



Morphometric and preliminary genetic characteristics of *Branchinecta orientalis* populations from Iran (Crustacea: Anostraca)

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Abstract

Branchinecta orientalis is a fairy shrimp endemic to the Palearctic region, from Mongolia to Spain. The patchy nature of its habitat is thought to result in a high degree of subdivision among populations, potentially promoting speciation. We combined morphometric characteristics with molecular phylogeny of cytochrome c oxidase I (COI) to test whether *B. orientalis* could be a species complex and whether there is any correlation between the genetic variation, morphometric characteristics and geographical variables. We studied six populations from Iran based on the comparison of morphometric and molecular datasets, we confirmed that the Aigher Goli (AIG) population is biometrically well separated from the Akh Gol, Hassar, Rashakan, Khaslou and Garagojanlou populations in northwestern Iran. The relatively high genetic divergence in the AIG from the other populations and its congruence with morphometric data were observed in *B. orientalis* populations. However, as these results were generated using a small sample size and on a limited sampling range, they should be considered as preliminary.

Key words: Anostraca, *Branchinecta*, *Branchinecta orientalis*, Aigher Goli, Iran

Introduction

Branchinecta orientalis Sars, 1901, was redescribed by Petkovski (1991), who also confirmed the distinctive features shared by *Branchinecta orientalis* and *Branchinecta ferox*, first noted by Brtek in 1967. According to previous literature, *B. orientalis* appears as a Mongolian steppe element, extending from Mongolia to Iran through Tibet, Pamir, Alaya Valley and Afghanistan, and thence through the Ukrainian steppes, the Wallachian and Pannonian lowlands to Spain (Daday 1910; Löffler 1969; Brtek *et al.* 1984; Vekhoff & Vekhova 1990; Petkovski 1991; Löffler 1993; Belk & Brtek 1995; Manca & Mura 1997). In the European part of its range, the species typically occurs in periodical natron pools (natron is a naturally occurring mixture of sodium carbonate decahydrate and about 17% sodium bicarbonate along with small quantities of sodium chloride and sodium sulfate) (Brtek 1967), in highly mineralized or saline pools (Petkovski 1991), whereas in central Asia it also inhabits high altitude and saline temporary waters (Petkovski 1991). In Iran *B. orientalis* has been reported from East Azerbaijan (Mura & Takami 2000), and it is found as one of the typical large Branchiopoda inhabitants in West Azerbaijan. It occurs in fragmented fresh and brackish temporary waters distributed at altitudes ranging from 800 to 2650 m above sea level. The discontinuous nature of the habitat increases the potential for isolation and differentiation between populations (Boileau & Hebert 1991; Hebert 1978). Branchiopoda have been long considered as