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Research Article

A Survey of the Aquatic Insects in Shatt Al-Arab River, Iraq

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Abstract

The study on survey of aquatic insects was done covering the zone of Basra city to Shatt A-Arab River, south of Iraq. The aquatic insects were collected using a plankton net method from three stations. There were varieties of aquatic insects belonging to 2 orders in the study sites. The orders of insect were Hemiptera and Coleoptera. During the study period, there is range from total of 26 to 58 individuals of aquatic insect trapped and collected in to Shatt A-Arab River from May to July 2018. Some species of aquatic insects (Berosus spinosus and Paracymus relaxus) were found significant ($P<0.05$) different compared with Plea leachi, Hydaticus histrio and Ochthebius kermanicus. This shows the richness and various species of aquatic insects in the study area. The quality of non-harmful habitats is most suitable for aquatic insects to reproduce under a natural ecosystem with abundant diet source.

Keywords: *Shatt Al-Arab River; Aquatic insects; Hemiptera; Coleoptera*

Introduction

Aquatic insects can be found in aquatic habitats around the world, including lakes, streams, rivers, coastal waters, estuaries, swamps, groundwater, and springs [1]. The warm, wet weather of the southern Iraq in Basra city is perfect for the life cycles of many aquatic insects which are commonly dependent on humid habitat. The occurrence of a wide diversity of environments in Iraq, particularly in Shatt Al-Arab, provides a massive number of ecological positions. Regrettably, habitat demolition is causing the loss of many insects [2].

Bio-monitoring relates to the use of insects and their responses to stimuli in their aquatic habitat to regulate the quality of that location [2].The presence or absence of some families of aquatic insects due to water pollution. Studying the life cycle of aquatic insects and its relationship with other organisms can give different environments counting people dynamics, competition and predator-prey interactions [3].

Realization the basic development of aquatic insects in more efficient organization strategies that can be applied in order to decrease the pest population in extents of human habitation.

For their site in nutrition web, aquatic insects including the dipterans are excellent organism to taster and analysed for the current of pollutants [4]. Some species of aquatic insects are searchers on decaying or dead plants and animal matter [4]. The objective of this study was to classify diversity of aquatic insects along Shatt Al-Arab River according to different stations and to assess the distribution and relationship of aquatic insect in relation to environmental.

Materials and Methods

The study was conducted on the Shatt Al-Arab River, south of Iraq, from May to July, 2018. Samples collection were made from stations S1, S2 and S3 (Fig 1) in Shatt Al-Arab River, Basra, south of Iraq. Samples were taken using plankton net with a mesh size of 0.3 mm and a mouth diameter of about 0.4 m fitted with a flowmeter.

The samples were taken from a depth of about 3 meter. Specimens' identification was based on the immature stags for mayflies. Adults specimens were preserved in 75% alcohol contain a small proportion of glycerine for permanent storage [5].

Statistical Analysis

Statistical comparisons of the results were performed by one-way ANOVA using SPSS ver.23. Significant differences ($P<0.05$) between the fungus and time were analyzed by Duncan 'triplicates range test [6].

