fasciatum* (Westrumb, 1821) from the intestine of an eagle *Butastur teesa*. This represents a new host and locality record. Others are a new trematode, *Eumegacetus nickoli*, from intestine of rose finch *Carpodacus* sp. and a new acanthocephalan parasite, *Serracentis manazo* from an elasmobranch fish *Myrnillo manazo* of Karachi coast. *Eumegacetus nickoli*, new species, differs from the previously reported species of the genus in body shape and size, sucker width ratio, shape of cirrus pouch, size of testes and ovary and in egg sizes. This is the first report of the genus *Eumegacetus* from a bird in Pakistan. The new acanthocephalan, *Serracentis manazo*, is characterized by having club-shaped proboscis with 6 longitudinal rows of 15-16 hooks, 12 rows of 6 comb-like trunk spines, 3 single posterior spines, distinctly narrow posterior region and muscular bursa with ring-like sphincter. This is the first report of the genus *Serracentis* in an elasmobranch from Pakistan.

Key words: Acanthocephala, trematode, *Centrorhynchus fasciatum*, *Butastur teesa*, *Eumegacetus nickoli* n.sp., *Carpodacus* sp., *Serracentis manazo* n.sp.

INTRODUCTION

During a survey of helminth parasites of birds and fishes from Karachi, Sindh, Pakistan, Seven Acanthocephala and a single trematode were collected from an eagle (*Butastur teesa*) and rose finch, *Carpodacus* sp. are being reported in this paper. The trematode is new to science whereas the acanthocephalan are being reported from a new locality. Besides *Serracentis manazo* new species is being reported from the fish *Myrnillo manazo* of Karachi coast.

MATERIALS AND METHODS

Living worms were fixed in F.A.A. (Formalin" acetic acid and 50% ethanol, 5:3:92) for 24 hours using slight slide pressure when necessary to prevent curling. After fixation, the parasites were removed, washed in 70% alcohol, stained in Mayers Carmalum cleared :in clove oil and xylol mounted :in Canada balsam. Diagrams were made with the

aid of camera Lucida. Measurements in the description are given in millimeters. Specimens are in the collection of the first author.

Family: CENTRORHYNCHIDAE Van Cleave,
1916

Centrorhynchus fasciatum (Westrumb, 1821)
(Figs. 1-3)

Host:	Eagle (<i>Butastur teesa</i> Franklin)
	Intestine
Location:	Intestine
Locality:	Karachi, Sindh
No. of specimens examined:	7 from a single host
No. of hosts examined:	2

Description

Trunk cylindrical, elongate, curved dorsally, with conspicuous swelling near anterior end. Proboscis nearly cylindrical in shape; occasionally constricted somewhat at point of insertion of receptacle. Proboscis armed with 12-13 longitudinal rows of 6-18 hooks each; hooks shape similar in females and males. Lemnisci about 3-4 times longer than the length of proboscis receptacle, extending well beyond it but not reaching the posterior end of the body.

* Present address: Jinah University for Women, Karachi-74600.

Remarks

Body 10.10-11.1 by 1.2-1.5. Greatest width at anterior swelling. Proboscis 0.72 to 0.74 long, 0.18 to 0.19 width at tip, 0.30-0.31; width near middle, 0.20-0.21 width at base, hooks measures 0.019-0.021 long at tip and 0.018-0.019 long at middle, neck absent, lemnisci long, 5.46.9 long. Proboscis receptacle 0.91-0.92 by 0.21-0.22. Testes oval, tandem, sometimes overlapping, 0.05-0.5 by 0.04-0.42, located in anterior swelling of trunk. Three cement glands present. Bursa large, well developed, membranous, measuring 0.32-.0.62 by 0.63.

