

CATHUCOTYLE ARABIANSIS N.SP. (MONOGENEA: GOTOCOTYLIDAE LEBEDEV, 1984) FROM FISH SCOMBEROMORUS GUTTATUS OF KARACHI COAST, PAKISTAN

***Rana Hadi and Fatima Mujib Bilqees**

Department of Zoology, Jinnah University for Women, Karachi, Pakistan

*Corresponding author; E.mail: ranahadi2000@yahoo.co.uk

ABSTRACT

Cathucotyle arabiansis, a new species, is described from the gills of fish *Scomberomorus guttatus* of Karachi coast, Pakistan. The present specimens are compared with all existing species of the genus, which are different in several diagnostic characteristics, such as, aseptate oral sucker, single rounded vagina, horseshoe-shaped ovary, clamps consisting of marginal sclerites, 3 pairs of connecting and median sclerites.

Key words: Gotocotylidae, *Cathucotyle arabiansis* n.sp., gills, *Scomberomorus guttatus*, Karachi coast.

INTRODUCTION

Both the ecto and endoparasites are found in the fishes of Karachi coast, relatively more work has been done on endoparasites, but almost nothing is known about the ectoparasitic monogeneans except three, reports by Bilqees and Shabbir (2004), Kritsky *et al.*, (1978) and Kritsky *et al.*, (1978). Four genera of Gotocotylidae Lebedev, 1984 have been described previously from various parts of the world. The subfamily Gotocotylinae Yamaguti, 1963 has 4 genera *Gotocotyla* Ishii, 1936, *Cathucotyle* Lebedev, 1968, *Swakopella* Lebedev and Parukhin, 1969, *Pseudomicrocotyle* Sandars, 1947. The members of family Gotocotylidae are parasitic in perciform fishes primarily of the suborder Scombroidei; most members of *Scomberomorus* are infected. The genus *Cathucotyle* was first erected by Lebedev, 1968 to accommodate an undescribed species of monogenetic trematodes from the gills of the fish *Scomberomorus commerson* as *Cathucotyle cathuaui*, in South China Sea. Here a new species of this genus *Cathucotyle arabiansis* is described from *Scomberomorus guttatus*.

MATERIALS AND METHODS

Two hundred specimens of *Scomberomorus guttatus* were collected from West Wharf, Karachi coast. Gills were removed and placed in beaker containing formalin and were transferred into Petri dish containing the same solution. The liquid from the beaker was left till the solid parts settled down. The supernatant was poured out and remaining part was examined under a binocular microscope and monogeneans were recovered. Specimens were fixed in AFA solution (A mixture of 70% ethyl alcohol, formalin and Acetic acid in the ratio of 90:7:3) for 24 hours. The gills were also examined, monogeneans were collected and processed as mentioned above. After 24 hours these parasites were washed several times with 70% alcohol, stained with Mayer's caralum, dehydrated in graded series of alcohols, cleared in clove oil and xylene and mounted permanently in Canada balsam as described by Bilqees *et al.*, (2004).

Illustrations were made with the aid of camera Lucida. All measurements are given length by width in millimeters. Photographs of holotype specimens were also prepared.

Specimen for scanning electron microscopy was fixed in 10% formalin solution for 24 hours. After 24 hours the specimens were thoroughly washed several times with 70 percent alcohol to remove all traces of fixing agent, the specimens, after critical point drying was mounted on stubs, coated with gold and photographs were taken with the help of SEM. Joel Japan JSM 6380A at accelerating voltage of 15KV at Karachi University, Central Laboratory. The SEM measurements are in micrometer. Holotype and Paratypes are in the collection of the first author.

