# Comparison of morphology and molecular characteristic lake and River populations of *Barilius mesopotamicus* in the Tigris basin

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**Received date:** 2016.03.06
**Reception date:** 2016.09.12

**Abstract**

Due to the lack information about morphological and genetic characteristic of *B. mesopotamicus* a study with the goal of providing this information for the first time in Iran. In the fall 2012, three populations of *Barilius mesopotamicus* in the Tigris basin were studied and compared. For this purpose, samples from Seimare, Changouleh and Siah-gav rivers were collected and their 29 morphometric characters were measured by a digital caliper and 7 meristic characteristics were counted under a stereomicroscopy. The morphological differences between the studied populations were analyzed using principal component (PCA) and canonical variables analysis (CVA). In addition, to compare the genetic and phylogenetic relationships of these populations, their *Cyt b* gene sequences were used. Based on the results, Changouleh and Seimare rivers populations showed significant differences with Siah-gav one in terms of morphological features. Based on the Maximum likelihood and Bayesian methods, the studied populations were not genetically differentiated from each other and therefore were clustered in a single clad. In general, it can be concluded that the morphological differences of the studied populations can be as result of environmental factors, and the role of genetic factors is limited.

**Keywords:** Morhology, *Barilius mesopotamicus*, Gene, Phenotypic plasticity, Tigris.