Identification and Ecological study to some Species of water submarine beetles family (Insecta: Coleoptera) Family: Dytiscidae and ability to Use it in Biological Control in Basra Province

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Abstract

A diagnostic and environmental study of some species of Order: Coleoptera belongs to Fammily : Dytiscidae . The important parts drawn and described for classifying species and put taxonomic key. The impact of environmental conditions in study area showed the presence and spread of species and their role as a larvae predators and pupae on adults mosquito *Culex quinquefasciatus* and also compete with each other during the study of predation relationship and the statement of the phenomenon of self-predation (Cannabalism) in the same species .

The study revealed there is five species belonging to the family of water submarine beetles (Fam : Dytiscidae) as showed below.

1. *Colymbetes piceus* (Klug, 1834) Subfamily: Colymbetinae
2. *Cybister tripunctatus* (Oliv., 1785) Subfamily: Cybistrinae
3. *Hydaticus ponticus* (Sharp, 1882) Subfamily: Dytiscinae
4. *Hydrovatus clypealis* (Sharp, 1876) Subfamily: Hydroporinae
5. *Laccophilus minutus* (Linnaeus, 1758) Subfamily: Laccophilinae

Species *C. piceus* the body average length 16-18 mm and head is black with brown base ,the front dorsal plate brownblack and yellow from both sides but *C. tripunctatus* that its length is larger than 24-29 mm and a sleek sheath does not contain sexual engraving, but *H. ponticus* body length of 10-15 mm, head umber is brown to yellowish and the front back plate is yellow which has provided black strap at the base. The species *H. clypealis* that its length is larger than 2-3 mm , that the body convex oval broad, wrist consists of four pieces in the first and second pair of legs, but *L. minutus* that its length is larger than 4.1-5.7 mm , characterized that a front base (Pronotum) zigzagging back, sheath has a reticular lines..

The study of annual presence to family Dytiscidae is started between November 2015 until the end of October 2016. Results showed that the

highest rate of the species was in the *H. ponticus* reaching 5.78 insect / month, and the lowest rate 0.13 insect / type of species *C. tripunctatus* . Alemdaina station recorded the highest rate of the presence of the species, reaching 3.25 insect / month whereas Qurna Station was lowest rate reaching 1.87 insect / month. The results showed that the highest rate of the presence of the species during the months was in the November at a rate of 4.41 insect / month, while the least insect rate was 0.96 / month for the month of July.

The study included the impact of certain environmental conditions and the presence of which degrees air temperature, water, dissolved oxygen, pH and water salinity in the five main stations in the districts of the Basrah province which are Qurna , Almdaina , Shatt al-Arab , Abo-Alkaseeb and the city center of Basrah province.

The study recorded the highest temperature of air and water for the month of July was 43.23 º C and 32.58 º C, respectively, while the lowest was 17.07 ºC and 18.80 º C, respectively, for the month of January. The results showed a higher rate of oxygen dissolved in the Shatt al-Arab and amounted to 5.50 mg / l while the lowest rate was in the center of the Basrah province and reached 5.25 mg / l. The study indicated that pH values were close to all stations and characterized a light alkali where rates between 7.44 - 8.16 in all the stations as well it was observed that the highest salinity rates were in Abu-Alkaseeb station reached 7.01 ds m^{-1} while less than the rate of 5.04 ds m^{-1} for the station of Almdaina.

The study found the results of the most important linear relationships and correlation treatments between the population density of the species and attributes measured the highest correlation coefficients were between the presence of species through the expense of numerical density are full with water temperatures and salinity during the months of the year, amounting

to -0.84 and -0.79 respectively, while the influence of dissolved oxygen and pH was less than it before as they relate reached coefficient as 0.67 and 0.55 respectively.

The results of the biocontrol on the larvae and pupae mosquitoes is superior kind *Cybister tripunctatus* on the rest of the studied species was predation rate on larvae 35.22 larvae / day and the pupae 29.78 pupae / day, while the lowest rate was 1.56 larvae / day and 1.33 pupae / day for the type *Hydrovatus clypealis*.

Predation experiments between species recorded outweigh species *Cybister tripunctatus* The highest predation rate on the species *Hydrovatus clypealis* reached 3 insect / day on the second day, while the lowest rate of predation was the species *Colymbetes piceus* reaching 0.55 insect / day on the third day, while Cannibalism experiments It scored higher predation rate for members of a species *Laccophilus minutus* reached 0.72 insect / day, while not recorded any case of a self-devouring type *Cybister tripunctatus.* .