

Occurrence of monogeneans on freshwater fishes of Iran: Dactylogyridae from fish of natural waters and description of *Dogelius mokhayeri* sp. n.

Dr. Behiar JALALI¹ and Dr. Kálmán MOLNÁR²

Fisheries Co. of Iran, Inland Water and Aquaculture Department, Fish Disease Control Service¹, Tehran, Iran, — Veterinary Medical Research Institute, Hungarian Academy of Sciences², Budapest, Hungary

"Occurrence of monogeneans on freshwater fishes of Iran: Dactylogyridae from fish of natural waters and description of *Dogelius mokhayeri* sp. n." - Jalali, B., Molnár, K. - Parasit. hung., 23: 27-32. 1990.

ABSTRACT. Twenty-two *Dactylogyrus*, one *Ancyrocephalus* and one *Dogelius* spp. were found on Iranian natural water fishes in three water systems. Of them, thirteen *Dactylogyrus* spp. and *Ancyrocephalus paradoxus* were identified to species and *Dogelius mokhayeri* sp. n. was described as a new species. All species found are new for the Iranian fauna. Nine *Dactylogyrus* spp., which all seem to be new, undescribed species and had been collected mostly in the gulf region, were identified to the genus.

KEY WORDS: Fish, Monogenea, gill parasites, Iran.

The helminth fauna of Iran is poorly studied. There are only few works concerning *Trematoda*, *Cestoda*, *Nematoda* and Acanthocephala infections of Iranian fishes (ESLAMI and ANWAR 1971; ESLAMI et al. 1972; GOLVAN and MOKHAYER 1973; MOKHAYER 1975, 1976). No data are available, however, on Monogenea of Iranian fishes.

Iranian freshwaters belong to three different water systems. Waters in Northern Iran belong to the Aralo-Caspian region, where the parasite fauna of fishes has been intensively studied in the Soviet Union. Several known and new monogeneans have been reported from Azerbaidzhan (MIKHAILOV 1973, 1974), Uzbekistan (OSMANOV 1965) and Daghestan (ALIGADZHIEV et al. 1984). The southern-western part of Iranian freshwaters belong to the Gulf-River Tiger region, from where Iraqi scientists (ALI et al. 1986, 1987a, 1987b) reported some dactylogyrids. Waters in the Central and Eastern part of Iran run into undrained sodium lakes. This territory might be influenced by the Indian fauna region, the monogenean fauna of which was reviewed by GUSSEV (1973-74).

This paper reports monogenean fish parasites from Iranian natural waters and describes a new species under the name *Dogelius mokhayeri* sp. n.

Samples of fish were collected in two localities of the Caspian region (River Sefid and Water basin Aras), from the River Dez of the Gulf basin and the River Zayandeh in Central Iran. A total of 15 fish species were examined (Table 1).

Parasites were collected under a microscope at a magnification of x 40-100. Monogeneans were picked off, with a pipette, from gill scrapings alive, placed under a coverslip and fixed in ammonium picrate solution.