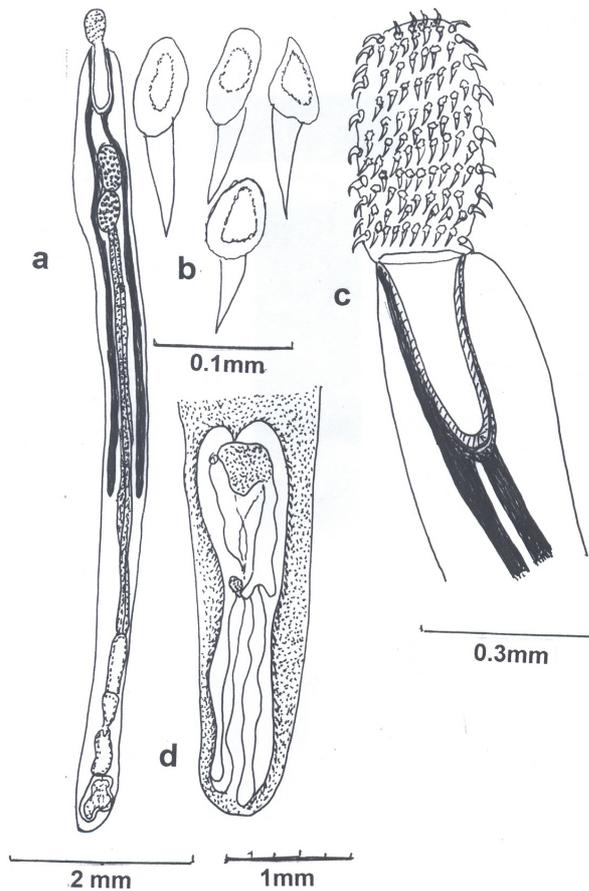


Fig. 1. *Centrorhynchus fasciatum* Westrumb, 1821; a, entire male; b, hooks enlarged; c, anterior end of male; d, bursal region.

Female

Body 14.5-15.6 by 0.5-1.1. Greatest width at anterior swelling. Proboscis 1.5 long, 0.2 wide at

tip, 1.17 wide at middle, 0.3 wide at base. Hooks measure 0.006-0.010 at tip, 0.018-0.020 at middle and 0.09 at base of proboscis. Lemnisci and proboscis receptacle as in male. Eggs in body cavity of female, oval, measuring 0.004-0.005 by 0.05-0.06 without polar prolongations, thin outer shell sculptured with very thin longitudinal ridges and grooves.

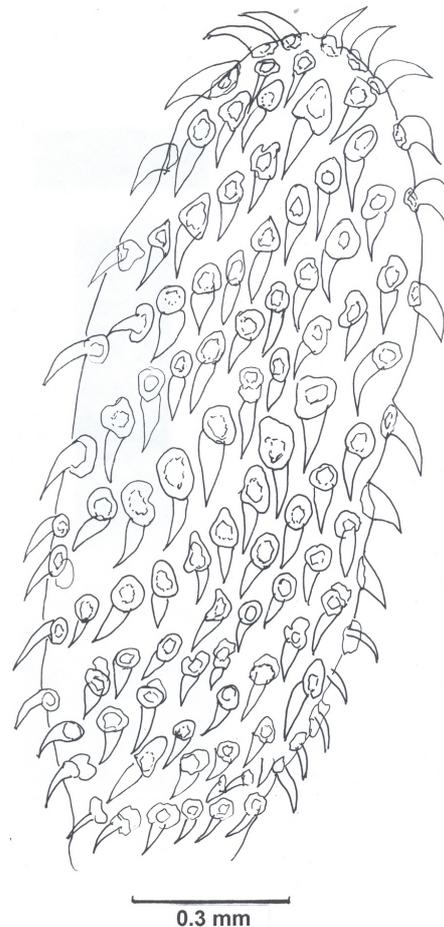


Fig. 2. *Centrorhynchus fasciatum*, proboscis enlarged.

Remarks

A number of species of the genus *Centrorhynchus* (Luhe, 1911) have been reported from different localities of the world.

C. indicum Golvan, 1956, syn. *G. falconis* (Das, 1949); *C. albidum* Meyer, 1932, *C. areolatum* (Rud., 1819); *C. asturinum* (Johnst., 1913); *C.*

bancrofti (Johnston and Best, 1943); *C. bazaleiticum* Kuraschvili, 1965; *C. bengalense* Datta and Soota, 1955; *C. brelicanthus* Das, 1949; *C. bubonia* Yamaguti, 1959; *C. buteonis* (Schrank, 1788) Kostyle, 1914; *C. chahaudi* Golvan, 1958; *C.*

1953; *C. lanceoides* (Petrotschenko, 1949); *C. leguminosum* (Solowjew, 1912); *C. macrorchis* Das, 1950; *C. madagascariense* (Golvan, 1957); *C. maryasis* Datta, 1933; *C. microcephalus* Bravo Hollis, 1947; *C. microrchis* Fukui, 1929; *C. milvus* Ward, 1956; *C. narciseae* Florescu, 1942; *C. petrotschenkoi* Kuraschvili, 1955; *C. physocoracis* (Porta, 1913); *C. picae* Dollfus, 1953; *C. undalatum* Dollfus, 1951); *C. turdi* Yamaguti., 1939; *C. tumidulum* (Rud, 1819); *C. kuntzi* Schmidt, 1966; *C. crotophagicolan* Schmidt, 1966; *C. nicaraguensis* Schmidt, 1966 (in Yamaguti, 1963).

