

Incidence of Monogenean species on the gills of common carp (*Cyprinus carpio*) collected from Hungarian and Syrian fish farms

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ABSTRACT. On the gills of common carp cultured in fish farms of Hungary and Syria the author demonstrated 5 and 1 monogenean parasite species, respectively (*Dactylogyrus achmerowi*, *D. extensus*, *D. vastator*, *Gyrodactylus sprostonae*, *Diplozoon nipponicum* (Hungary) and *D. minutus* (Syria)). *D. minutus* Kulwiec, 1927 is the first monogenean reported from fish in Syria.

KEY WORDS: Monogenea, *Cyprinus carpio* L., new area.

In Europe there are many data on the incidence of gill parasites of the common carp. Authors of special books (SCHÄPERCLAUS 1979; BAUER et al. 1969; KOCYLOWSKI and MYACZYNSKI 1963; MOLNÁR and SZAKOLCZAI 1983) are of the opinion that 4 *Dactylogyrus* species (*D. anchoratus*, *D. extensus*, *D. minutus* and *D. vastator*) and 2 *Gyrodactylus* species (*G. katharineri* and *G. medius*) can be considered common. Besides the above species, recently *D. achmerowi*, *D. sachuensis*, *D. molnari* and *G. sprostonae* have also been reported from Hungary (MOLNÁR 1970, 1976, 1984, 1987).

In Syria the incidence of monogeneans has not been investigated so far. However, in the neighbouring countries all four species regarded as common (*D. vastator*, *D. extensus*, *D. anchoratus* and *D. minutus*) have been demonstrated (PAPERNA 1959, 1963).

MATERIALS AND METHODS

The samples were collected in two fish farms of Hungary (835 common carp fry and adult carp) and in three fish farms of Syria (125 fry) in 1987 and 1988. The parasites were collected from the gills under a preparative microscope immediately after the fish had been killed. They were examined alive, then fixed in aluminium picrate solution and examined under a coverslip as slide preparations.

RESULTS

The monogeneans collected in Hungary belong to the genera Dactylogyrus, Gyrodactylus and Diplozoon (Tables 1 and 2). Of them, on the fry D. vastator, D. extensus, D. achmerowi and G. sprostonae, while on two-year-old and older fish D. extensus, D. vastator, D. achmerowi, G. sprostonae and Diplozoon nipponicum occurred.

On common carp fry examined in Syria only one monogenean, D. minutus, was found (Table 3).

In addition to monogenean infections, in Hungary Chilodonella cyprini, Costia necatrix, Trichodina spp., Apiosoma spp. and Myxobolus dispar, while in Syria a Trichodina spp. and the copepodit larvae of Lernaea cyprini were demonstrated on the gills of the common carp examined.

DISCUSSION

An interesting feature of the investigations conducted in Hungary was that D. achmerowi, a recently introduced parasite, proved to be the most prevalent Dactylogyrus species. This parasite was detected on the gills of both the fry and the older carp. Another interesting finding is that neither D. anchoratus nor D. minutus was found in the fish farms examined in Hungary, though the latter species proved to be very common on Syrian common carp and infected nearly 100% of the common carp there. In Syria D. minutus is the first monogenean reported from fish. The Diplozoon sp. found on the common carp was tentatively identified with D. nipponicum Goto, 1891. The occurrence of this parasite in Hungary was already known, but it was identified for the first time during this research.

SAMMAN A.: Monogenea-fajok előfordulása magyarországi és szíriai tógazdaságokból gyűjtött pontyok (Cyprinus carpio) kopoltyúján

A szerző tógazdaságban tenyésztett pontyokról Magyarországon 5 (Dactylogyrus achmerowi, D. extensus, D. vastator, Gyrodactylus sprostonae, Diplozoon nipponicum), Szíriában 1 (D. minutus) monogenetikus-mételyfajt mutatott ki. A D. minutus Kulwiec, 1927 Szíriából az első ismert monogenea halakról.

Legend to the figures

Fig. 1. Head-piece with the genitals of Dactylogyrus minutus (x 90)

Fig. 2. Tail-piece with the anchors and hooks of Dactylogyrus minutus (x 90) (orig)

