

## A NEW SPECIES OF THE GENUS *DIPLOMONORCHIS* HOPKINS, 1941 (TREMATODA: MONORCHIIDAE) FROM PAKISTAN

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### ABSTRACT

From Makran coast, Balochistan, Pakistan a new species of digenea namely *Diplomonorchis alykhani* is being recorded from the stomach of fish *Ellochelon vaigiensis* Quoy and Gaimard, 1825. The present species differs from the earlier reported species in the following morphological characters, body spinose, elongate, oral sucker subterminal, prepharynx long, pharynx large, esophagus very small bifurcating near pharynx, caeca reaching posterior end, acetabulum almost the size of oral sucker, testes ovoid, asymmetrical, postacetabular in posterior half of the body; the cirrus sac extending some distance posterior to the acetabulum containing pars prostatica and seminal vesicle, ovary round to oval near to anterior testis, uterus extending upto end of the body, vitellaria in two lateral groups of four each, eggs thick shelled and excretory vesicle tubular.

**Key words:** *Diplomonorchis alykhani* n. sp., Makran coast, fish, Balochistan.

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### INTRODUCTION

The objective of the present study is to described trematode from marine fish of Makran coast, Balochistan, Pakistan. Digenean trematodes are one of the common parasites of fish. The genus *Diplomonorchis* Hopkins, 1941 for the first time is being reported from Pakistan. Bray *et al.* (2016) stated that the knowledge regarding marine fish trematodes of the world originated from Atlantic ocean basin fish and the earliest recognizable post-Linnaeus species of marine digenean is *Fasciola ventricosa* (Pallas, 1774) Baird, 1853 from the scombrid fish large stomach initially reported from Ambon Island but later reported worldwide (Gibson, 1976).

Digenean parasites can have various effects on health of fish, they infect all organs depending on the intensity and site of infection. A high number of negative consequences does not only influence the fish itself but is assumed to also have a large impact on whole ecosystem.

Fish parasites are important biological indicators to describe migration patterns of phylogenic interaction besides eutrophication and pollution. The only report available on digenean trematodes from coastal area of Balochistan is on a digenetic trematode from Dolphin fish *Coryphina hippurus* (Ahmed *et al.*, 2020).

### MATERIALS AND METHODS

The parasites were recovered from the stomach of fish *Ellochelon vaigiensis* Quoy and Gaimard, 1825 caught from Makran coast, Balochistan, Pakistan. The worms were fixed in AFA fixative under a slight pressure of cover glass for 24 h, preserved in 70% alcohol, Mayer's carmalum was used for staining, dehydrated in graded series of alcohols, cleared in clove oil and later mounted in Canada balsam. Diagrams were made with the aid of camera Lucida. Photographs were taken using photomicroscope Nikon (Optiphot-2). Measurements in the text are given length by width in millimeters.

### RESULTS

#### *Diplomonorchis alykhani* n.sp. (Fig. 1a-c)

Family:	Monorchiidae
Host:	<i>Ellochelon vaigiensis</i> Quoy and Gaimard, 1825
Locality:	Makran coast (25°40'20.39"N, 66°36'19.79"E), Balochistan, Pakistan
No. of specimens recovered:	8 from 3 hosts
No. of hosts examined:	10