The above species are reported from Russia, S. America, India, Sudan, China, Chile, Australia, Africa, Morocco, Germany, Pakistan, Japan, Europe, Alaska, Romania, Congo, Belgium, and Canada.

The species reported from Pakistan are *C. nickoli* Khan *et al.*, 2001 and *C. sindensis* Khan *et al* 2002.

The present specimens are closer to *C. fasciatum* (Westrumb, 1821) Travassos 1926, in the size of the body and rows of proboscis hooks. Therefore, it is regarded as same with a new locality record for the first time in Pakistan.

Family: EUMEGACETIDAE Travassos, 1923

***Eumegacetes nickoli*, new species**

(Fig. 4)

Host:	Rose finch (<i>Caerodacus</i> sp.)
Location:	Intestine
Locality:	Karachi, Sindh
No. of specimens examined:	1, from a single host
No. of host examined:	4

Description

Body oval to elongate, cuticle thin, smooth. Body size 2.4 mm greatest width, 1.1 in the acetabular region, forebody 1.0 and hindbody 0.6. Suckers strongly developed. Oral sucker 0.55 in transverse diameter, terminal in position. Acetabulum post equatorial, 0.55 in diameter. Sucker ratio 1:1; Pharynx 0.21 by 0.35; Esophagus lacking. Ceca bend anteriorly from the mid pharynx level. Genital pore is situated in the anterior region of the body ventral to pharynx. Testes inside the caecal arch, connected to each other by a delicate

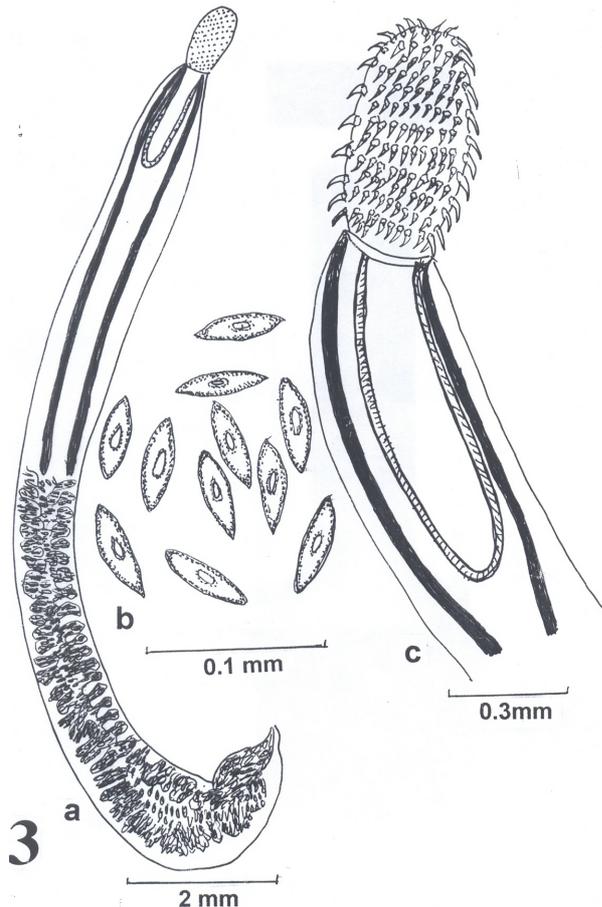


Fig. 3. *Centrorhynchus fasciatum*; a, entire female; b, eggs; c, anterior end of female.

clitorideum (Meyer, 1931); *C. conspectum* (Van Cleave *et Pratt.* 1940); *C. corvi* Fuki, 1929; *C. elongatum* Yamaguti, 1935; *C. embae* Kostylew, 1916; *C. falconis* (Johnston *et Best*, 1943); *C. fasciatum* (Westrumb, 1821); *C. freundii* (Hartwich, 1953); *C. galliardi* Golvan, 1956; *C. gendrei* (Golvan, 1957); *C. giganteum* Travassos, 1921; *C. globocaudatum* (Zeder, 1800); *C. horridum* (Linstow, 1897); *C. hylae* (Johnston, 1941); *C. leguminosum* (Golvan, 1956); *C. insulare* Tubangui,



Fig. 4. *Eumegacetes nickoli*, new species; a, holotype entire; b, eggs.

duct, pre-acetabular in position, diameter of each testes being 0.22-0.29 they are smooth, rather oval and symmetrical. Cirrus pouch saccular, intertesticular, 5.2 long, and 0.3 in its maximum width. Ovary in the posterior third of the body 0.2 by 0.19 in size. A tubular seminal receptacle arises from the side of ovary 0.3 by 0.04 in size. Shell gland 0.1 by 0.15, caeca end just behind the level of the ovary. Vitellaria lateral, consisting of flattened follicles of variable size intruding more or less up to the level of forebody and posteriorly near the posterior end.