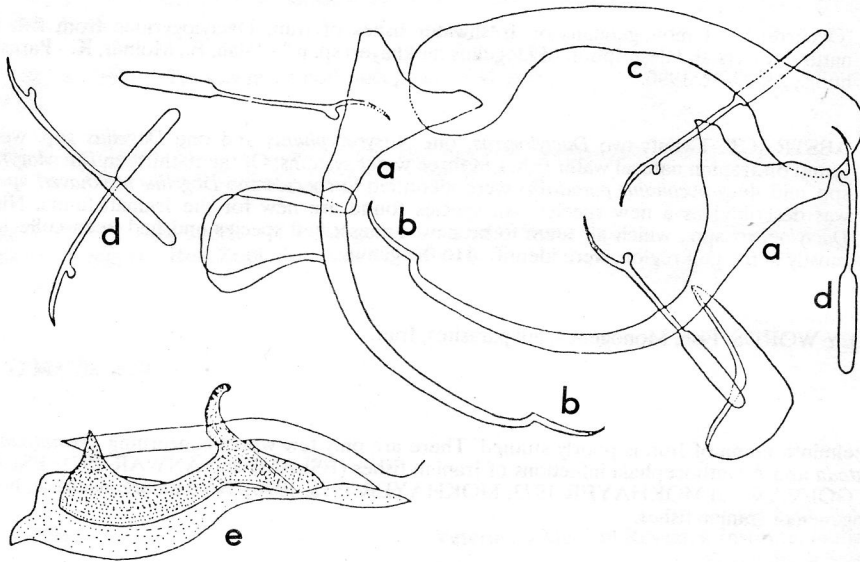


Fig. 1: Schematic illustration of sclerotized organs of *Dogelius mokhayeri* sp. n. /a/ anchors; /b/ blade on the tip of the anchors; /c/ connective bar; /d/ hooks; /e/ copulatory organ.

Fig. 2: Anchors and hooks of *Dogelius mokhayeri* sp. n. x 1600.

Fig. 3: Copulatory organ of *Dogelius mokhayeri* sp. n. x 1600.

