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LECITHOCLADIUM CYBII N.SP. (DIGENEA: HEMIURIDAE LUHE, 1901) FROM THE FISH *CYBIUM GUTTATUM* OF KARACHI COAST, PAKISTAN

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ABSTRACT

A new hemiurid trematode *Lecithocladium cybi*i n.sp. is described from the fish *Cybium guttatum* (Cybidae) of Karachi coast, Pakistan. This new species is separted from the previously described large number of species of the genus in having a combination of characters such as body long, soma long and wide at the level of ventral sucker, ecsoma shorter and narrower ending into a knob posteriorly.Oral sucker terminal, transversely flattened, pharynx large, elongate, following into prominent oesophagus, the anterior part of which is distinct, sac-like, intestinal bifurcation is much anterior to ventral sucker, ventral sucker smaller than oral sucker, testes 2, close, diagonal, sub-globular in shape, situated almost in the middle of hind body, seminal vesicle elongate, bluntly pointed at both ends, anterior part of which is recurved followed by long, coiled pars prostatica, sinus sac extending from the posterior level of ventral sucker to mid region of pharynx and joining the long, tubular, genital atrium opening at the anterior margin of oral sucker. Ovary post-testicular, situated in posterior fourth quarter of soma, seminal receptacle present, vitellaria consist of seven, long, tubes, radiating ventral to seminal receptacle, all directed posteriorly. Uterine coils extend into middle of ecsoma and anteriorly opening into the base of sinus sac. Eggs numerous. small.Excretory pore terminal.

Key Words: *Lecithocladium cybii* n.sp., *Cybium guttatum*, Karachi coast, Pakistan.

INTRODUCTION

Lecithocladium Luhe, 1901 is one of the largest genera of digeneans belonging to the family Hemiuridae. There are atleast 83 nominal species as mentioned by Bray and crib (2004) or may be more (including those of the species are characterized by an infundibulifrom oral sucker, an elongated, cylindrical pharynx and a large specimens have these typical characteristics.

Previously several species of the genus have been described from fishes of Karachi coast (Bilqees *et al*., 2005; Farooq and Khanum, 1980; Zaidi and Khan, 1977; Shaukat and Bilqees 2007; Shaukat *et al.,* 2008) Here a new species *Lecithocladium cybii* is described here from the fish *Cybium guttatum* of Karachi coast.

MATERIALS AND METHODS

The fishes *cybium guttatum* were purchased from fish harbor West Whart, Karachi. Out of 53 fish hosts 2 were infected with trematodes. Specimens were fixed in FAA soulution under slight cover glass pressure for 24 hours, washed several times with 70% alcohol, stained with Mayer's Carmalum, dehydrated in graded series of alcohols, cleared in clove oil and xylene and mounted permanently in Canada balsam. Measurements are given length by width in millimeters. Drawings were made with help of a camera Lucida. Specimens are in the collection of Dept. of Zoology, Jinnah University for women, Karachi.

Lecithocladium cybii n.sp.
(Figs. 1-2)

Family: Hemiuridae Looss, 1899, Luhe, 1901
Sub-family: Diurinae Looss, 1907
Genus: *Lecithocladium* Luhe, 1909
Host: *Cybium guttatum* (Cybidae)
Local name: Kalgund (sin) Kulgun (bal)
Common name: Spotted Spanish mackerel
Location: Stomach
Locality: Karachi coast, Pakistan,
No. of specimens: 9 (7+2 from 2 hosts), 53 fishes were examined.
Holotype: JUW – T5
Paratypes: JUW – T6-13

DIAGNOSIS

Body divided into soma and ecsoma. Soma is large and wide at the level of ventral sucker. Ecsoma is smaller than soma becoming narrower towards the tail ending into a knob. Oral sucker is large, terminal, flattened, oral opening wide, transversely elongated. Prepharynx is absent. Pharynx is large, elongated, strongly muscular, oesophagus prominent, anterior part of which is sac-like. Intestinal bifurcation is anterior to ventral sucker. Ventral sucker is smaller than oral sucker. Testes are two, diagonal, sub-globular, one behind the other, situated almost in the middle of hindbody. One posterior to seminal vesicle and one lateral to it. Seminal vesicle elongate, pointed at both ends, anterior extremity recurved back over proximal part, leading to pars prostatica. Pars prostatica is long, winding reaches anteriorly to the posterior level of ventral sucker. Cirrus sac is long, narrow, extending from the level of ventral sucker to forebody. Junction of cirrus sac and genital atrium is at the mid-level of pharynx. Genital atrium is also long, tubular, narrow, genital pore ventral to anterior part of oral sucker. Ovary post-testicular, well separated from posterior testes, in posterior fourth-quarter of soma, transversely flat. Seminal receptacle is immediately posterior to ovary and smaller than it. Vitellaria consist of 7, long tubes, all directed posteriorly. Uterus reaches posteriorly to middle of ecsoma, then passes forward coiling between ovary and testes, dorsal to testes and seminal vesicle, opening into base of cirrus sac. Eggs are numerous, small, oval to elongate. Excretory pore is terminal on ecsoma. Excretory vesicle is rounded posteriorly, bifurcates at the level of posterior testis, arms unite dorsal to oral sucker.