Excretory vesicle 'Y'-shaped. Uterus with several transverse coiling filling most of the hind portion of the body, covering caeca. Eggs thin shelled, 0.026, 0.036 by 0.01-0.15.

Remarks

The genus *Eumegacetes* Loos, 1900 is

cosmopolitan. The following species of the genus have been reported viz. *E. triangularis*, (Looss, 1894) Looss, 1900; *E. aquillai* Jaiswal et Reddy, 1968; *E. hirundiosus* Jaiswal Vasudev, 1960; *E. indicus* Jaiswal et Vasudev, 1960; *E. lanii* Yamaguti et Mitinaga, 1943; *E. lectibrosalus* Oshmarin, 1958; *E. macroorchis* Brenes madrigal et Anroya Sancho, 1962; *E. medioximus* Braun, 1901; *E. megactabulus* Jaiswal et Vasudev, 1960; *E. mehrai* Jha, 1943; *E. microdiosus* Chauhan, 1940; *E. perodiosus* Travassos, 1922; *E. riparius* Gupta, 1957; *E. singhi* Jaiswal, 1957 and *E. skrjabini* Tenora et Kopriva, 1958 (in Yamaguti, 1971).

The present specimens of the genus *Eumegacetes* (Looss, 1900) have been reported for the first time from *Carpodacus* sp. (Rose finch) and from a new locality Karachi, Pakistan.

The present species is closer to *E. lanii* Yamaguti and Mitunga, 1943 but differs from it in having the oral sucker and ventral sucker of equal diameter while in *E. lanii* the oral sucker appears a bit smaller than the acetabulum, vitellaria in *E. lanii* more profusely developed and its shape and size of the cirrus sac is also different. Ramadan et al. (1984) provided a key to differentiate species of *Eumegacetes*. Shumilo (1970) described *E. variovitellus* n.sp. from small intestine and caecae of *Merops apiaster* in Molderian, SSR.

Isokova (1970) reported *E. brevis* from wild birds in Black sea area. El-Naffar and Khalifa (1980) described a new species *E. upupae* from *Egyptian hoopoe* and *E. orientalis* little green Egyptian bee-eater. Dehmukh (1987) described *E. thapari* and *E. soodi* from small intestine of horned owl from Aurangabad, India.

The new species is named in honour of Dr. Brent B. Nickol, Lincoln University, Nebraska, U.S.A.

Serrasentis manazo, new species (Figs. 5A-B)

Host	<i>Myrmillo manazo</i> (Blkr)
Location:	Intestine
Locality:	Karachi coast, Pakistan
Number of parasites:	1 male specimen from a single host
Host examined:	6

