Study of diversity and abundance of Chironomidae larvae in Sefidroud estuary (south Caspian Sea)

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Abstract

Diversity and abundance of Chironomidae larvae in Sefidroud estuary (south Caspian Sea basin), in order to determine of diversity and distribution pattern and how their relationship with environmental conditions were studied. Sampling of substrate sediments was carried out bimonthly from November 2014 to September 2015, using Van Veen grab (0.03 m^2). Sampling was carried out at three stations (S_1 in the river, S_2 in estuary and S_3 in the marine), with three replicates. Environmental factors in water such as temperature and salinity and sediment relevant factors such as grain size and total organic matter percentage (TOM) were measured. In the present study, 11 genera belong to three subfamilies, including Chironominae (5 genera), Orthocladinae (5 genera) and Tanypodinae (1 genera) were identified. The highest average abundance was related to *procladius* (300 ± 165 ind. m^{-2}) in river station (S1) in March and the lowest for *Paratendipes* (11± 6 ind. m^{-2}) in estuary station (S2) in July. Results of temporal distribution showed that the highest and lowest abundance of Chironomidae larvae were in March (149 ± 75 ind. m^{-2}) and in July (25.6 ± 14.6 ind. m^{-2}), respectively which showed significant difference ($P<0.05$). Spatial distribution of Chironomidae larvae among sampling stations showed significant difference ($P<0.05$), as river station (S1) was higher abundance (96.8 ± 52.5 ind. m^{-2}) than estuary station (S2) (54.6 ± 27.8 ind. m^{-2}) and marine station (S3) (0 ± 0 ind. m^{-2}). At the marine station (S3) no specimen of Chironomidae larvae was found. A significant correlation ($P<0.05$) between the abundance of Chironomidae larvae and environmental variables in water and sediment were not observed. Among the studied environmental factors, water salinity and sediment grain size have the most effective on the distribution and abundance of Chironomidae larvae.

Keywords: Chironomidae larvae, Distribution, Abundance, Sefidroud, Caspian Sea.