Principal measurements of *L. cybii* n.sp.
(In millimeters)

Body size: 6.9–6.91 x 0.59–0.6
Soma length: 3.70–3.71
Soma width: 0.59–0.6
Ecsoma length: 3.20–3.21
Forebody: 1.31–1.32
Hindbody: 5.7–5.72
Oral sucker: 0.4–0.41 x 0.51– 0.52
Pharynx: 0.415–0.42 x 0.31– 0.32
Ventral sucker: 0.37–0.38x0.39– 0.4
Sucker width ratio: 1: 0.6
Seminal vesicle: 0.35–0.36 x 0.61
Ventral sucker to seminal vesicle: 0.6–0.61
Ventral sucker to anterior testis: 0.88–0.89
Anterior testis:0.12–0.125 x 0.0.110
Posterior testis:0.12–0.175 x 0.141– 0.145
Posterior testis to ovary:0.30–0.31
Ovary: 0.28–0.29 x 0.10–0.11
Eggs: 0.03–0.037 x 0.017–0.025
Etymology: The present new species *Lecithocladium cybii* refers to the host.

DISCUSSION

Species of the genus *Lecithocladium* Luhe, 1909, described previously from Pakistan are *L. psenopsis* Yamaguti, 1934 (Bilqees, 1981) from *Stromateus sinensis*; *L. hexavitellarii* (Bilqees, 1971); *L. anteporus* (Bilqees, 1971); *L. microductus* (Bilqees, 1971); *L. arabiana*, (Bilqees, 1971); *L. microcaudum* (Bilqees, 1971); *L. octovitellarii* (Bilqees, 1971) all from *Stromateus* sp., of Karachi coast; *L. karachii* Zaidi and Khan, 1977 from *Carangoides presustus*; *L. pakistanensis* Zaidi and Khan, 1977 from *Carangoides malabaricus*; *L. stromatei* Farooq and Khanum, 1980 from *Stromateus niger*; *L. arabicum* Farooq and Khanum, 1980 from *Caranx djedaba L. thynensis* Bilqees and Nighat, 1985 from *Thynnus* sp; *L. arii* Bilqees *et al*., 2005 from the fish *Arius serratus*; *L.magnasoma* Shaukat and Bilqees,2007; and *L. Lataropharyngion* Shaukat and Bilqees, 2008 from the fish stromateus sinensis. These species are also from fishes of Karachi coast. All species except *L. karachii*, *L. arabicum* and *L. thynensis* are from fishes of family Stromateidae.

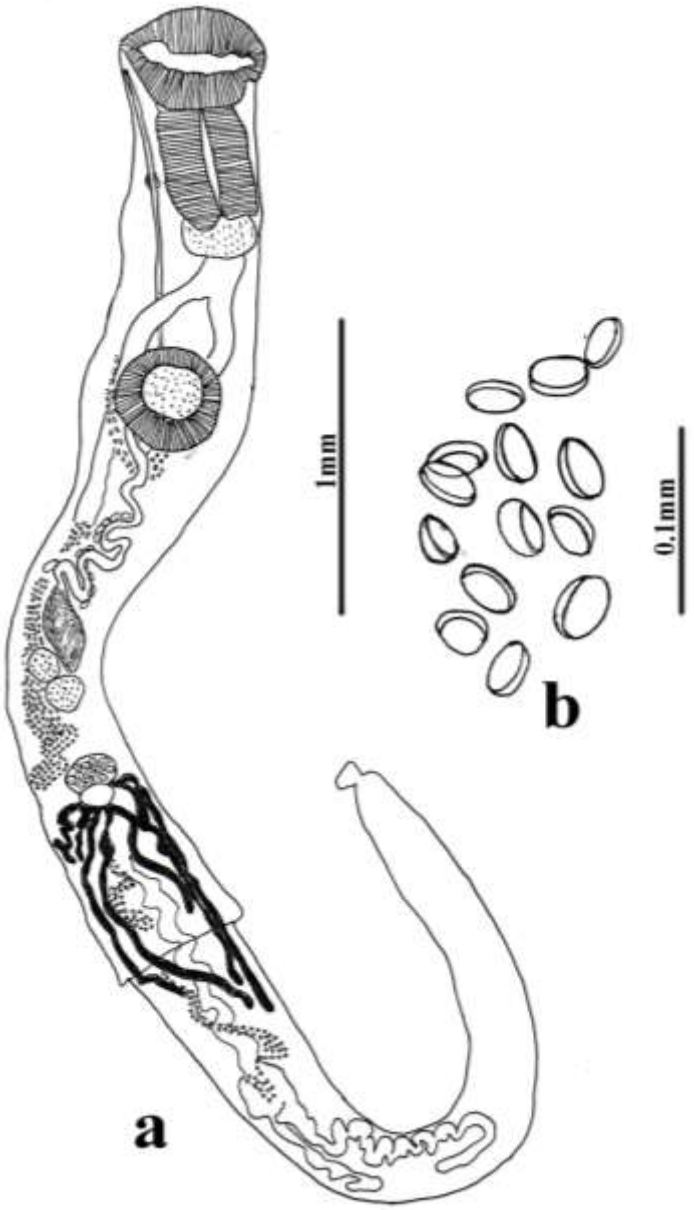

Fig.1. (a) *Lecithocladium cybii* n.sp., holotype, entire; (b) Eggs enlarged.