***Cathucotyle arabiansis* n.sp.**

(Fig. 1-2)

Family: Gotocotylidae Lebedev, 1984
Subfamily: Gotocotylinae Yamaguti, 1963
Genus: *Cathucotyle* Lebedev, 1968

Host: *Scomberomorus guttatus* Bloch, Schneider, 1801
 Location: Gills
 Locality: West Wharf, Karachi coast, Arabian sea.
 No of specimens: 25 in 20 fishes, 200 fishes examined
 Holotype: Z-JUW-M 9

Description

Body is elongated, tapering at the anterior portion. Total length of the body including haptor is 7.5-7.6 long, 1.1-1.2 wide. Body is divided into anterior narrow portion, while the middle and posterior portion is broader. Eye spots are absent. Oral sucker is aseptate, 0.15-0.16 long, 0.24-0.25 wide. Pharynx is diverticulate, subspherical 0.1-0.12 wide. Prepharynx is absent. Intestinal crura extending into haptor. Testes are 120-130 in number, present in the posterior region of the body. Male copulatory organ is armed with spine, ensheated by a thick-walled pouch, 0.41-0.42 long, 0.23-0.24 wide. Ovary is horseshoe-shaped anterior to testes, present in middle region of the body, 0.6-0.7 long, 0.1-0.13 wide. Vagina is rounded, 0.15-0.16 in diameter. Vitellaria are follicular extending from the middle portion of the body to posterior. Anterior part is devoid of vitellaria. Haptor is 2.6-2.7 long, 1.00-1.5 wide, irregular in shape. Clamps are arranged in two rows. 50-55 in one row and 45-50 in other row. Clamps consist of (a) marginal sclerites (b) 3 pairs of connecting sclerites and (c) median sclerite

Etymology: The name *Cathucotyle aradiansis* refers to the locality of the host.

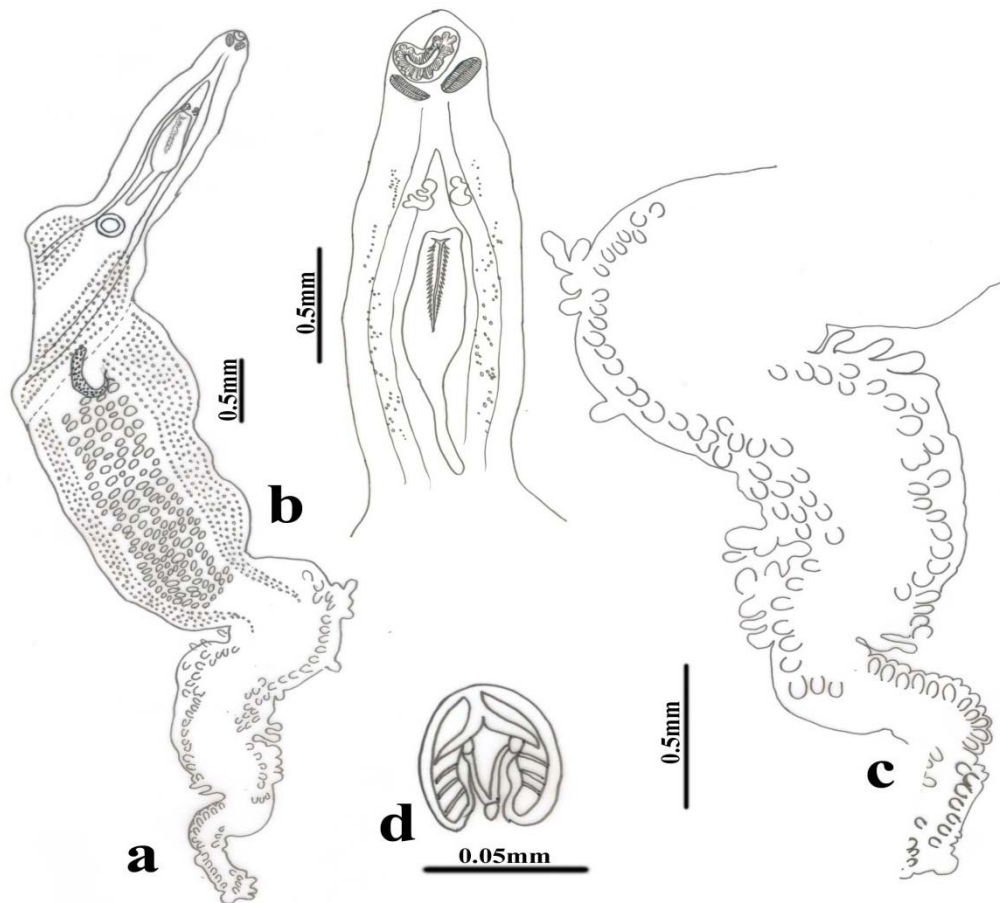


Fig. 1 (a-d). *Cathucotyle aradiansis* n.sp. **a.** Whole mount of holotype (ventral view). **b.** Anterior portion showing male copulatory organ. **c.** Haptor portion. **d.** Clamp.

