The evaluation of salinity effects on competition between sexual *Artemia urmiana* and parthenogenetic *Artemia* population *in vitro*

Abstract

In the present study, the effect of salinity (50, 100, 150, 200 and 250 ppt) was studied on competition between the sexual *Artemia urmiana* and parthenogenetic *Artemia* population of lake Urmia neighbouring lagoons. After cysts hathing, nauplii of both *Artemia* were reared separately in 1.5 L cylindrical containers containing different salinity. After puberty, the competition experiments between the *Artemia* populations were set up. Three pairs of sexual *Artemia* (3 adult male and 3 adult female) and three adult asexual female *Artemia* were randomly collected from each salinity and transferred to 1.5 L cylindrical containers (in 4 replicates) containing water with similar salinities. Whole population were counted once a week and the population composition were determined in all experimental treatments and compared with the control group. The experiments continued until one population overcome the other population or both population reach to equilibrium. At the end of the culture period in order to determine the percentage of sexual and parthenogenetic females in competition treatments, their reproductive capacity were determined in falcon tubes and also morphometric analysis were carried out. The results showed that sexual *Artemia* and parthenogenetic *Artemia* were dominateae at higher salinities (200 and 250 ppt) and lower salinities (50, 100 and 150 ppt) respectively. Moreover, an inverse relationship between increasing salinity and increasing populations in both sexual and parthenogenetic population were observed. The adult *Artemia* population in both species in 100 ppt is more than others salinity and the most biomass and cysts production was observed in this salinity for both species. The population growth in mixed treatments were lower as compared to single treatments and the biomass and cysts production in competition treatments is lower than single culture treatment.

Keywords: Competition, *Artemia urmiana*, Parthenogenetic *Artemia*, Salinity.

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The Thesis Submitted for the Degree of M.Sc
(in the field of Fisheries Science)

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January 2011