Present species is different from the previously described species as well as from the species from other parts of the world. The present species is characterized by having infundibuliform oral sucker, large muscular pharynx longer than oral sucker, anterior part of oesophagus sac-like, ventral sucker smaller than oral sucker, testes diagonal, anterior testis overlapping seminal vesicle dorsally at the posterior level. Seminal vesicle elongate, pointed at both ends. Pars prostatica winding reaching to the posterior level of ventral sucker. Sinus sac is long, tubular, extending to the middle of pharynx joining the tubular genital atrium which opens at the anterior level of ventral sucker. Ovary is in the posterior fourth-quarter of soma, larger than the testes. Seminal receptacle is immediately behind ovary. Vitellaria are 7, long tubes, 4 of which extend posteriorly into ecsoma. Uterus is reaching to the middle of ecsoma. Excretory vesicle is knob-like posteriorly,anteriorly extending into a tube to the posterior level of testes.

The anterior sac like portion of oesophagus has not been described in any of the previous species. Although ventral sucker is smaller than oral sucker is found in several other species. Species having oral sucker larger than ventral sucker are *L. exisum* Luhe, 1901; *L. brevicaudum* Srivastava, 1942; *L. annulatum* Velasquez, 1962; *L. anguistiovum* Gibson and Bray, 1986; *L. parvioum* Yamaguti, 1953; *L. scombri* Yamaguti, 1953; *L. apolectis* Velasquez, 1962; *L. aegyptensis* Fischthal and Kuntz, 1963; *L. bulbolabrum* Reid, Coil and Kuntz, 1966; *L.*

stromatei Gupta and Gupta, 1983; *L. arabicum* Farooq and Khanum, 1980; *L. inglisi* Gupta and Ahmed, 1977; *L. lutiani* Gu and Shen, 1978; *L. keralense* Gupta and Gupta, 1983; *L. indicum* Gupta and Gupta, 1978, *L. elongatus* Gupta and Puri, 1981; *L. bengalensis* Gupta and Gupta, 1983; *L. jagannathi* Ahmed, 1981; *L. sulphuriusi* Gupta and Gupta, 1983; *L. microlepidotus* Gupta and Gupta, 1983; *L. caranxi* Gupta and Gupta, 1983; *L. siddiqui* Gupta and Gupta, 1978 as in the present species but these are different in body size, relative length of soma and ecsoma and shape, size of seminal vesicle ovary and presence of sac-like anterior part of oesophagus.

Species having oral sucker smaller or equal to ventral sucker are *L. magnacetabulum* Yamaguti, 1934; *L. carultum* Gupta and Gupta, 1983; *L. megalaspis* Gibson and Bray, 1986; *L. chauhani* Chauhan, 1945; *L. triacanthi* Gupta and Gupta, 1983; *L. manteri* Gupta and Puri, 1981; *L. psenopsis* Gupta and Gupta, 1983; *L. glandulum* Chauhan, 1945; *L. chingi* Manter and Pritchard, 1960; *L. falklandicum* Gupta and Gupta, 1983; *L. purense* Gupta and Gupta, 1978; *L. thapari* Gupta and Gupta, 1983; *L. puriensis* Gupta and Gupta, 1983; *L. singhi* Gupta et Singh, 1983; *L. guptai* Gupta and Gupta, 1983; *L. seriolellae* Gupta and Gupta, 1983; *L. tewarii* Gupta and Gupta, 1987 and are different from the present species.

L. gazzai Pandey *et al*., 2000 differs from the present new species *L. cybii* in having oral sucker larger than the ventral sucker while in *L. gazzai* the oral sucker is almost equal to the ventral sucker.

L. gazzai is median, ventral to the oral sucker. Seminal vesicle is spindle-shaped, small as compared to the present new species. Ovary is median, tri-lobed, post-testicular lying a little anterior to the posterior end of soma separated from posterior testis by uterine coils.

Vitellaria is post-ovarian, consisting of 10 long, slender, winding tubules confined up to a little anterior to posterior end of soma,while the new species described here consist of 7 vitelline tubules. *L. gazzai* resembles with *L. chaetodipteri* in having oral sucker smaller of same size as ventral sucker and the presence of 10 vitelline tubules but differs from it in having pharynx not overlapping anterior margin of ventral sucker, seminal vesicle is not extending to posterior margin of ventral sucker and large size of the body.

L. gazzai differs from *L. cybii* and *L. hanumanthai* in having genital pore at anterior part of oral sucker, tri-lobed ovary, in the presence of pre-oral lobe and 10 vitellaria Pandey *et al*., 2000.

L. bengalensis Saxena and Prakash, 2006 differs from previously described species in having genital pore sub-median, lying in the middle of the oral sucker while resembles with other *Lecithocladium* species in having same number of vitelline tubules i.e. 7.

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