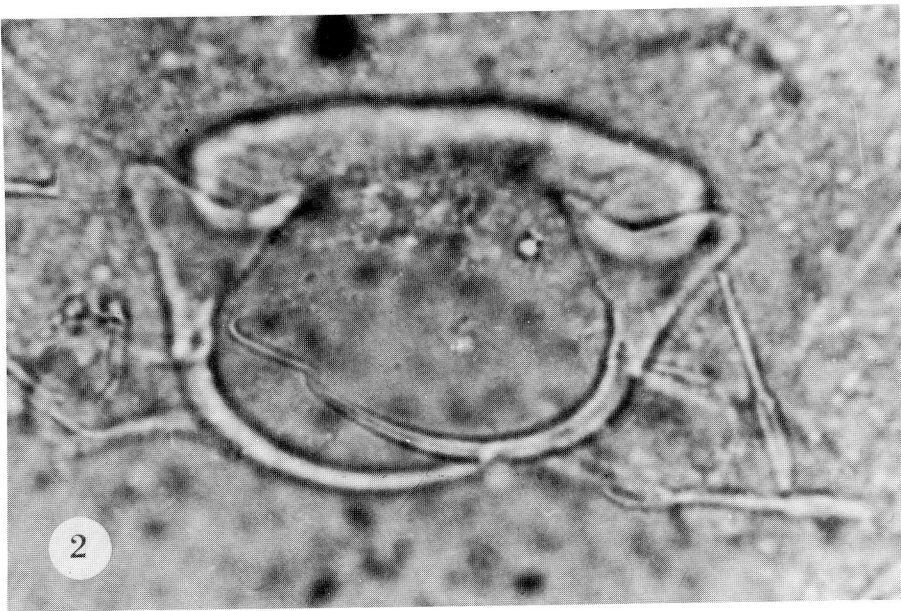


Table 1 Monogeneans of fish from Iranian natural waters

Name of parasite	Host	Locality
<i>Dactylogyrus alatus</i> Linstow, 1878	<i>Alburnoides bipunctatus</i> (Bloch)	River Zayandeh
<i>D. baueri</i> Gussev, 1955	<i>Carassius auratus gibelio</i> (Bloch)	River Sefid
<i>D. chalcalburni</i> Dogiel et Bychowsky, 1934	<i>Alburnoides bipunctatus</i> <i>Alburnus alburnus</i> L.	River Zayandeh
<i>D. cornoides</i> Gussev, 1971	<i>Vimba vimba persa</i> (Pallas)	River Sefid
<i>D. extensus</i> Mueller et van Cleave, 1932	<i>Carassius auratus gibelio</i> (Bloch)	River Sefid
<i>D. formosus</i> Kulwiec, 1927	<i>Carassius auratus gibelio</i>	River Sefid
<i>D. frisii</i> Bychowsky, 1933	<i>Rutilus frisii kutum</i> (Kamensky)	River Khosk (Caspian basin)
<i>D. haplogonus</i> Bychowsky, 1933	<i>Vimba vimba persa</i>	River Sefid
<i>D. pulcher</i> Bychowsky, 1966	<i>Aspius vorax</i> (Heckel)	River Dez
<i>D. rarissimus</i> Gussev, 1966	<i>Rutilus frisii kutum</i>	River Sefid
<i>D. turaliensis</i> Aligadzhiev, Gussev, Kazieva, 1984	<i>Rutilus rutilus caspicus</i> (Jakowlev)	River Sefid
<i>D. vastator</i> Nybelin, 1924	<i>Carassius auratus gibelio</i>	River Sefid
<i>D. zandti</i> Bychowsky, 1933	<i>Abramis brama orientalis</i> (Berg)	River Sefid
<i>Dactylogyrus</i> I	<i>Varicorchinus capoeta gracilis</i> (Keyserling)	River Dez
<i>Dactylogyrus</i> II	<i>Rutilus frisii kutum</i>	River Sefid
<i>Dactylogyrus</i> III	<i>Rutilus frisii kutum</i>	River Sefid
<i>Dactylogyrus</i> IV	<i>Barbus sharpio</i>	River Dez
<i>Dactylogyrus</i> V	<i>Barbus sharpio</i>	River Dez
<i>Dactylogyrus</i> VI	<i>Carassobarbus luteus</i> (Heckel)	River Dez
<i>Dactylogyrus</i> VII	<i>Carassobarbus luteus</i> (Heckel)	River Dez
<i>Dactylogyrus</i> VIII	<i>Garra rufa</i> (Heckel)	River Dez
<i>Dactylogyrus</i> IX	<i>Garra rufa</i> (Heckel)	River Dez
<i>Ancyrocephalus paradoxus</i>	<i>Stizostedion lucioperca</i> (L.)	River Sefid
<i>Dogelius mokhayeri</i> n. sp.	<i>Aspius vorax</i>	River Dez

RESULTS

Twenty-two *Dactylogyrus*, 1 *Ancyrocephalus* and 1 *Dogelius* spp. (Table 1) were found on the fishes examined. Of these parasites nine *Dactylogyrus* spp. were identified only to genus. The latter seem to be new for the science, and their detailed description will be the subject of another paper. Both the *Dactylogyrus* spp. and *Ancyrocephalus paradoxus*, a common parasite of the pike-perch were first recorded from Iran. A *Dogelius* sp. infecting *Aspius vorax* Heckel proved to be new for the science, and its description is as follows:

Dogelius mokhayeri sp. n. (Fig. 1.)

Host and locality: *Aspius vorax* Heckel, River Dez, Gulf basin.

Specimens studied: 2.

Description: Body moderately elongated. Haptor subquadrate. Four eyespots present. Anchors with relatively developed outer and less developed inner roots (Fig. 2). The points of the anchors open with well emphasized blades. Copulatory complex consists of a slightly bent sclerotized cirrus and a complicated accessory piece.

Measurements in micrometer: Body 300-400 long and 80-86 wide. Ventrals length of the anchors 42.5-44, dorsoapical length 31-34. Inner roots 3.5-4, outer roots 8-9. The blade of the tip of the anchors 8.5. Transversal length of the bar 42.5, width 4-5 in the middle and 9-10 at the ends. Hooks measure 20.5-24. Cirrus 30.5, accessory piece 30 long (Fig. 3).

Remarks: The species resembles the typical *Dogelius* spp. by having the characteristic blades on the anchors, but differs from the known species in the shape of the roots and construction of the copulatory complex.

DISCUSSION

The results obtained during this study show that fish species common in Europe and in the Asian part of the Soviet Union have the same parasites in Iranian waters, too. Fishes not belonging to the Caspian region are, however, infected by monogeneans not recorded until now. Relatively few *Dogelius* species have been recorded so far. According to GUSSEV (1985) 11 species are known. They infect *Schizothorax* (BYCHOWSKY 1957), *Varicorhinus*, *Labeo* and *Catla* (GUSSEV 1973-74) and *Barbus* (PAPERNA 1973) spp. The occurrence of a *Dogelius* sp. on *Aspius vorax* is recorded for the first time and it proves to be new for the science.