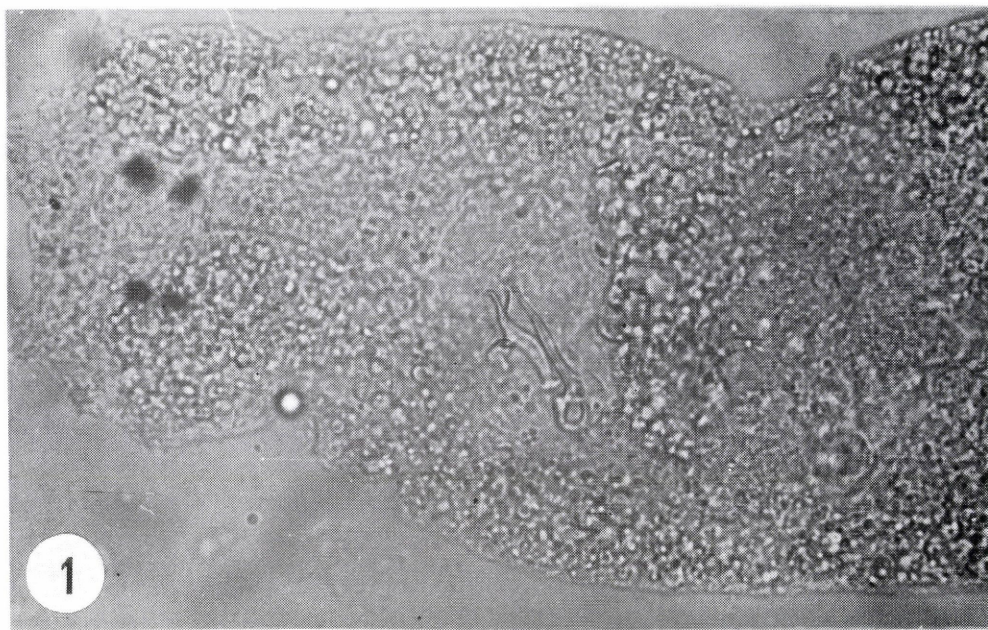


Table 1

Infection of the gills of common carp fry by monogenean parasites in two Hungarian fish farms

Parasite	Fish farm					
	Hortobágy			Hajdúszoboszló		
	Fish examined	Infected fish	Intensity of infection [*]	Fish examined	Infected fish	Intensity of infection [*]
<i>Dactylogyrus vastator</i> Nybelin, 1924	210	90	6 (1-8)	249	120	2 (1-4)
<i>Dactylogyrus extensus</i> Mueller et van Cleave, 1932	210	30	3 (1-5)	249	100	11 (1-8)
<i>Dactylogyrus achmerowi</i> Gussev, 1955	210	0	0	249	80	5 (1-6)
<i>Gyrodactylus sprostonae</i> Ling, 1962	210	84	2 (1-6)	249	0	0

^{*}Number per gill hemibranch

Table 2

Infection of the gills of adult common carp (2- to 3-year-old ones) by monogenean parasites
in two Hungarian fish farms

Parasite	Fish farm					
	Hortobágy			Hajdúszoboszló		
	Fish examined	Infected fish	Intensity of infection [*]	Fish examined	Infected fish	Intensity of infection [*]
<i>Dactylogyrus vastator</i> Nybelin, 1924	170	0	0	206	30	2 (1-3)
<i>Dactylogyrus extensus</i> Mueller et van Cleave, 1932	170	90	5 (1-8)	206	80	3 (1-6)
<i>Dactylogyrus achmerowi</i> Gussev, 1955	170	10	2 (1-3)	206	75	5 (1-9)
<i>Gyrodactylus sprostonae</i> Ling, 1962	170	110	7	206	0	0
<i>Diplozoon nipponicum</i> Goto, 1891	170	150	4 (1-4)	206	110	2 (1-5)

^{*} Number per gill hemibranch

Table 3

Parasitological examination of the gills of common carp fry in fish ponds of Syria (1988)

Location	Denomination	Parasite		
		Dactylogyrus minutus Kulwiec, 1927	Trichodina sp.	Lernaea cyprin copepodit
Shathaa	Fish examined	40	40	40
	Infected fish	32	16	23
	Intensity of infection [*]	4 (1-8)	7 (5-10)	3 (1-4)
Aen altakoa	Fish examined	35	35	35
	Infected fish	34	33	20
	Intensity of infection [*]	4 (1-10)	11 (2-25)	2 (1-3)
Kalaa almatek	Fish examined	40	40	40
	Infected fish	23	29	0
	Intensity of infection [*]	3 (2-5)	4 (1-9)	0

^{*}Number per gill hemibranch

REFERENCES

- BAUER, O.N. et al. (1969): Diseases of cultured fish (in Russian). - Kolos Publ. House, Moscow, USSR, pp. 139-149, 157-159.
- KOCYLOWSKI, B. and MYACZYNSKI (1969): Diseases of fish (in Hungarian). - Mezőgazdasági Kiadó, Budapest (Hungarian edition), pp. 246-252.
- MOLNÁR, K. (1970): Métélyek I. - Trematodes I. közvetlen fejlődésű mételyek - Monogenea (in Hungarian). In: Magyarország Állatvilága - Fauna Hungariae. II. - Akadémiai Kiadó, Budapest, pp. 75.
- MOLNÁR, K. (1976): To the knowledge of the Monogenea-fauna in Hungary. - Parasit. hung., 9: 31-33.
- MOLNÁR, K. (1984): Occurrence of new monogeneans of Far-East origin on the gills of fishes in Hungary. - Acta vet. hung., 32: 153-157.
- MOLNÁR, K. (1987): First record of a common carp parasite, *Dactylogyrus molnari* Ergens et Dulma, 1969 (Monogenea) in Hungary. - Parasit. hung., 20: 41-43.
- MOLNÁR, K. and SZAKOLCZAI, J. (1980): Halbetegségek [Fish diseases] (in Hungarian) - Mezőgazdasági Kiadó, Budapest, pp. 156-163. and 168-169.
- PAPERNA, I. (1959): Studies on Monogenetic Trematodes 1. Three species of Monogenetic Trematodes of reared carp. - Bamidgah, 11: 51-68.
- PAPERNA, I. (1963): Some observations on the biology and ecology of *Dactylogyrus vastator*. - Bamidgah, 15: 8-28.
- SCHÄPERCLAUS, W. (1979): Fischkrankheiten. - Akademie Verlag, Berlin, pp. 637-658.

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