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# A NEW SPECIES (*DIPLOMONORCHIS RAFIAE*) OF THE FAMILY MONORCHIIDAE (TREMATODA) FROM A MARINE FISH *ELLOCHELON VAIGIENSIS* QUOY AND GAIMARD, 1825 OF PAKISTAN WATERS

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## ABSTRACT

A new species of Digenea is being recorded in a marine fish *Ellochelon vaigiensis* Quoy and Gaimard, 1825 from Karachi coast, Sindh and Makran coast, Balochistan, Pakistan. Twenty-two fishes were examined and three were found infected with twenty-four specimens of *Diplomonorchis rafiae* n.sp. The present species differs from the only reported species from Pakistan, *D. alykhani* Ibrahim *et al.*, 2022 in shape of pharynx, the position of cirrus sac opening, shape of testis and number of vitelline follicles on each side of the body.

**Keywords:** Digenea, Marine fish, *Ellochelon vagiensis* Quoy and Gaimard, 1825, Sindh and Balochistan coasts, Pakistan.

## INTRODUCTION

The square tail mullet *Ellochelon vaigiensis* Quoy and Gaimard, 1825, which is also known as the diamond scale mullet, is a species of grey bullet from the order Mugiliformes and family Mugiliidae. The square tail mullet occurs from the Red sea and coast of East Africa, as far South as Mozambique, eastwards through the indo-pacific to New Caledonia and the Great Barrier Reef and North to southern Japan (Freyhof and Sparks, 2017). In Pakistan, it is used as a food fish; its roe is also sold and eaten. In the present study, a trematode of fish *Ellochelon vagiensis* Quoy and Gaimard, 1825 is being described caught from both Karachi coast, Sindh and Makran coast, Balochistan, Pakistan.

## MATERIALS AND METHODS

The worms under consideration were collected from stomach of fish *Ellochelon vaigiensis* Quoy and Gaimard, 1825. The fish were caught from Karachi coast, Sindh and Makran coast, Balochistan, Pakistan. Specimens were pressed slightly between two glass slides, fixed in 70% alcohol, stained with Mayer's carmalum and mounted permanently by usual method. Diagrams were made with a camera Lucida. Photographs were taken using photomicroscope, Nikon (Optiphot-2).

Measurements are given length by width in millimeters. Specimens are in possession of first author (M.I).

### *Diplomonorchis rafiae* n.sp.
### (Figs. 1 and 2)

| | |
|---|---|
| Host: | *Ellochelon vaigiensis* Quoy and Gaimard, 1825 |
| Site of infection: | Intestine and stomach |
| Locality: | Karachi coast, Sindh and Makran coast, Balochistan, Pakistan |
| No. of fish examined: | 22 |
| No. of specimens recovered: | 24 |
| No. of infected fish: | 3 |

## DESCRIPTION (Measurements based on 24 specimens)

Body spinose, small, elongate measuring 1.86-2.00 by 0.31-0.43; oral sucker subterminal 0.28-0.32 by 0.28-0.31. Prepharynx prominent 0.12-0.14 by 0.005-0.007. Pharynx well developed measuring 0.22-0.25 by 0.23-0.26.

Esophagus prominent 0.18-0.21 by 0.003-0.006. Caeca distinct 0.18-0.21 by 0.003-0.006. Caeca reaching almost to posterior end. Testes posterior larger than the anterior, oval in shape, the anterior measuring 0.13-0.14 by 0.070-0.089 while the posterior testis measuring 0.17-0.21 by 0.10-0.12. Distance of posterior testis from posterior end 0.40-0.42. Acetabulum slightly smaller than oral sucker at a distance of 0.35-0.40, in anterior half of the body measuring 0.26-0.29 by 0.25-0.27. Ovary small round to oval at a distance of 0.44-0.48 from the posterior testis 0.44-0.48, between cirrus sac and anterior testis measuring 0.062-0.070 by 0.060-0.071. Cirrus sac large, genital opening above the acetabulum containing seminal vesicle. Pars prostica indistinct, prostatic cells not detected. Genital atrium unarmed, uterus occupying most space of posterior half of the body. Vitelline follicles in two distinct compact masses, eight on right side and six on left side. Excretory pore terminal. Eggs oval, thick shelled measuring 0.015-0.020 by 0.014-0.016.

