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First Report of *Tracheliastes polycolpus* (Copepoda: Lernaeopodidae) and *Piscicola geometra* L. 1761 (Annelida-hirudinea) on *Capoeta umbla* at Murat River, Turkey

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ABSTRACT

This study investigated the presence of lernaeopodid and parasitic annelids on *Capoeta umbla* from Murat River. The host fish was found to be infested with the ectoparasite *Tracheliastes polycolpus* (Copepoda: Lernaeopodidae) and Piscicola geometra (Hirudinida: Pontobdellinae). Parasites were isolated from the fins of *C. umbla* that the most common fish species of Murat River. The present report constitutes the first diagnosis of *T. polycolpus* in Turkey and *P. geometra* known from different freshwater sources in Turkey. The morphological structure of two parasites were measured and photographed.

Key words: *Tracheliastes polycolpus*, piscicola geometra, capoeta umbla, Murat river

INTRODUCTION

The Turkish parasitological literature contains very scant data on *Capoeta umbla* parasites. The most recent survey of *C. capoeta umbla* parasites in Turkey was carried out by Aksoy *et al.* (2006) and Saglam (1992) *T. polycolpus* on *Capoeta trutta in* Keban Dam Lake.

T. polycolpus and *P. geometra* were reported in several countries affecting freshwater fishes. *Piscicola geometra* was also previously reported from nine host species in Turkey, *Rutilus rutilus, Blicca bjoerkna, Esox lucius, Tinca tinca* (Ozturk, 2002; Karatoy, 2004; Akbeniz and Soylu, 2008), *Barbus rajanorum mystaceus* (Saglam, 1992), *Abramis brama, Scardinius erythrophthalmus* (Karatoy, 2004), *Cyprinus carpio* (Oktener *et al.*, 2007) and *C. gibelio* (Arslan and Emiroglu, 2011).

T. polycolpus was reported from Iran, on *Capoeta trutta* at Vahdat Res, Tigris region Barzegar and Jalali (2009) and on *Capoeta capoeta* at Mahabad Res and Zarineh-rud Ri, Uromia region Mirhashemi Nasab and Pazooki (2003). This record complies with present study. The prevalence of *C. umbla* infection with *P. geometra* was 2.34% but the prevalence of *T. polycolpus* can be negligible.

The aim of this study was to existence of *T. polycolpus* in Murat River in study sites, among different fin microhabitats within one host species, *C. umbla*. The other hand first record of *P. geometra* on *C. umbla* in Murat River.

MATERIALS AND METHODS

Copepod and Leeches were found on *C. umbla* in Murat River that is a long river (722 km) in South East Anatolia of Turkey, the sampling area in this study were located near Bingöl city (38.8 N, 41.05 E). A total of 128 *C. umbla* were collected from Murat River. Collections were made using fishing net. After capturing, the fish specimens were placed in plastic tank with river water

and transferred to the research laboratory where they were kept in an aquarium. The fish were anaesthetized and measured to the nearest millimeter (total body length). Host fish individuals were examined for ectoparasites from spring 2010 to spring 2011. *T. polycolpus* and *P. geometra* were found on anal fin of *C. umbla* and removed with aid of preparation needle. *T. polycolpus* identification was performed according to Bychowskaya-Pavlovskaya (1962) and identifications of *P. geometra* were performed according to Burreson (1995). Parasitic samples were killed in hot (not boiled) 4% formaldehyde solution and were preserved in 70% ethanol. All samples were cleared in lacto-phenol. The leech specimens and copepod collected are deposited in the personal collection of M. KOYUN and the collection of the Department of Zoology University Bingol University Biology department. The parasite specimens were photographed with a trinokuler stereo microscope (Fig. 1-3).

Fig. 1: *Tracheliastes polycolpus*

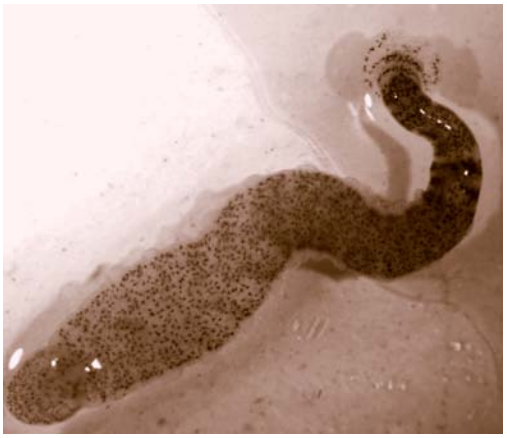

Fig. 2: *Piscicola geometra* (L, 1z761)