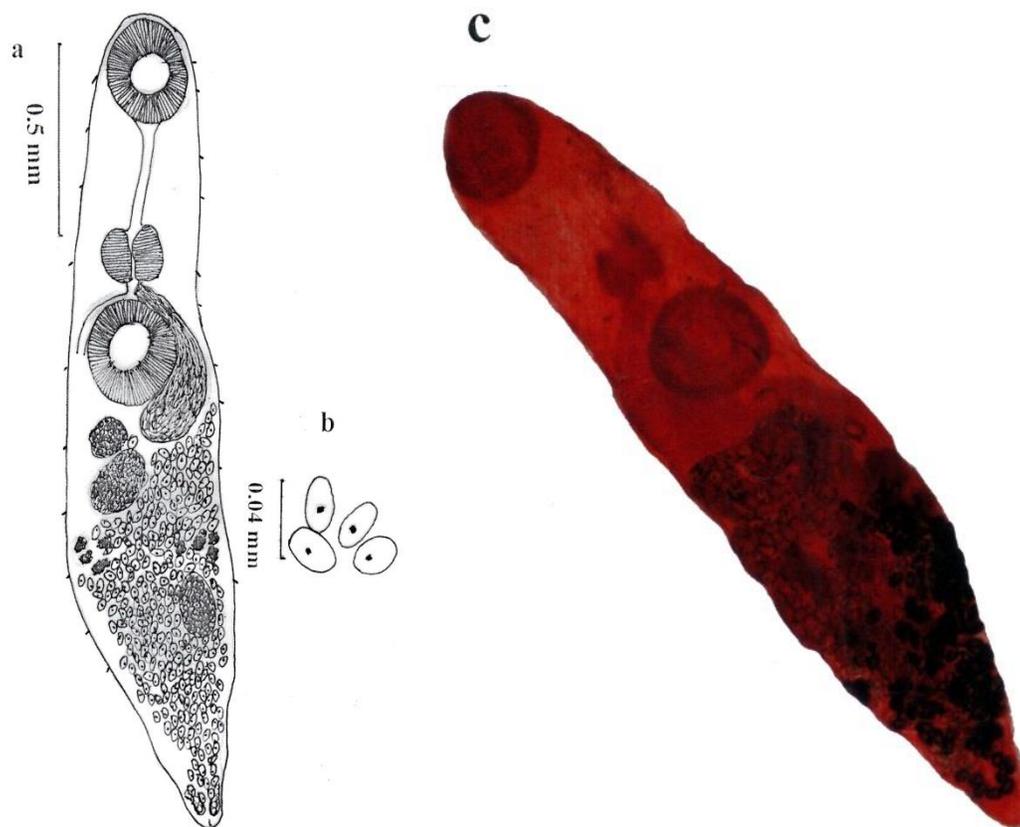


Fig. 1. a. *Diplomonorchis alykhani* n. sp., Holotype; b. Eggs; c. Photomicrograph of entire specimen.

## DESCRIPTION

Body spinose, elongated measuring 2.06-2.96 by 0.46-0.49. Subterminal oral sucker 0.27-0.31 by 0.25-0.28; prepharynx long 0.26-0.28 by 0.063-0.068; pharynx well developed 0.15-0.18 by 0.16-0.19; esophagus very small bifurcating near pharynx measuring 0.050-0.052 by 0.051-0.052; acetabulum almost size of oral sucker 0.31-0.36 by 0.25-0.37; distance between oral sucker and acetabulum 0.46-0.52. Caeca terminating near posterior end of body. Testis ovoid, asymmetrical in body posterior half, distance between two testis 0.25-0.28, the anterior measuring 0.21-0.23 by 0.12-0.15 while the posterior 0.16-0.18 by 0.12-0.14. Distance of posterior testis from body end 0.52-0.59. Ovary round to oval measuring 0.11-0.12 by 0.10-0.12. Large cirrus sac, curved, extending some distance posterior to acetabulum, large, containing pars prostatica and seminal vesicle, measuring 0.38-0.41 by 0.15-0.17. Vitellaria on both sides of the body in group of four each; excretory vesicle tubular, genital atrium opening anterior to acetabulum and eggs oval, thick shelled measuring 0.022-0.038 by 0.020-0.032.

## DISCUSSION

Hopkins, 1941 created the genus *Diplomonorchis* with *D. leiostomi* as its type species in *Leiostomus xanthurus*, occasionally in *Pogonias cromis*, *Orthopristis chrysopterus*, *Trinectes maculatus* from N. Carolina, Louisiana and in *Bairdiella*, *Lagodon*, *Micropogon* and *Monacanthus* from Gulf of Mexico. Also in *Ophichthys gomesi* from Biscayne Bay, Florida.

Yamaguti, 1971 considered the following valid species besides the type species *D. bivitellosus* (Manter, 1940) Hopkins, 1941 namely *D. floridensis* Nahhas et Powell, 1965; *D. hopkini* Nahhas et Cable, 1964; *D. micropogoni* Nahhas et Cable, 1964; *D. myrophitis* Nahhas et Cable, 1964 and *D. sphaerovarium* Nahhas et Cable, 1964.

Present species is larger in size as compared to all the above mentioned species. The present specimen differ from *D. leiostomi* Hopkins, 1941 which had no or very few eggs. *D. floridensis* differed from the present species in having very small prepharynx, ovary lobed, vitelline follicles anterior and posterior to testes and testes symmetrical.

Thomas (1959) described *D. magnacetabulum* differed in body shape oval or ellipsoidal; body size; testes symmetrical; vitelline follicles numerous and absence of prepharynx and esophagus. *D. leiostomi* differed from the present species in body size; ventral sucker much smaller than oral sucker; symmetrical testes or somewhat oblique and vitellaria extending anterior and posterior to testes. The later described species *D. kureh* Machida, 2005 differs from the present specimens in body shape and size, acetabulum smaller than oral sucker, absence of prepharynx; position of testes, ovary lobed, caeca extending mid to posterior level of testes end vitellaria anterior to testes. *D. sphaerovarium* differs in absence of prepharynx; having acetabulum much smaller than oral sucker and extension of vitellaria.

According to morphological description in literature available our specimens belong to the genus *Diplomonorchis* and the species *alykhani*. It is the first time that this genus is being described from fish *Ellechelon vaigiensis* in Pakistan.

The present species is named in honour of Dr. Aly Khan Ex- Director CDRI, PARC, University of Karachi, Karachi-75270, Pakistan for his immense contribution in the field of Parasitology.

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