



# The first record of insect *Podura aquatica* L. (Collembola, Isotomidae) in southern Iraq with some environmental parameters effect on its density

<sup>1</sup>Anfas N. Okash, <sup>2</sup>Naeem S. Hammadi, <sup>3</sup>Murtatha Y. Al-Abbad

<sup>1</sup> Ecology department, College of Science, University of Basrah, Iraq; <sup>2</sup> Department of Fisheries and Marine Resources, College of Agriculture, University of Basrah, Iraq;

<sup>3</sup> Biology department ,College of Education for Pure Sciences, University of Basrah, Iraq.  
Corresponding author: A. N. Okash, anfas.okash@uobasrah.edu.iq

**Abstract.** Generally, Collembola does not attract the attention of researchers and the studies on it are limited in the Middle East and especially in Iraq. This is the first record of the insect *Podura aquatica* in the region of south Iraq, it appeared during winter and spring seasons, and it completely disappeared during summer. The study showed the relation between the insect and some environmental parameters such as temperature, PH, electric conductivity (EC), and total organic carbon (TOC). There was significant negative correlation between the insect density and temperature, pH, and TOC. While there was a weak positive correlation between density and EC. The area of study suffered from high levels of organic matter due to the dumping of sewage water of Basrah governorate into Shatt Al-Basrah River, and it increased in summer due to the death of attached algae and tidal plants.

**Key Words:** Shatt Al-Basrah, springtail, wastewater.

**Introduction.** Collembola - popularly known as springtail are small primitive and wingless insects. English entomologist Sir John Lubbock gave the name of Collembola in 1870 for this group of insects (Lubbock 1873). These insects are small with a range of sizes from 0.25mm to 6 mm in length and vary in color (Greenslade & Ireson 1986). There are 7,500 described species around the world (Hopkin 1997).

Their antennas have 4 to 6 segments. They are minor pests in agriculture, but their importance as a biological factor in the process of soil formation is important. Many Collembolan species are now a vital indicator of soil pollution as well soil fertility. Collembola has a very wide distribution, occurring all over the world, and in many habitats, even in the south polar region (up to 77° latitude south in Antarctica) (Sinclair & Sjurksen 2001; McGaughran et al 2011). Few species live permanently on glaciers or frozen areas. The greatest variety of insects is found in regions with high organic matter content in soil. Some species live freely on the surface of the water (i.e., *Podura aquatica*). They are less abundant in dry habitats. Approximately, there are 7,500 described species in the world (Hazra & Mandal 2007).

The common name for insects of this group is springtail, given due to the existence of an organ attached to the ventral surface of the fourth abdominal segment of the abdomen. It is present in most species, and sometimes it is absent or weakly growing. The structure consists of a pair of appendages fused in the base to form the manubrium. From this basal part there is a pair of separate structures known as dentes, attached with a small hook-like structure called mucrones (Richards & Davies 1977; Gillott 2005).