

Comparison of the digestive enzyme activities in *Artemia urmiana* from nauplii to adult stages using different diets

Lashkarizadeh M.⁽¹⁾; Farhangi M.^{(2)*}; Agh N.⁽³⁾ and Safari O.⁽⁴⁾

Farhangi@nrf.ut.ac.ir

1,2-Fisheries Department, Faculty of Natural Resources, Tehran University, P.O.Box: 4111 Karj, Iran

3- Artemia & Aquatics Animals Research Institute, Uriya University, Urmia, Iran

4- Environment Department, Faculty of Environment & Natural Resources, Firdausi University, Mashhad, Iran

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Abstract

Due to the importance of adult *Artemia* in aquaculture, information regarding the digestive enzyme activities variation with inexpensive diets has great importance in *Artemia* at different life stages. In this study, the effect of different inexpensive diets on digestive enzyme activities, including trypsin, amylase and lipase of *Artemia urmiana* was investigated in different life stages. The experiment was carried out with 5 treatments and each with 2 replicates over 15 days using 5 diets (wheat meal, common carp diet, soy meal, a mixture of soy meal and canola meal (compound diet 1) and a mixture of soy meal and wheat meal (compound diet 2) in a completely random design. Nauplii were introduced to their cultivation environments after hatching and the digestive enzyme activities were measured in days 5, 10 and 15 of the experiment. Positive and significant correlation were observed between the crude protein content of the diets and trypsin activity (0.74), the carbohydrate content of the diets and amylase activity (0.49), and crude fat content of the diets and lipase activity (0.84). The activities of all enzymes were increased with the *Artemia* development in this study. During the experimental period, the trypsin activities were increased in all treatments with the exception of wheat meal treatment, amylase activities were increased in all treatments and lipase activities were increased in all treatments with the exception of common carp diet and wheat meal treatments. Digestive enzyme activities were affected by the diets and *Artemia* life stages. Regarding the increasing digestive enzyme activities until adult stage in *Artemia urmiana*, using adult *Artemia urmiana* decreases pressure on resources of *Artemia* cyst and nauplii in natural environments. In addition, this condition may result in more economic returns and better quality of adult *Artemia* compared to its cyst and nauplii.

*Corresponding author