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NOTE

Sinergasilus polycolpus, a new copepod species in the ichthyoparasitofauna of Serbia and Montenegro

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ABSTRACT: The parasitic copepod *Sinergasilus polycolpus* was identified on the gills of bighead carp *Aristichthys nobilis* from 2 localities (Kladovo and Slankamen) in the Serbian part of the River Danube. This parasite is species-specific for 2 Chinese carp, the bighead carp and the silver carp *Hypophthalmichthys molitrix*. It was accidentally introduced into Serbia and Montenegro together with fry of these herbivorous carp intended for aquaculture and control of phytoplankton blooms. There is no record in the available literature of this parasite for European freshwaters. Our identification of *S. polycolpus* signals the possible spread of the infectious disease sinergasilosis in natural freshwaters and in fishponds, similar to bothriocephalosis, caused by *Bothriocephalus opsariichthydis*, which was introduced with the fry of various herbivorous species from the Amour River basin (USSR) into almost all countries throughout the world.

KEY WORDS: Parasitic copepod · *Sinergasilus polycolpus* · First record · Serbia · Montenegro

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Both bighead carp *Aristichthys nobilis* Richardson and silver carp *Hypophthalmichthys molitrix* Valenciennes were introduced to Serbia and Montenegro in 1963 from Romania, Hungary and the former USSR (Welcomme 1988), for aquaculture purposes. Although they do not normally breed outside their native rivers, acclimatized populations of these fishes have appeared in the River Danube and become members of its native fauna.

During a study of fish parasites in the Serbian section of the River Danube and in some fish ponds between 1995 and 1997, a new copepod was detected on the gills of bighead carp that differed from other parasitic copepods found in Serbian waters.

Aristichthys nobilis were caught downstream of Kladovo, near Mala Vrbica (km 927 of the River Danube), in summer 1995, and near Slankamen (km 1216 of the River Danube) in summer 1997. All fish were caught by net and thoroughly examined by standard parasitological methods. All parasites found were fixed, and semi-permanent and permanent slides prepared.

Examination of morphometric and other biological features of both fresh and preserved parasites, based on the classifications of Byhovskaya-Pavlovskaya et al. (1962), Bauer et al. (1981) and Bauer (1987), initially identified a species of parasitic copepod new to Serbian waters as *Sinergasilus lieni*. However, these classifications proved to be out of date insofar as they did not recognize that *S. lieni* is not a valid taxon, but a junior synonym of *S. polycolpus* Yin, described by Yin in 1949 (Yin 1949), later corrected by the same author, and subsequently confirmed by Kuang & Qian (1991). Taking this into account, we therefore re-identified the new ichthyoparasite as *Sinergasilus polycolpus*.

Gills of fish infected by *Sinergasilus polycolpus* were altered. On the exact spot where a copepod was found gills were swollen and milky white, with 2 to 3 neighbouring gill lamellae glued together. Considering the number of fish examined and the number of parasites detected (Table 1), we conclude that infestation was low and did not pose a threat to fish fauna.

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Table 1. *Sinergasilus polycolpus* on gills of bigheaded carp *Aristichthys nobilis* from River Danube, showing no. of fish examined, their length, weight, and no. infected, no. of parasites found, and % infestation

Locality	Sampling date	No. of fish	Length (cm)	Weight (g)	No. infected	No. of parasites	% infestation
Mala Vrbica	July 1995	6	18–20	50–180	2	3	33
Mala Vrbica	August 1995	8	30–46	800–1100	1	7	12.5
Slankamen	July 1997	2	34.5; 93	1200; 11000	1	2	50

This sole record of *Sinergasilus polycolpus* in Serbia and Montenegro indicates an extended distribution area of this species, and the possible spread of the infectious disease sinergasilosis into Serbian natural freshwaters and fishponds. As this parasite is considered to be one of the primary pathogens of bighead and silver carp (Wang et al. 2002), with a prevalence as high as 50% and high morbidity (Yulin 1996), we aim to intensify our future research on this species.

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