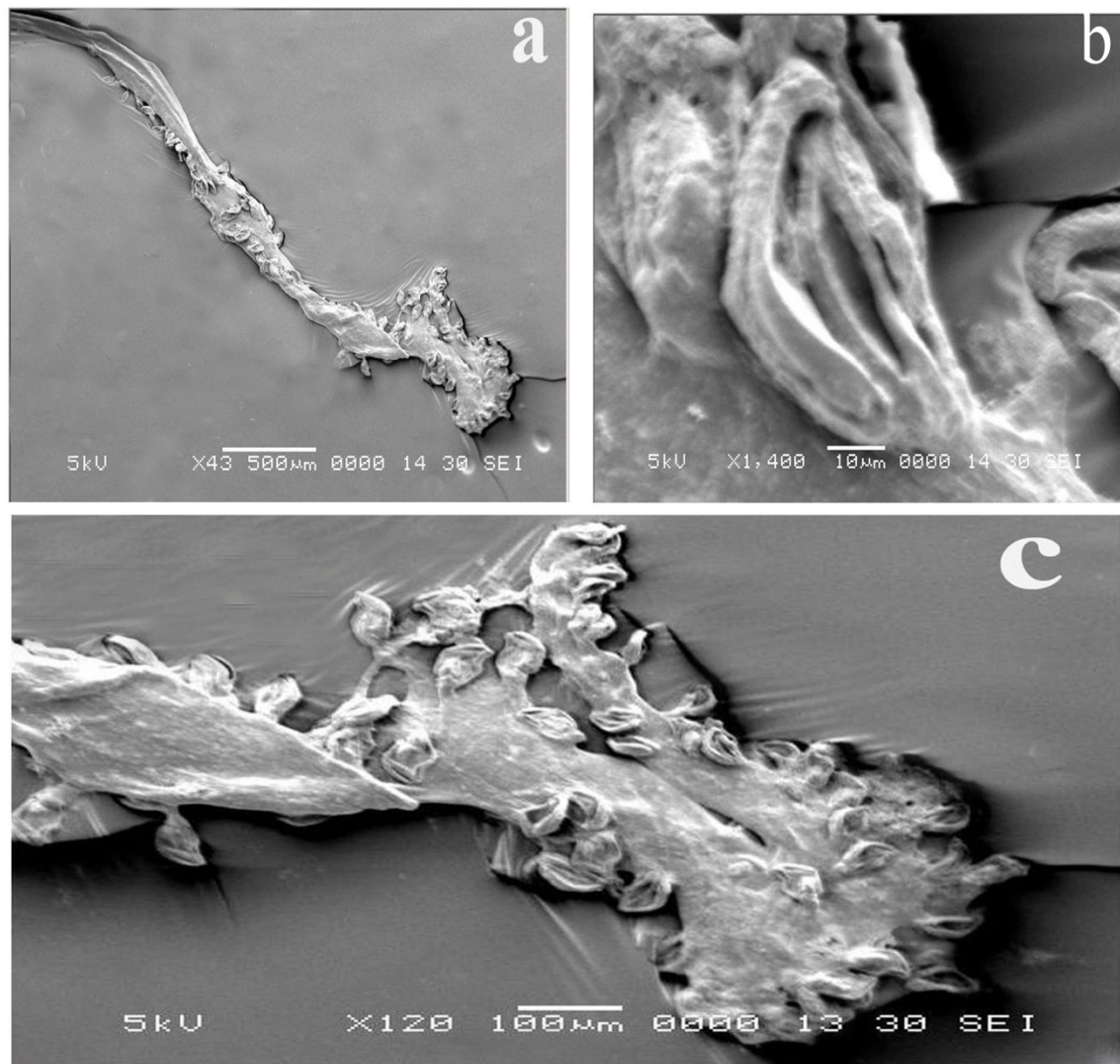


Fig.2 (a-c). *Cathucotyle arabiansis* n.sp. SEM micrograph of paratype. **a.** Entire specimen. **b.** Clamps. **c.** Haptor portion.

