

First Report of the Acanthocephalan, *Bolbosoma caenoforme* (Heitz, 1920), in the *Gasterosteus aculeatus* Fish from North of Iran

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Abstract: Threespine sticklebacks is a small fish with a circumglobal distribution in coastal marine and freshwater of the northern hemisphere, present a remarkable scope of variation in body and fin shape among populations. Acanthocephalans, the 'thorny headed worms', comprise at least 1000 species. Acanthocephalans are very abundant in deep sea fishes and in Antarctic fishes. The present study was the first recorded *Gasterosteus aculeatus* infection with a member of genus *Bolbosoma* in northern Iran.

Key words: Threespine • Acanthocephalans • *Gasterosteus aculeatus* • *Bolbosoma*

INTRODUCTION

Sticklebacks are founded in marine and fresh waters of the cooler parts of the Northern Hemisphere. There are about 8 species of sticklebacks; among them, *Gasterosteus aculeatus* is native in Iran. *Gasterosteus aculeatus*, Iranian species size approximately 11cm have 3 dorsal fin spines and 10 soft rays, 1 anal fin spine and 7 soft rays, 10 pectoral fin rays and 1 spine and 1 soft ray in pelvic fin. Scutes, including those forming the caudal peduncle keel, are 32 number. Total gill rakes number 19. It was reported that this species were introduced to Iran by Coad and Abdoli [1]. This species is found at several rivers of Mazandaran and the southeast of Caspian Sea and in Kashaf river of Khorasan and the upper Kal Shur and upper Jomein, rivers of the Kavir basin. Maximum life span of this species is a little over 3 years although some fish probably live only 1 year and a few months.

Acanthocephalans, the 'thorny headed worms', comprised at least 1000 species. Vertebrates are final hosts, although recent findings suggested that certain marine ichthyoparasitic species can mature in squids. About half of the described species parasitize fish [2]. Acanthocephalans are very abundant in deep sea fish [3] and in Antarctic fish [4], mammals and birds. Generally, marine acanthocephalans have wider distributional ranges

than freshwater ones, probably because of less effective barriers to genetic exchange in the sea compared with fresh water. In individuals of the final hosts they form considerable biomass which, in addition to their high accumulation capacity for metals, makes them useful for biomonitoring studies. In the present study, detection of *Bolbosoma caenoforme* in a *Gasterosteus aculeatus* in Iran was described, which was the first report of *Bolbosoma caenoforme* infected *Gasterosteus aculeatus* in Iran.

Case Report: In October 2009 in Shazdeh river, Babolsar city, Mazandaran province (Latitude 036n43 and longitude 052e39, North of Iran) after fishing of many (approximately 150 numbers) *Gasterosteus aculeatus*, they were transferred to Department of Veterinary Parasitology of Islamic Azad University, Babol-Branch and after dissection 290 acanthocephalan in abdominal cavity adhered to intestines were found. The specimens were fixed and preserved in 70 % ethanol. They were cleared in lacto phenol and studied in temporary mounts. Identification was done according to Yamaguti [5], conformation and definitive identification of samples was carried out by researcher of the Veterinary Parasitology Museum, Tehran University, Faculty of Veterinary Medicine.



Fig. 1: Adult *Bolbosoma caenoforme*

Description of Parasite: The body was 6.3 mm long and head was as a cylindrical proboscis that lengthened 0.7 and 0.2 - 0.3 mm in maximum width. Anterior part of the trunk was swollen in form of a bulb which can be divided

into three parts, anterior and posterior cones and intermediate ring-bulb. There were 14 longitudinal rows of hooks on the proboscis and each was containing eight or nine (mostly 8) hooks. The spine on proboscis was 6.38 μ m long and spine on trunk was 3.45 μ m long. The maximum width of the body at the trunk bulb measured 0.8 mm. the bulb had two thorny zones, one around the anterior portion of the anterior cone and the other at the intermediate ring-bulb region. The posterior cone of the bulb and caudal end were not covered with any spines. In the caudal end, there was no copulatory bursa.

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