



**SURVIVAL AND GROWTH OF THREE POPULATION OF *ARTEMIA* UNDER
LABORATORY CONDITIONS: EFFECTS OF ASCENDING SALINITY REGIME**

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ABSTRACT:

In the present study, effects of ascending salinity especially hypersaline treatments on survival and growth in three *Artemia* species namely: (*Artemia urmiana*, *Artemia franciscana* and parthenogenetic *Artemia*) were considered. Six salinity concentrations (50, 80, 150, 200, 250 and 300 gL⁻¹) were applied in this experiment. Survival rate showed that in culture period, survivals were decreased gradually, but in hypersaline treatments (200, 250, 300 gL⁻¹), we were observed dramatic decline in survival parameter. In addition, the mortality rate was calculated for three populations. We were observed high mortality between all salinity treatments in day eight perhaps as a result of larvae phase, but the mortality rate became low until senescent phase, in senescent phase as a final phase.

Keywords: *Artemia* spp., Ascending Salinity, Survival, Mortality, Growth, Urmia Lake, Iran

INTRODUCTION

Although salinity was considered as the ecological niche of *Artemia* spp. but hypersaline conditions can have major effects on these animals. The genus *Artemia* (Crustacea: Anostraca) inhabit saline and hypersaline lakes and ponds, which differ from in-water chemistry, seasonality, species composition, and productivity (Lenz and Browne, 1991). A study conducted by Broch (1969) showed that in *Artemia*, an osmoregulatory mechanism has evolved that involves a change in hemolymph

concentration that coincides with changes in water salinity. In addition, Broch, (1969) reported that there is an increase in blood hemoglobin in *A.salina*, the change in hemoglobin was in direct response to a decrease in oxygen content caused by an increase in salinity. Thus, these physiological adaptations to salinity allow the survival of brine shrimp in their ecological niche. This genus *Artemia* comprises a complex of sibling species and superspecies defined by a criterion of