DISCUSSION

The genus *Cathucotyle* was first erected by Lebedev, 1968 to accommodate an undescribed species of monogenetic trematodes from the gills of the fish *Scomberomorus commerson* as *Cathucotyle cathuau*, in South China Sea. The other species recorded are *C. filipinensis* Hayward and Rohde, 1999 on *Scomberomorus commerson* in Philippines, Indonesia, Papua New Guinea; *C. sinensis* Hayward and Rohde, 1999 on *Scomberomorus sinensis*, in South China sea.

The present species is (7.5-7.6 x 1.1 x 1.2) in the range of *C. cathuau* (2.5-12), *C. filipinensis* (6.3-7.6 x 0.4-0.5), and smaller than *C. sinensis* (15.36-18.8 x 1.7-2.4).

In present species male copulatory organ (0.41-0.42 x 0.23 x 0.24) is longer than *C. cathuau* (0.13- 0.29 x 0.040-0.060) *C. filipinensis* (0.084-0.10 x 0.036-0.043), and *C. sinensis* (0.24-0.34 x 0.063-0.09).

Clamps in present species are 95-105 while in *C. cathuau* these are 60-250, 160 clamps in *C. filipinensis*, and 277 in *C. sinensis*.

The present species is different from the previously described species *C. filipinensis* which has two vaginae, while in present species vagina is single. In present species male copulatory organ is longer than other previously described species *C. filipinensis*, *C. cathuauui*, *C. sinensis*. In present species haptor is irregular with 95-105 clamps, while in *C. cathuauui* clamps are 60-250, in *C. filipinensis* 160, and in *C. sinensis* 277 clamps are present.

The combination of following characters as, aseptated oral sucker, single rounded vagina, horse shoe-shaped ovary, clamps consist of marginal sclerites, 3 pairs of connecting and median sclerites. The above differences justify that the present specimens belongs to an undescribed species, and therefore a new species *Cathucotyle arabiansis* is proposed.

REFERENCES

- Bilqees, F.M. and I. Shabbir (2004). studies on monogenea of Pakistan IV. *Allodiscocotyla elongatum* sp.n. (Monogenea: Discocotylidae from the fish *Chorinemus moadetta* of Karachi coast. *Proc. Parasitol.*, 37:51-54.
- Bilqees, F.M., R. Feroze and N. Shaukat (2004). *Hysterolecitha faticandata* sp., (Digenea: Hemiuridae: Hysterolecithinae) from the fish *Engraulis purava* of Karachi coast. *Proc. Parasitol.*, 38: 95-101.
- Hayward, C.J. and K. Rohde (1999). Revision of the monogenean family Gotocoylidae (Polypisthocotylea). *Invert. Taxon.*, 13: 425-460.
- Ishii, N. (1936). Some new ectoparasitic trematodes of marine fishes. *Zool. Mag. Tokyo*, 48, 783-78.
- Kritsky, D.C., D. Leiby and F.M. Bilqees (1978). Studies on monogenea of Pakistan III. Status of the calceostomatidae (Parona and Perugia, 1890) with a redescription of *Neocalceostoma elongatum* Tripathi, 1957, and the proposal of *Neocalceostomoides* gen.n. *Proc. Helm. Soc. Washington.*, 45: 149-157.
- Kritsky, D.C., J. Mizelle and F.M. Bilqees (1978). Studies on monogenea of Pakistan III status of *Calceostomatidae* with redescription of *Neocalceostoma elongatum* and the proposal of *Neocalceostomoides* gen.n. *Proc. Helm. Soc. Washington.*, 36: 149-154.
- Lebedev, B.I. (1984). System of monogenea of the suborder Gastrocotylina. (Academy of Sciences of the USSR: Vladivostok). (In Russian).
- Lebedev, B.I. and A.M. Parukhin (1969). Monogenea of some fish from Wallfish Bay (South-Western Africa). *Gidrobiol. Zh.*, 5, 70-81. (In Russian).
- Sanders, D.F. (1947). *Pseudomicrocotyle*, a new monogenetic trematodes. *Proc. Roy. Soc. Queensland* (1946), 58: 149-152.
- Yamaguti, S. (1963). *Systema Helminthum* IV. Monogenea and Aspidocotylea Interscience Publishers, New York. 699P.

(Accepted for publication May 2012)