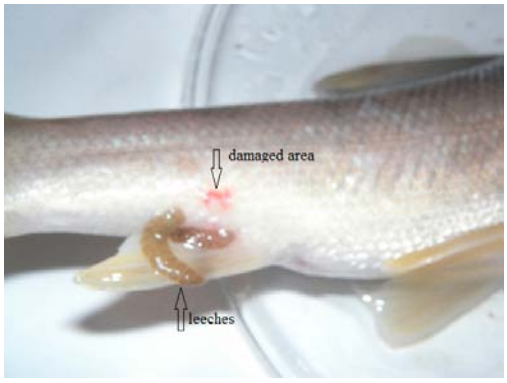

Fig. 3: *P. geometra* on anal fin of *C. umbla* (Host fish)

RESULTS AND DISCUSSION

Despite a lot of fish in the examination, four leech specimens and only one specimen's lernaeopodid copepod were found from the Murat River. Both parasites were found at Summer time.

In present study, we focused on the lernaeopodid copepod *T. polycolpus* (Von Nordmann 1832) and *P. geometra* L. 1761 an ectoparasite on the fins of *C. umbla* (cyprinid fish).

T. polycolpus carried by two long second maxillae united only at their distal end, is characterized by a short manubrium with a disk shaped anchor with attaches itself to fin ray (Benkirane *et al*., 1999).

The copepod (*T. polycolpus*) that recoded in our study was adult female, it is anchored to host fins and feeds on the epithelial cells and mucus of the host, characteristically raising blisters on the fin surface.

The present report is the first diagnosis of *C. umbla* in Turkey. However, there were some records about these two parasites on various freshwater fishes but ours is the first record on *C. umbla* in Murat River.

Parasite diagnostic

***T. polycolpus* (von nordmann 1832):** T. polycolpus is differentiated by examination of both the cephalothoraxes and trunk which are elongate and tubular (Fryer, 1982). The specimens was sexually mature female with 5.29-0.21 mm total body length and was attached to the host with a wide, disk shaped bulla. Egg was scattered the body surface (Fig. 1).

***Piscicola geometra* (L, 1761):** The body structure is cylindrical and long and contains two pairs of suction cups to the anterior eye. Posterior suction cups are connected to the body as external-based. The radial pigment lines are as an alternative to the points of eye. The lateral vesicles are 11 pairs, narrow, open, longitudinal bands extending from the middle of the ventral surface transverse and cut by open metameric bands. Star- shaped pigments cells are usually seen. All four anulliden rings were present. Parasite length 23 mm, the width was measured as 3.5 mm Fig. 2.

During the study Fish Samples collected along the Murat River, only infested fish were found at spring and summer time. The copepod showed an aggregated dispersion pattern on host fins. The

results showed significantly preferred microhabitats, with adult females being more abundant on the anal pelvic fins than the other fins. In particular, Loot *et al.* (2004) found that it was more abundant on the anal and pelvic fins than the other. *T. polycolpus* were never found on caudal and dorsal fins and were relatively scarce on the body surface of fish. These fin alterations may reduce the fish's swimming ability and therefore affect the rostrum dace population (Loot *et al.*, 2004). The anal fins were damaged by the *T. polycolpus* with a loss of their surface area Fig. 3. For this reason, bacteria, fungi and other parasitic agents can easily attack and settle down and especially the ecologies and biologies, seasonal distributions and their effects on fish of these two parasites can be studied in subsequent studies.

CONCLUSION

Even though *P. Geometra* records have been presented in previous studies in some fish species of Cyprinidae which is of Turkey's freshwater fish (*Cyprinus carpio, Capoeta trutta, Rutilus rutilu,s Barbus rajanorum mystaceus, Blicca bjoerkna, Esox lucius, Tinca tinca, Abramis brama, Scardinius erythrophthalmus*), it is seen that those remain limited. *P. geometra* record is found only in *C. trutta* of Capoeta fish. *T. polycolpus* record is found in *Capoeta trutta* only by Saglam (1992) master thesis titled, Ecto Parasites of Some Cyprinid Fish in Keban Dam Lake and there is not other record apart from this. Therefore, that both two parasites will be the first record both for *C. umbla* and Murat River is seen important.

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