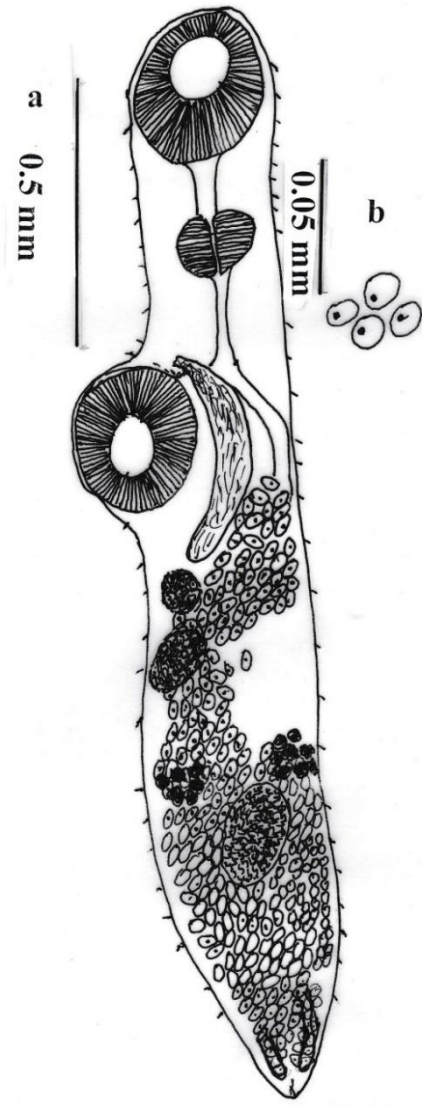


Fig. 1. *Diplomonorchis rafiae n.sp.*
a. Holotype, entire specimen
b. Eggs

Fig. 2. Photomicrograph of the specimen.

## DISCUSSION

Hopkins (1941) erected the genus *Diplomonorchis* having the following characters body, small, elongate, oval and spinose. Oral sucker and pharynx moderately developed; esophagus short, caeca terminating near posterior extremity. Acetabulum pre-equatorial, testes double, usually symmetrical, inter or extracaecal. Cirrus sac extending a little posterior to acetabulum, enclosing unipartite seminal vesicle, narrow pars prostatica surrounded by prostate cells and spined cirrus. Genital pore preacetabular or postbifurcal. Ovary entire or lobate and pretesticular. Uterus extensive, vitelline follicles lateral in gonadal zone or a little posterior to it. Excretory vesicle tubular. Intestinal parasites of marine teleosts.

Yamaguti (1971) recognized the following valid species namely *D. bivitellosus* (Manter, 1940) Hopkins, 1941; *D. floridensis* Nahlas et Powell, 1965; *D. hopkini* Nahlas et Cable, 1964; *D. leiostomi* Hopkins, 1941; *D. micropogoni* Nahlas et Cable, 1964; *D. mycrophitis* Nahlas et Cable, 1964 and *D. sphaerovarium* Nahlas et Cable, 1964. The present species is most similar to *D. alykhani* Ibrahim *et al.,* 2022 but differs in the pharynx position which is in the middle of esophagus while in *D. alykhani* it was nearer to the acetabulum. The cirrus sac opening in the present specimens is at a distance from pharynx while in *D. alykhani* it is located just behind the pharynx. In present specimens posterior testis is much larger as compared to the anterior while in *D. alykhani* anterior testis is larger than posterior testis. Vitelline follicles in present specimens are 6 to 8 on each side while in *D. alykhani* vitelline follicles there are 4 on each side in the second half of the body.

On the basis of these important differentiating characteristics of pharynx, cirrus sac opening, testis, vitellaria from the closely related species *D. alykhani* a new species *D. rafiae* is proposed. The name of species is in honour of Dr. Rafia Rehana Ghazi, VPCI, SARC, Pakistan Agricultural Research Council, University of Karachi, Karachi-75270 for her huge contribution in the field of Parasitology.

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