Oceanography/Vol.5/No.18/Summer 2014/1/6-6

The Comparison of Seasonal Variation in Acetylcholinesterase in Bivalvia *Mytilaster lineatus* and Crustacean *Pontogammarus maeoticus* in the Caspian Sea

Nikokherad, Haniyeh[1*]; Safaeian, Shila[2]; Rostaeyan, Abdolhussain[3]; Rahimifard, Nahid[4]

1- M.Sc., Islamic Azad University, North Tehran Branch, Faculty of Marine Sciences and Technology, Tehran, Iran. Email: h_nikokherad@yahoo.com

2- Faculty Member, Islamic Azad University, North Tehran Branch, Faculty of Marine Sciences and Technology, Tehran, Iran. Email: shila2962462@yahoo.com

3- Faculty Member, Islamic Azad University, Science and Research, Faculty of the Department of Chemistry, Tehran, Iran. Email: arustaiyan@yahoo.it

4- Faculty Member, Tehran University of Medical Sciences, Faculty of the Department of Microbiology, Tehran, Iran. Email: rahimifn@yahoo.com

Received Date: October 8, 2012 **Corresponding Author* *Accepted Date: July 25, 2013*

© 2014 Oceanography. All rights reserved.

Abstract

In this study, seasonal variation on the acetylcholinesterase enzyme activity and on the protein in bivalvia *Mytilaster lineatus* and crustacean *Pontogammarus maeoticus* was investigated in 2010-2011 in Babolsar, in coast of the Caspian Sea. Maximum average of protein amount in *Mytilaster lineatus* was (10.461 ± 0.4833 mg/ml) in late winter and the highest average of acetylcholinesterase (AChE) activity (24.635 ± 0.7829 µmol / min / mg protein) was in the late autumn. Maximum average of protein amount in *Pontogammarus maeoticus* was (9.521 ± 0.1482 mg/ml) in late summer and the highest average of AChE activity (25.155 ± 1.5180 µmol/ min / mg protein) was in the late summer. The result of statistical analysis using ANOVA, $P<0.05$ showed significant differences between the levels of acetylcholinesterase enzymes and Protein found in both organisms in different seasons of the year. This final result indicated that the minimum stress in bivalvia *Mytilaster lineatus* was in the cold seasons and in crustacean *Pontogammarus maeoticus* was in the warm seasons.

Keywords: *Mytilaster lineatus, Pontogammarus maeoticus, Seasonal variation, Acetylcholinesterase, Protein.*