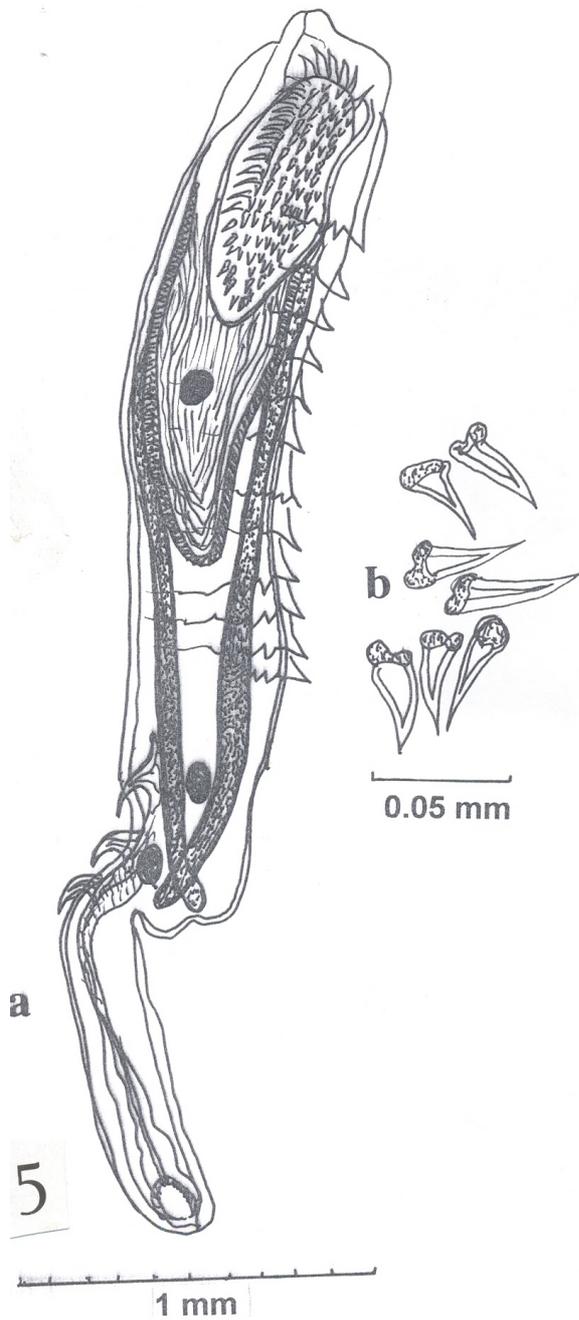


Fig. 5. *Serrasentis manazo*, new species; a, holotype entire male; b, proboscis hooks enlarged.

Description

Body small, slightly thinner at posterior end, anterior part of the trunk with transverse rows of

comb-like spines, which are 12 in number followed by 3 small spines posteriorly. Proboscis club-shaped, wide anteriorly, with 6 longitudinal rows of 15-16 hooks in each row, each hook covered at their roots by cuticular folds. Proboscis sheath double-layered, lemnisci two, longer than the proboscis receptacle, cylindrical. Cement glands probably four but not clearly seen. Bursa muscular with ring-like sphincter.

Measurements

Total length of the body 3.5, length of the Anterior portion 1.5, width of the anterior portion 0.38, length of the posterior portion 1.4, width of the posterior portion 0.24, length of the Proboscis 0.7, width of proboscis 0.28 length of the proboscis receptacle 1.31, width of the proboscis receptacle 0.24, length of the hooks 0.048, length of comb-like trunk spines 0.034, width of trunk spines 0.012, length of the testes 0.064, width of testes 0.012. Bursa 0.5 in length.

Remarks

The acanthocephalan genus *Serrasentis* Van Cleave is peculiar in having variable number of comb-like trunk spines (Yamaguti, 1963). There is no other acanthocephalan genus with these peculiar type of trunk spines. Previously four species of the genus are known from bony fishes of Karachi coast. But the present specimen of the genus is from an elasmobranch *Myrnillo manazo* of Karachi coast. Previous species of this genus have been reported from the fishes *Pseudosciaena diacanthus*, *Rachycentron canadus* (Bilqees, 1972), *Otolithus argenteus* (Bilqees and Kazmi, 1974), *Psettodes erumei*, *Musaenesax cinereus* (Bilqees, 1981) and *Cybius guttatum* (Bilqees and Khatoun, 1992). Surface ultra-structure of two species were also reported by Bilqees (1981) and Bilqees and Kazmi (1992). Present specimens are new species for which the name *Serrasentis manazo* is proposed.

The species of the genus described by now include *S. longus* (Tripatti, 1959), Bilqees and Kazmi, 1974; *S. chauhani* Datta, 1954; *S. lamelliger* Dies, 1854 (See Yamaguti, 1963); *S. socialis* Golvan, 1956; *S. sagittifer* Linton, 1932; *S. mujibi* and *S. sciaena* Bilqees, 1972, and *S. giganticus* Bilqees, 1972.

The present specimens differ from *S. longus* Tripathi, 1959 and *S. sciaena* Bilqeess, 1972 in the shape, size, and number of proboscis hooks and the rows of cuticular comb-like spines present on the trunk. In *S. longus*, there are 19 rows of trunk spines, in *S. sciaena* there are 11 rows of comb-like trunk spines. The trunk of the present specimen is also smaller than the trunk of the *S. longus* and *S. sciaena*. In *S. longus* lemnisci are longer than the proboscis receptacle, whereas, in the former the lemnisci are smaller than the proboscis receptacle. *S. giganticus* has a very large size and number of proboscis, and comb-like trunk spines are more in number than in all other spines.

The species described from Pakistan are *S. giganticus* Bilqeess, 1972b, *S. longus* (Tripathi, 1959), Bilqeess and Yasmin, 1974, *S. mujibi* Bilqeess, 1972a and *S. sciaena* Bilqeess, 1972a and all are from bony fishes while the present new species is from an elasmobranch *Myrtillo manazo*. The species name *S. manazo* refers to the host.

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