

MONOGENEA OF PAKISTAN FISHES

Part III. *Dactylogyrus zulfikari*, n.sp., and *D. jaini*, n.sp., from the Gills of *Barbus sarana* (Ham.)

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(Received March 26, 1974; revised October 24, 1974)

Abstract. Two new species of monogenea, *Dactylogyrus zulfikari*, n.sp., and *D. jaini*, n. sp., recorded alongwith *D. barbasi* Rizvi, *Diplozoon indicum* Dayal, and two unidentified species from the gills of *Barbus sarana* (Ham.) of the Indus river have been described.

Price,¹ Tripathi², Jain³ and Kulkarni⁴ have recorded 24 species of *Dactylogyrus* from India. Gussev⁵ has described 6 species of this genus from Ceylon. Of the 30 species of *Dactylogyrus* reported from the Indian and Ceylonese waters none has so far been detected on the Pakistani fishes. However, three other species of this group, *Dactylogyrus barbasi* Rizvi⁶, *D. zulfikari*, n.sp., and *D. jaini* n.sp. besides two unidentified species have been found in this country.

Materials and Methods

Fifty specimens of *Barbus sarana* (Ham.) were examined at Tando Muhammad Khan and Larkana from October, 1971 to February, 1974. Twelve out of 25 fish were found infested with parasites at the first station and the same level of infestation was observed at the second station. Up to 25 worms were collected from an infested fish. *Diplozoon indicum* Dayal,⁷ and the two unidentified species were detected on the fish of Tando Muhammad Khan only. The worms were collected from the fish and examined either alive or after these have been killed at low temperature, preserved in alcohol-formal-acetic solution and mounted in glycerin-jelly. Five specimens of each new species described in this paper were selected for detailed study and were later on deposited in the Department of Zoology, Government College, Larkana.

Dactylogyrus zulfikari n.sp. (Fig. 1.)

Medium sized worms with thin smooth cuticle, length 0.352–0.526, width around cephalic region 0.049–0.063, maximum width 0.055–0.096. Cephalic lobes four, head organs at least four pairs. Eye spots two pairs, members of the anterior pair, dimensions 0.002–0.003 × 0.002–0.003, smaller than those of the posterior pair, dimensions 0.004–0.005 × 0.004–0.005. Pharynx globular, dimensions × 0.016–0.026. Intestinal crurac onfluent posteriorly. Ovary ovate, dimensions 0.027–0.045 × 0.016–0.026. Vagina curved, provided with bristles at the external opening and situated on the right side, length 0.014–0.027, diameter 0.004–0.008. Testis smaller than ovary, dimensions 0.019–0.27 × 0.014–0.016. Prostate vesicle pyriform, dimensions 0.027–0.038 × 0.011–0.016. Vesicula seminalis distinct and ran

parallel to prostate vesicle, dimensions 0.022–0.038 × 0.008–0.014. Copulatory organ, length 0.025–0.033, composed of curved cirrus and irregular accessory piece. Cirrus, length 0.017–0.031, dia 0.001, provided with oval knob at the base. Vitellaria well-developed and extended from the base of the pharynx to posterior end of crura.

Haptor bilobed, dimensions 0.055–0.136 × 0.150–0.219. Anchors long provided with wings, total length 0.108–0.122, outer root reduced, length 0.002, inner root long, length 0.022–0.024 point long and sharp, length 0.051–0.055, and shaft extremely long, length 0.096–0.109. Linking bar expanded at two ends and

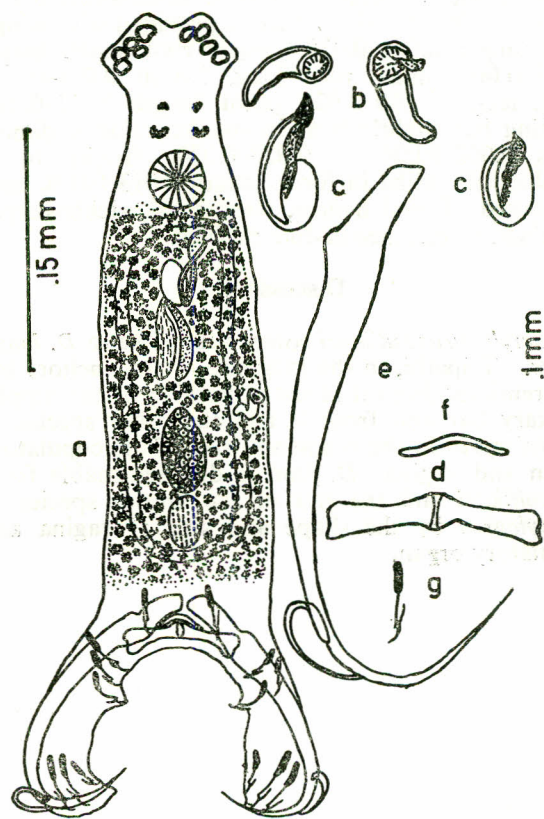


Fig. 1. *Dactylogyrus zulfikari* n.sp., (a) entire worm, (b) vagina, (c) copulatory organ, (d) connecting bar, (e) anchor, (f) supplementary bar, and (g) hook.

