

## International Conference on Parasitology

August 24-26, 2015 Philadelphia, USA

Assessment of endemic tooth-carp (*Aphanius danfordii*) and invasive mosquitofish (*Gambusia holbrooki*) health by means of relative condition factor under the co-infection of different parasite groups and revelation of the effects on their competitive interactions

Ahmet Özer, Emel Çankaya and Türkay Öztürk Sinop University, Turkey

The objectives of the present study were to investigate the parasite fauna of endemic toothcarp Aphanius danfordii and L invasive mosquitofish Gambusia holbrooki sharing the same ecological environment, to assess the effects of different parasite group's co-infections on the relative condition factor of both fish species and to reveal the effects on their competitive interactions. Totally 125 A. danfordii and 227 G. holbrooki were collected in the Lower Kızılırmak Delta, Turkey during the period from December 2011 to November 2012 and examined for parasites using conventional methods. Identified parasites were grouped within higher taxonomic position and their infection indices were calculated. For statistical analysis, the weightlength relationship (WLR) curves for both fish species were estimated by means of robust regression methods so as to avoid the effect of influential measurements. The condition, fatness or well-being of fish, was assessed utilizing the relative condition factor (Kn) which is the ratio of the observed weight of the expected weight. The variations of Kn with the seasons, parasite loads, observed different parasite groups and co-infection of those were then analysed by comparing the mean (Kn) values to the standard value (Kn=1) using the student t-test. Moreover, current competitive interactions between both species sharing the same environment were explored comparatively for health assessment. A total of 18 parasites species were identified belonging to Protozoa (5), Monogenea (2), Digenea (5), Nematoda (3), Acanthocephala (1), Cestoda (1) and Copepoda (1) in toothcarp. On the other hand, mosquitofish were found to be infected by 9 parasite species belonging to Protozoa (2), Monogenea (1), Digenea (4), Nematoda (1) and Cestoda (1). In toothcarp, infection prevalence (%) and mean intensity values were 58.2%, 372.5±98.5 for Protozoa; 29.6%, 4.3±0.7 for Monogenea; 99.2%, 93.3±13.6 for Digenea; 8.8%, 1.6±0.3 for Nematoda; 4%, 1.0±0.0 for Acanthocephala; 0.8%, 1.0±0.0 for Cestoda and 10.4%, 2.0±0.3 for Copepoda, respectively. All the toothcarp collected were infected by the individual or a combination of these groups. On the other hand, the same measures in mosquitofish were 8.3%, 7.1±4.2 for Protozoa; 0.4%, 1.0±0.0 for Monogenea; 69.6%, 15.1±2.8 for Digenea; 10.1%, 5.7±1.4 for Nematoda and 10.6%, 2.0±0.3 for Cestoda, respectively. Individual or co-infection of different parasite groups for both fish revealed no adverse effect on their health. However, negative influence of seasons on the toothcarp was detected, especially in autumn and spring, for which relative condition factor of toothcarp was found to be smaller than that of mosquitofish. Although the parasite load was observed to be higher in toothcarp than mosquitofish, mean (Kn) values for each number of parasite load were observed to be equal to a standard value of '1'. When the effect of parasite load was, however interacted with the season, the weight of toothcarp seemed to decrease as the number of parasites on the host increased for all seasons except for summer. According to the data obtained throughout this research study, possible interactions between endemic and invasive fish species related to infection indices, parasite loads and health status of both fish species were revealed and discussed in detail.

## **Biography**

Ahmet Özer has completed his PhD in 1999 at the Institute of Aquaculture in Stirling University in Scotland and Postdoctoral studies at the Sinop University, faculty of Fisheries and Aquatic Sciences in Turkey. He is a Full-Professor and the Head of Aquaculture and Diseases Department at the same faculty. He has published more than 38 papers in reputed journals, made 14 oral and 35 poster presentations at international symposiums and has been serving as a Member of the Board of Management of the Faculty of Fisheries and Aquatic Sciences.

aozer@sinop.edu.tr