



Original Article

Comparative Study on Effects of Different Salinities on the Reproduction rates of two parthenogenetic species of *Artemia* (Gaav Khooni wetlands of Isfahan and ponds around the Urmia Lake) from Iran

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Abstract: This paper investigated effects of different salinities on reproductive of two parthenogenetic species of *Artemia* (from Gaav Khooni wetlands of Isfahan and ponds around Lake Urmia) in Iran. Nauplii from two Iranian brine shrimp parthenogenetic populations, were grown up at three salinities (80, 120 and 150 ppt). The initial stocking density was 200 nauplii/litre at all the salinities. The Shrimps were fed according to a standard feeding table. The results show that Gaav Khooni's *Artemia* has better reproductive than the brine shrimp from Urmia ponds (except in reproductive characteristics such as number of offspring at each day of reproductive period, the number and the percent of offspring encysted). Moreover, *Artemia* from ponds around the Urmia Lake had a reduction in many characters with increasing salinity, but *Artemia* from Gaav Khooni showed best results at optimal level's of salinity (120 ppt). Therefore the present study indicated that *Artemia* from Gaav Khooni, unlike most species the decrease in salinity, (optimal level) is also vulnerable.

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Introduction

The brine shrimp *Artemia* is a genus with a wide distribution on the five continents, inhabiting inland salt lakes, coastal lagoons and solar saltworks (Vanhaecke et al., 1987). It is among the unique organisms that can adapt to very diverse living conditions that involve salinities as low as 10 g/L (Abatzopoulos et al., 2006) to as high as 340 g/L (Post and Youssef, 1977). It comprises a complex of sibling species and superspecies defined by a criterion of reproductive isolation (Browne and Bowen, 1991).

The Gaav Khooni Lake is situated 140 km south-east of the Isfahan province. It is one of the rare wetlands of Central Iran and, in this sense, plays a critical role for migratory and native birds. It is an internationally protected natural reserve. The Gaav Khooni Lake is

located on the center of the Gaav Khooni region, which extends over an area of 2800 km². The soil is salty throughout the region and a permanent salt crust covers a large area around the lake. It is almost nearly permanent saline lake and its major water source is the River Zayandeh Roud. During the rainy season, many smaller lagoons and lakes with fluctuating salinity appear around the central lake. The average annual precipitation is 83 mm. The dry season lasts from late March until mid-October. The temperature in the region ranges from 6.6 to 37.48°C (Asri et al., 2002). Water salinity is usually above 120 g/L. Agh et al. (2007) reported the presence of a possible parthenogenetic *Artemia* population in the Gaav Khooni Lake at Isfahan (Central of Iran). Agh and Noori (1997) and Agh et al. (2001) also reported the presence of a morphologically

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