

***Neodiploproctodaeum karachiensis* n. gen., n. sp. (Digenea: Lepocreadiidae) From the Fish *Lagocephalus lunaris* (Tetradontiformes: Tetradontidae) From Karachi Coast, Pakistan**

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Abstract.- A new Lepocreadiid digenenan *Neodiploproctodaeum karachiensis* n.gen., n.sp. is described from the intestine of the Tetradontiformes *Lagocephalus lunaris* from Karachi coast. This differs from other genera of the subfamily Diploproctodaenae of family in having smooth, elongate body with wing-like lateral expansions united at postacetabular level dividing the body into two regions; subterminal oral sucker smaller than acetabulum; pharynx and esophagus present, prepharynx absent; caeca reaching near posterior end of body, terminating blindly; acetabulum large, simple, in anterior third of body, cirrus pouch and external seminal vesicle is also present, prostatic cells outside cirrus are not present. Genital pore is submarginal, preacetabular. Testes are two, almost tandem separate, in hindbody. Ovary is slightly submedian, pretesticular, uterine coils, anterior to ovary; vitellaria consist of large number of follicles surrounding caeca, extending from postacetabular to the posterior extremity, confluent in the post-testicular region, and excretory vesicle is Y-shaped.

Keywords: Trematode, fish, intestine, Karachi coast.

INTRODUCTION

Several species of trematodes family Lepocreadiidae (Odhner, 1905) have been described from fishes of Pakistan (Shaukat and Bilqees, 2005). The genera of subfamily Diploproctodaenae reported from Pakistan are *Anterodiscus* Bilqees, 1974; *Bianium* Stunkard, 1930; *Bicaudum* Bilqees, 1971; *Multiovarium* Bilqees, 1974; and *Orientodiploproctodaeum* Bhutta and Khan, 1970; (Bilqees, 1981). The present new genus *Neodiploproctodaeum* represents sixth genus in the subfamily from fish of Karachi coast. Among the above mentioned genera species of genus *Bianium* is known from a related fish host *Lagocephalus lunaris* from the same locality.

MATERIALS AND METHODS

Seventy nine fish *Lagocephalus lunaris* were collected from the fish harbour, Karachi, for parasitological analysis during a period of one year (February 2006 – January 2007). Only one fish was

infected with 8 trematodes in the intestine. These were fixed in F.A.A. solution (a mixture of ethyl alcohol 92 ml + formalin 5 ml + acetic acid 3 ml) for 24 hours, stained with Mayer's carmalum, dehydrated in graded series of alcohols, cleared in clove oil and xylene and mounted permanently in Canada balsam by usual procedure. Diagrams are made with a camera Lucida and measurements are given length by width in millimeters. Holotype and paratype specimens are deposited in the collection of the first author in the Department of Zoology, Jinnah University for Women, Karachi. These are available to other scientists on loan.

***Neodiploproctodaeum karachiensis* n. gen., n. sp.** (Fig. 1)

Host	<i>Lagocephalus lunaris</i> (Tetradontidae)
Location	Intestine
Locality	Fish harbour, Karachi coast
No. of specimens	8 from a single fish, 79 examined
Holotype No.	BMC-T201

Body is smooth, elongate, with wing-like lateral expansions dividing the body into two regions. Body length is 1.6 – 1.9, width 0.61 – 0.69, widest at the acetabular level. Oral sucker is subterminal, rounded, 0.17 – 0.19 in diameter,

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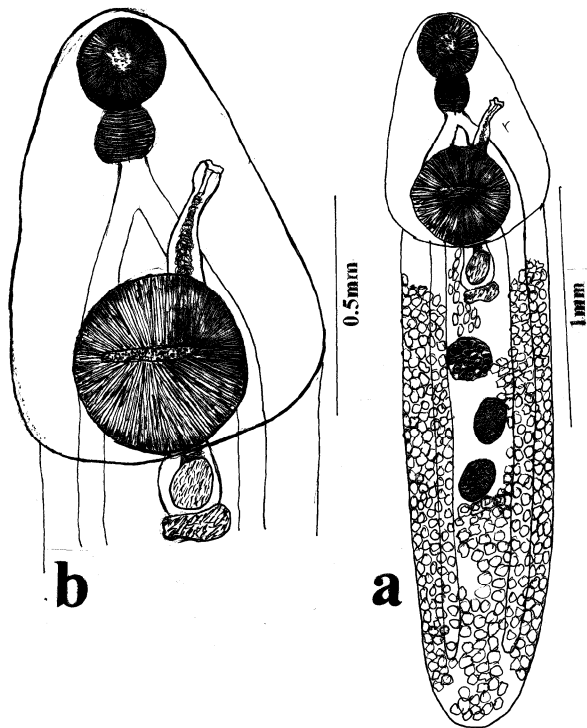


Fig. 1. *Neodiploproctodaeum tetradontis* n.gen. n.sp.; a, holotype specimen, entire; b, anterior body region showing external seminal vesicle and cirrus sac, and genital opening.

