

STUDY OF AQUATIC INSECTS' RELATIVE ABUNDANCE OF AL-NAJAF PROVINCE, IRAQ

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ABSTRACT : Al-Najaf province constitutes different groups and high numbers of aquatic insects that are distinct in their lifestyle so that it appeared clear differentiations in relative abundance. The present study was attempted to study of relative abundance of aquatic insects in Al-Najaf province from different aquatic pools. During study period (March and April, 2017) a total (1303) samples were collected from different aquatic pools of Al-Najaf province. Present study was documented five aquatic insect orders are Diptera, Collembola, Coleoptera, Hemiptera, Odonata and the relative abundance each order was (88, 11.52, 0.23, 0.15 and 0.076%), respectively. The order Diptera alone was most abundance and included three main families Culicidae and Anthomyiidae and Chironomidae were most common with ratio (73.4, 9.22 and 5.38%), respectively. Mosquito *Culex* genus was more abundance than *Aedes* with ratio (37.66, 35.74%), respectively. Results of present study indicated that two species *Ae. caspius* and *Cx. quinquefasciatus* were most abundant and inhibited the contaminated pools where may be attributed additional health public problems in the near future.

Key words : Al-Najaf province, aquatic insects.

INTRODUCTION

Many aquatic insect orders that spend at least a part of their life in the fresh water ecosystem (Hasan *et al*, 2016). Aquatic insects are important as fish food, bioindicators and biocontrol agents, but few others may be quite harmful because act as vectors through which disease pathogens can be transmitted to both humans and animals (Payakka and Prommi, 2015; Dalal and Gupta, 2016). One of the environmental topics that the world faces today water reduction (Shayeghi *et al*, 2014). Industrial activities and urbanization has raised pollution in water sources. Most sewage enters waterways without adequate treatment and the water quality is being degraded. In Al-Najaf province most water bodies have more subject to releases from domestic sewage and thus can increase pollution loads, affecting greatly their quality and health status. Aquatic insects may be ideal tools for early detect from toxicants because some are very sensitive to pollution, while others can live and proliferate in disturbed and extremely polluted waters (Mohamad *et al*, 2015). Due to the importance of fresh water insects and few studies in Iraq, particularly Al-Najaf province there are little records about aquatic insects and the nature of these organisms well- unknown thus, present study was carried out to focus on the relative abundance of aquatic insects and their predominant groups.

MATERIALS AND METHODS

The samples were collected at morning (10-11am) from different pools selected in adjacent from Kufa River and agriculture canals of Al-Najaf province (Figs. 1 and 2) during period March to April 2017 and their averages were used for representative data. Aquatic samples were collected using standard dipping method with at least (200-300ml) for counting and preserved in labeled small plastic bottles contain 70% ethanol for subsequent morphological identification and were brought to Entomology Laboratory, Department of Zoology, college of science and University of Kufa, with the help of insect rearing and experimental containers. The morphological features of Larvae were examined under a compound microscope at magnification power of 10 X and photographed with camera 14 pixel and the minute features were screening with aiding of scanner electronic microscope. Microscopic analysis include, the saddle and the siphon in addition the head of the fourth larvae of two species, *Cx. quinquefasciatus* and *A. caspina*. All collected samples were identified using morphological features of standard morphological keys (Hilsenhoff, 1975; Richard *et al*, 1997; Ribeiro and Ramos, 1999; Andreadis *et al*, 2005; Mohamed *et al*, 2017).

RESULTS AND DISCUSSION

A total of 1305 samples were collected belonging to