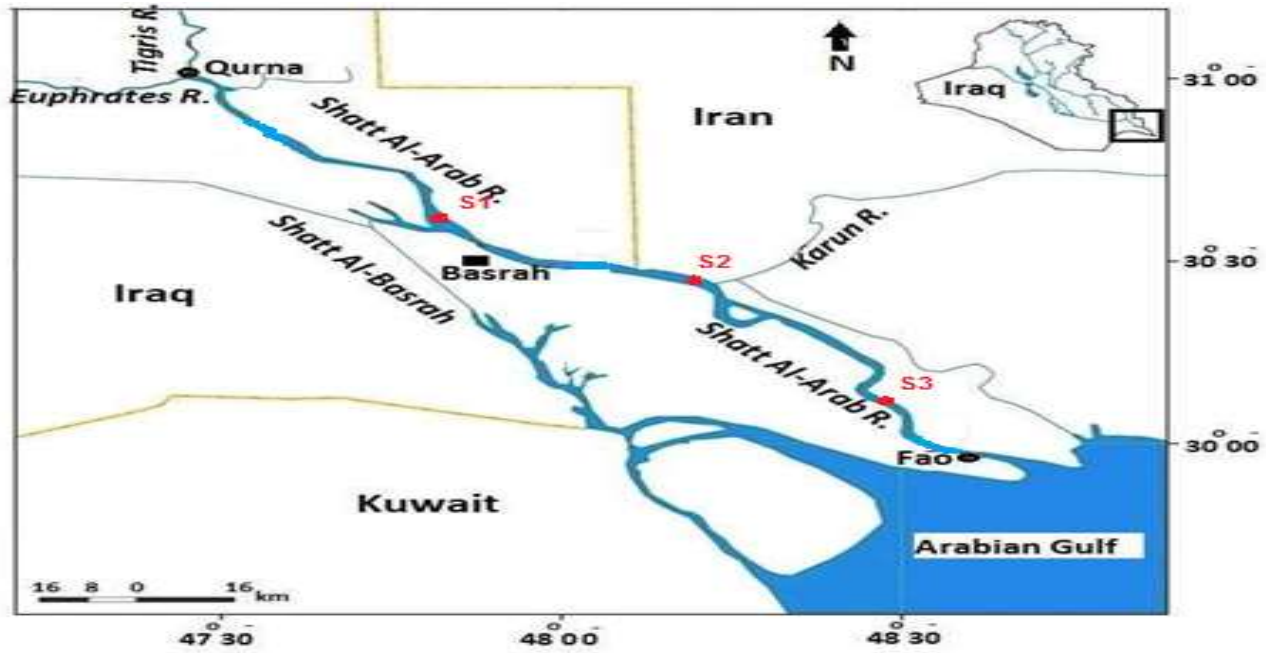

Figure 1: Map of Shatt Al-Arab River with locations of study sites

Results and Discussion

During the three months sampling period, total of 134 individuals of aquatic insect were sampled from three station of Shatt Al-Arab River. They consist of two orders which are Coleoptera and Hemiptera (Table 1). Three sites of habitats were selected and defined in this study namely S1, S2 and S3 (Fig 1).In the sites of habitat effect to abundances of orders of aquatic insects. For specific order of Diptera, there was several families were found such as Pleidea, Dytiscidea, Hydraenidea and Hydrophilidea and then were further identified (Table 1).

In all three sites (S1, S2 and S3), coleoptera was the dominant family followed by order Hemiptera. Significant differences were showed (Fig2) for numerous abundances of orders of aquatic insect at different sites of Shatt Al-Arab River as well as time of specimens. Order of the aquatic insects, the calculated value of all station obtained is significant difference for order Coleoptera. However, two orders of aquatic insects were found decreased in their numbers from May to July. The highest population was recorded for Coleoptera (108) and the lowest was Hemiptera [2, 6]. Significant differences were noticed for several species of aquatic insect at different sites of Shatt Al-Arab River.. Berosus spinosus and Paracymus relaxus were higher in River. Berosus spinosus and Paracymus relaxus were found that significantly different among fives Species of aquatic insects followed by Ochthebius kermanicus and Plea leachi Hydaticus histrio.

The trend of population changes in the Shatt A-Arab due to some factors such as, the aquatic insects perhaps differs and not constant in one habitat. Its depends on the position is either have a lot of nutrition supply, no disorder from natural enemy and abiotic factors for example pH , water depth, temperature, water speed to and physical and chemical difference of water [7, 8, 9 and 10] .All sites of Shatt Al-arab River have better aquatic insect diversity compared to other. The cause could be due to location and appropriateness of the habitat that they live in.

Table 1: The following orders, families and scientific name

Order	Family	Scientific name
Hemiptera	Pleidae	Plea leachi
Coleoptera	Dytiscidae	Hydaticus histrio
	Hydraenidae	Ochthebius kermanicus
	Hydrophilidae	Berosus spinosus
		Paracymus relaxus

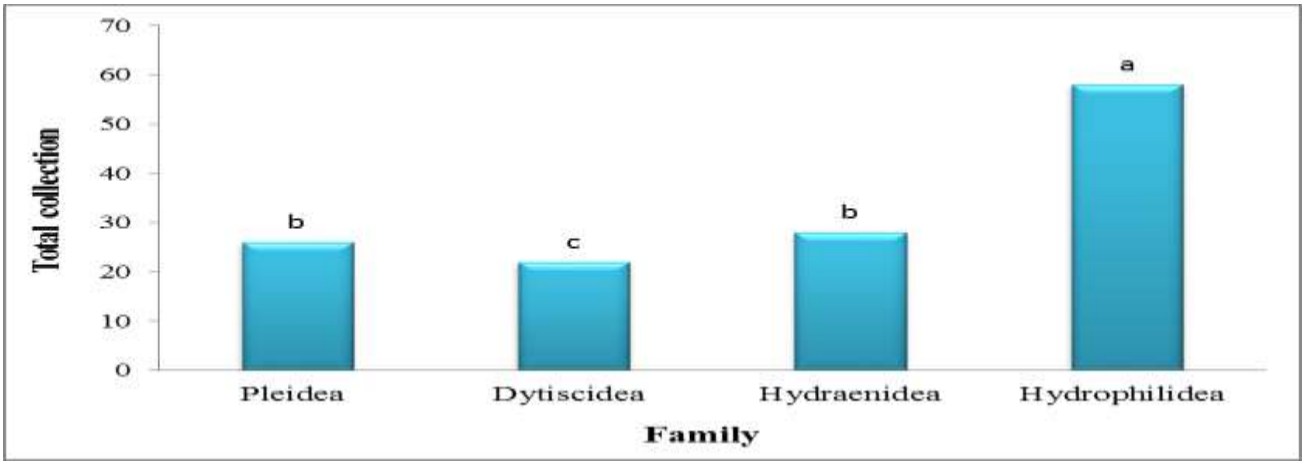

Fig 2: the total individuals collected in each family from the collection at the Shatt Al-Arab River

Conclusion

There were two orders identified. For selected order specifically Coleoptera, there was three families and four genus were identified. Hydrophilidea was the dominant family and followed by Hydraenidea, Pleidea and Dytiscidea . Hydrophilidea found in most of the Shatt Al-Arab River are Berosus spinosus and Paracymus relaxus . This led them as a good indicator of fresh water. The abundance and distribution of aquatic insects species varies. In addition to that the habitat quality is greatest suitable for insects to breed under the normal ecosystem.

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