Iránban természetes vizi halakból monogeneák ezideig nem voltak ismertek. Jelen közleményben a szerzők 22 *Dactylogyrus*-, egy *Ancyrocephalus*- és egy *Dogelius*-faj előfordulásáról adnak számot. Az *Ancyrocephalus paradoxus* és 13 *Dactylogyrus*-faj azonosítható volt az Európában ill. a Szovjetunió ázsiai részéből ismert fajokkal. A *Dogelius* és a 9 *Dactylogyrus*-faj eddig le nem írt élősködőknek bizonyultak. Közülük *Dogelius mokhayeri* néven új faj kerül leírásra. A Perzsa-Öböl vízgyűjtő területéről származó 9 faj leírásához további példányok gyűjtése szükséges.

REFERENCES

- ALI, N. M., AL-JAFERY, A. R. and ABDUL-AMEER, K. N. (1986): New records of three monogenetic trematodes on some freshwater from Diyala river, Iraq. - J. Biol. Sci. Res., 17: 253-267.
- ALI, N. M., AL-JAFERY, A. R. and ABDUL-AMEER, K. N. (1987a): Parasitic fauna of freshwater fishes in Diyala river, Iraq. - J. Biol. Sci. Res., 18: 163-180.
- ALI, N. M., SALIH, N. E. and ABDUL-AMEER, K. N. (1987b): Parasitic fauna of some freshwater fishes from river Tigris, Baghdad, Iraq. II. Trematoda. - J. Biol. Sci. Res., 18: 19-27.
- ALIGADZHIEV, A. D., GUSSEV, A. V. and KAZIEVA, N. S. (1984): A new species of monogeneans from gills of *Rutilus rutilus caspicus* (in Russian). - Parazitologiya, 18: 412-415.
- BYCHOWSKY, B. E. (1953): Monogenetic trematodes, their system and phylogeny. - Publishing House Acad. Sci. USSR, Moscow-Leningrad, pp. 509.
- ESLAMI, A. H. and ANWAR, M. (1971): Occurrence and intensity of infection by *Caryophyllaeus fimbriceps* in carp and mullet (new host) in Iran. - Rivta It. Piscicult. Ittiop., 6: 21-24.
- ESLAMI, A. H., ANWAR, M. and KHATIBY, Sh. (1972): Incidence and intensity of helminthoses in pike (*Esox lucius*) of Caspian Sea (North Iran). - Rivta It. Piscicult. Ittiop., 7: 11-14.

- GOLVAN, Y. and MOKHAYER, B. (1973): Acanthocephales des sturgeons de la mer Caspienne. - *Annls Parasit. hum. comp.*, 48: 597-602.
- GUSSEV, A. V. (1973-74): Freshwater Indian Monogenoidea. Principles of systematics, analysis of the world faunas and their evolution. - *Indian J. Helmint.*, 25-26: 1-241.
- GUSSEV, A. V. (1985): Monogenea. In: BAUER, O. N. (ed.): Key to the parasites of freshwater fishes of the USSR (in Russian). - Nauka, Leningrad, pp. 425.
- MIKHAILOV, T. K. (1973): New species of the genus *Diplozoon* Nordman, 1832 of fish in the waters of Azerbaidzhan (in Russian). - *Parazitologiya*, 7: 145-152.
- MIKHAILOV, T. K. (1974): New species of Monogenea of fish in Azerbaidzhan (in Russian). - *Parazitologiya*, 8: 45-48.
- MOKHAYER, B. (1975): Study on the parasitic infection of fishes in river Sefid (in Persian). - *Vet. School Bulletin*, 4: 36.
- MOKHAYER, B. (1976): Treatment of bothriocephalosis in grasscarp. - *Rivta It. Piscicult. Ittiop.*, 11: 119-121.
- OSMANOV, S. O. (1965): Study of monogenetic and digenetic trematodes of fish in Uzbekistan (in Russian). - *Vestnikh. Karakalpakh. Fil. An. UzSSR*, 4: 21-32.
- PAPERNA, I. (1973): New species of Monogenea (Vermes) from African freshwater fish. A preliminary report. - *Rev. Zool. Bot. Afr.*, 87: 505-518.

Received: 12 March, 1990.

Dr. MOLNÁR, K.
Veterinary Medical Research Institute, Hungarian
Academy of Sciences,
P.O. Box 18,
H-1581 Budapest,
HUNGARY.