*We announce with regret the death of the author. Requests for reprints should be sent to us. Editor.

with swollen joint in the middle, dimensions 0.008–0.014 × 0.052–0.055. Supplementary bar slender, bent in the middle, dimensions 0.002 × 0.033. Hooks all alike in form and size, 14, length 0.016–0.027, each composed of oval base, thin shaft, sickle-shaped termination and needle-like process.

Dactylogyrus jaini n.sp. (Fig. 2.6)

Small-sized worms with smooth and thin cuticle, length 0.240–0.380, breadth around cephalic lobe 0.041, maximum breadth 0.067–0.84, four distinct cephalic lobes, cephalic organs 4–5 pairs. Eye spots two pairs, members of the anterior pair, dimensions 0.004–0.005 × 0.004–0.005 either equal to or bigger than those of posterior pair, dimension 0.002–0.004 × 0.002–0.004. Pharynx spherical, dimensions 0.016–0.025 × 0.016–0.025. Intestinal crura separate. Ovary oval-shaped, dimensions 0.030–0.033 × 0.024–0.027, larger than testis, dimensions 0.041–0.063 × 0.027–0.041. Vagina tubular and bent on itself, length 0.013–0.025, dia 0.005–0.008. Copulatory organ, length 0.022–0.025, composed of arched cirrus and forked accessory piece. Cirrus arch knobbed at one end, other end inserted into forked accessory piece base of which rested against knob. Prostate and seminal vesicles placed side by side. Vitellaria well-developed and extended from behind pharynx to blind end of crura.

Haptor rectangular, marked off from body by constriction, width exceeding length, dimensions 0.032–0.067 × 0.055–0.081. Anchors provided with wings, total length 0.022–0.035, outer root short, length 0.003–0.005, inner root long, length 0.011–0.014, shaft, length 0.019–0.022, point, length 0.013–0.016. Linking bar slightly bent in swollen middle, dimensions 0.002–0.004 × 0.025–0.030. Hooks 14 in number, all alike in form, length 0.013–0.019, each composed of oval handle, weak shaft, sickle-shaped termination and needle-like process.

Discussion

Dactylogyrus zulfikari comes very close to *D. longicirrus*. Tripathi, in the long size of the anchors but differentiated from it in the possession of the supplementary bar and from it and the other species of *Dactylogyrus* in the shape and size of the copulatory organ and vagina. *D. jaini* is distinguishable from *D. zulfikari* and the rest of the known species of *Dactylogyrus* by the shape and size of vagina and copulatory organ.

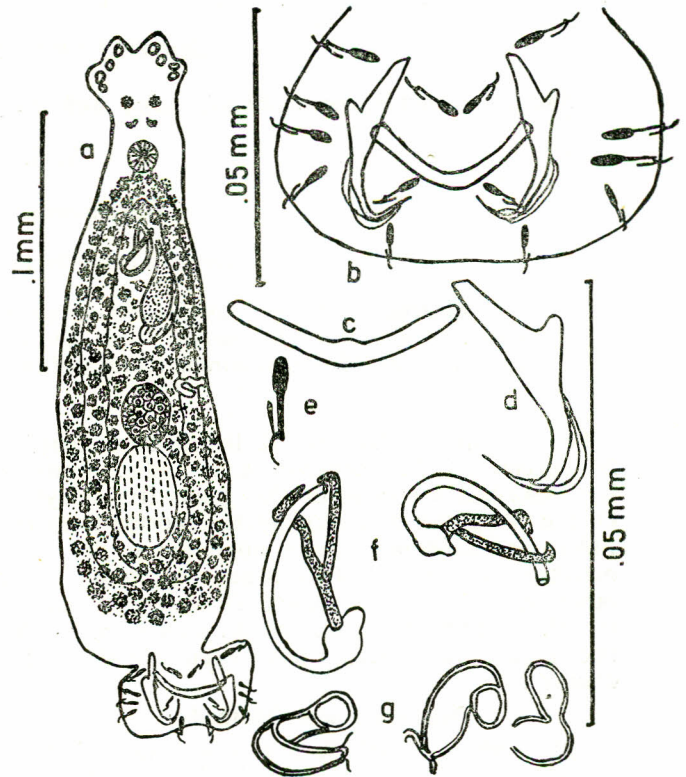


Fig. 2. *Dactylogyrus jaini*, n.sp., (a) entire worm, (b) haptor, (c) linking bar, (d) anchor, (e) hook, (f) copulatory organ, and (g) vagina.

Acknowledgement. The author is thankful to M/s Rajpar, Solangi, and Turkman of this College and Mr. Tirmizi of Govt. College, Korangi, Karachi, for their assistance. He also wishes to thank Mr. Ikram of Sind Photo Studio, Larkana, for the preparation of prints.

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