preoral lobe 0.03 – 0.05 in length. Prepharynx is absent, pharynx oblong, 0.05 – 0.07 by 0.06 – 0.08, esophagus small, 0.09 – 0.13 in length, caeca long reaching to near posterior end of body. Acetabulum rounded, large, at the base of anterior body region, in anterior third of body, 0.45 – 0.49 in diameter. Testes are two, oval in shape, almost tandem, separate, postovarian, anterior testes 0.17 – 0.19 by 0.11 – 0.15; posterior 0.16 – 0.18 by 0.11 – 0.17. External seminal vesicle is present at the base of cirrus sac, transversely elongate, 0.13 – 0.15 by 0.17 – 0.19 in size. Cirrus sac is long, reaching posterior to acetabulum, submedian, anteriorly extending to level of pharynx and ending into a wide genital opening. Cirrus sac 0.81 – 0.83 by 0.16 – 0.18, wider at the base containing an oval seminal vesicle in the postacetabular part of cirrus sac, elongate pars prostatica and small cirrus. Ovary is pretesticular, pre-equatorial, rounded, 0.16 – 0.20 in diameter. Vitellaria consist of numerous rounded to flattened follicles extending laterally from postacetabular

level to posterior end of body, overlapping caeca and confluent in the post-testicular region. Excretory vesicle is tubular, long reaching to intestinal bifurcation. Uterus is small anterior to ovary containing small number of eggs. Eggs are small, slightly longer than wide, 0.011 – 0.13 by 0.007 – 0.009 in size.

NEODIPLOPROCTODAEUM n. gen.

Diagnosis

Lepocreadiidae, Diploproctodaeinae. Body smooth, elongate, divided into two regions by wing-like lateral expansions joining at the base of acetabulum. Oral sucker subterminal, with small pre-oral lobe, prepharynx absent, pharynx well developed, esophagus small, bifurcating at a distance anterior to acetabulum and nearer to oral sucker. Acetabulum large, rounded, at the base of forebody and in anterior third of body. Testes are two obliquely tandem, postovarian and postequatorial. External seminal vesicle transversely elongate, cirrus pouch long, extending in postacetabular region, containing oval seminal vesicle, long pars prostatica and small cirrus, submedians anteriorly, reaching to level of pharynx with a wide genital pore. Genital pore is submarginal. Ovary is slightly submedian, smooth, rounded, vitellaria consist of numerous rounded to flattened follicles, in lateral fields of hindbody, confluent behind posterior testis and overlapping caeca. Uterus is small anterior to ovary. Excretory vesicle is tubular, long reaching to postbifurcal region. Intestinal parasite of marine fish.

Type species

Neodiploproctodaeum karachiensis n. gen., n. sp.

Host

Logocephalus lunaris

Locality

Karachi coast, Pakistan

DISCUSSION

The present specimens are included in the family Lepocreadiidae (Odhner, 1905) Nicoll, 1935

as these have elongate body with wing-like lateral expansions dividing the body into two regions, pharynx and esophagus are present, caeca reaching near posterior end of body, terminating blindly. Acetabulum simple, situated anteriorly. Cirrus pouch is present, external seminal vesicle is also present, pars prostatica present. Genital pore is submarginal, preacetabular. Testes are two, almost tandem in hindbody. Ovary is slightly submedian, pretesticular, uterine coils confined to hindbody, preovarian vitellaria consisting of large number of follicles, surrounding caeca, extending from a little distance posterior to acetabulum to the posterior extremity, excretory vesicle is Y-shaped.

Among the subfamilies of family present specimens are close to Diploproctodaeinae Park, 1939 in having body with anterior lateral marginal edges spread outward and unite at the base of acetabulum dividing the body into two regions. No other subfamily has this feature. Among the genera of subfamily present specimens are close to *Diploproctodaeum* La Rue, 1926 in having forebody with its lateral edges united and vitellaria commencing behind acetabulum but the forebody is not-scoop-shaped in the present specimens, and esophagus is not bifurcating nearer to acetabulum than the pharynx, caeca not opening outside at posterior extremity, acetabulum is large. Due to differences in these distinct diagnostic features present specimens cannot be included in the genus *Diploproctodaeum*.

Other genus of the subfamily is *Bianium* Stunkard, 1930 (syn. *Diploporus* Ozaki, 1928) *Diplocreadium* Park, 1939; *Diploporetta* Straudt, 1942; *Amarocotyle* Travassos is also quite different and in contrast to present specimens has spined body, with the lateral edges of the forebody turned over ventrally but not united posteriorly, caeca opening posteriorly outside at posterior extremity, genital pore anterolateral or posterolateral to acetabulum, ovary lobed and vitellaria commencing at level of acetabulum. These characteristic separate the present specimens from the genus *Bianium*.

The present new genus is also different from the genera *Anterodiscus* Bilqees, 1974; *Multiovarium* Bilqees, 1974; *Orientodiploproctodaeum* Bhutta and Khan, 1970; and *Bicaudum* Bilqees, 1971, previously reported from fishes of

Karachi coast. In *Anterodiscus* vitellaria are both in forebody and hindbody extending into anterior disc at the level of oral sucker or anterior to it, uterus long reaching to posterior end of body, seminal vesicle is bilobed, or extending from behind acetabulum to anterior margin of acetabulum and hermaphroditic duct is enormously developed, preacetabular, cirrus sac is absent. Genus *Multiovarium* has multilobed ovary, vitelline follicles are in the hindbody, may be interrupted, uterus reaching to posterior end, seminal vesicle is tubular, coiled, posterior or posterodorsal to acetabulum, hermaphroditic duct large and cirrus sac is absent. In *Bicaudum* testes are situated in posterior one third of the body, elongate, parallel and symmetrical, posterior body region is bifid and genital opening is immediately preacetabular. In *Orientodiploproctodaeum* acetabulum is smaller than oral sucker, cirrus sac is absent, hermaphroditic duct is voluminous and uterus long, coiled reaching to posterior end of body. Therefore, due to the above mentioned differences a new genus *Neodiploproctodaeum* is proposed to accommodate the present specimens indicating its relation with *Diploproctodaeum* and the species name *Neodiploproctodaeu karachiensis* n.sp. refers to the host locality.

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