

A taxonomic study for four species of Isopoda in Central part of Iraq

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ABSTRACT

This study is the first one in Iraq. A total 388 specimens were collected from the period April to December 2018 in central of Iraq. Four species were identified and all of them belong to Isopoda. They are *Porcellioscaber* (Latreille, 1804), *Porcellios pinicornis* (Say, 1318), *Procellionides pruinosis* (Brandt, 1833), *Armadillidiumvulgare* (Laterielle, 1804) in some areas of central part of Iraq.

Key word : Isopoda, Porcellio, Porcellionides, Armadillidium, Crustacea.

Introduction

The order isopoda belong to the class Malacostraca-Crustacea. These groups are characterized by the fact that their body is divided into three parts : Cephalothorax, pereon and peleon, and their size ranges between (0.3–50) cm (Rodcharoen *et al.*, 2017), the terrestrial Isopoda included more than 3000 species and it has the ability to resist difficult environments and this explains its wide spread (Browne, and Paszkowski, 2014). Also, its economic importance lies in the fact that it is abiological indicator for the fertility of the soil (El-Wakeil, 2015). It was widely identified in U.K., Ireland Russia, Hungarian, Australia, New Zealand (Hopkin, 2012); USA, Canary Island, Argentina, Italia, Japan (Fernandez-Palacios *et al.*, 2015) and Asia, Africa (Roy *et al.*, 2014). But this group was identified for the first time in Iraq especially since most of the studies were concerned with the aquatic environment of the invertebrate, and the aim of this study was to shade light on groups similar to terrestrial Isopods, Especially some species have been used as

an indicator of the nature of agricultural land and its protection from the dangers of drought and desertification, Despite its wide spread in Iraq and its tremendous diversity during the months of the year, especially in spring and early summer, most of the species have not been classified yet.

Materials and Methods

The regions of central Iraq were diagnosed for the purpose of collecting and identifying the samples (Plate 1) for the period from April to December 2018, using a manual tweezers and keeping them in plastic bottles, then the samples were isolated and washing them in the laboratory and saving in 70% ethanol (Roy *et al.*, 2014).

The samples were identified by using a dissecting microscope (1 x, 2x), imaging with phone camera (Galaxy not 5) and depending on Rife, 2000; Hopkin (2012); Farkas and Vilisics (2013); Judd and Perina (2013); Taitiand Rossano (2015); Minor *et al.* (2016).

Results and Discussion

388 samples were diagnosed and identified from the study area in central Iraq (Plate 1), four samples were classified as:

1. *Procellioscaber* (Laterille, 1804): This species and the others has been studied environmentally by Al-Nori (2014). The average length of this species is 13 mm (Plate 2-a).
 - a. Cephalothorax: with straight back edge, the head is round, with three lobes, with compound black eyes consisting 16 ocelli (Plate 2-b).
 - b. pereon: the outline of edges peleon and pereon a smooth line, it is not able to roil into aball.
 - c. Peleon: the exopod not pointed, the endopod is long prominent outside and not pointed (Plate 2-c). So these traits were found in the samples studies by Saba and Jaweir (2016).
- 2- *Porcellios pinicornis* (Say, 1818): The body is shinyyellow with dark central stripe.it's average length 14 mm (Plate 3-a).
 - a. Cephalothorax: the head black and darker than the body with three lobes and compound eyes (18ocelli), the antenna with spine (Plate 3-b).
 - b. Pereon: it is characterized by roughness of its dorsal surface with thorny like spine, and the edge of the pereon straight with peleon.
 - c. Peleon: the exopod like spear and the telson is pointed (Plate 3c). This is consistent with Hassan and Jweir (2010) study.
3. *Porcellionides pruinosus* (Brandt, 1833): The body is pale brown with black spots on its dorsal surface, and the average length is 11 mm (Plate 4-a).
 - a. Cephalothorax: the head is rounded without lobes, with compound small eyes (8 ocelli), and brown to gray in color (Plate 4-b).

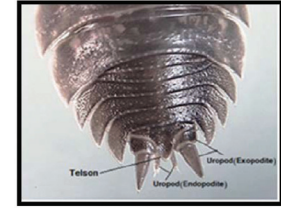
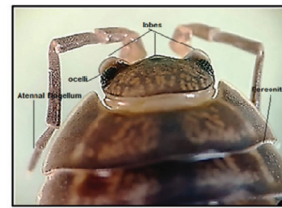


Plate (2). *Procellioscaber*. (a. The mean length, b. The cephalothorax, c – Dorsal view of uropod and telson) .

- b. Pereon and Peleon: the edge of peleon marrow than the edge of pereon, the exopode is square shape from the top and obtuse from the lower. The endopode is short, while its telson is short and rounded (Plate 4-c). This study is similar to the study of Al-Salman (2012).
4. *Armadillidium vulgare* (Latreille, 1804): Its body dark gray, roll in to a complete ball when disturbed, the average length 13 mm (Plate 5-a).
 - a. Cephalothorax: the head without lobes, with compound eyes (18o celli), and the edge of the peleon is triangular (Plate 5b).
 - b. Pereon and Peleon: the edge posterior pereonite 7 straight with peleonites 1. The telson triangularso that the exopode and the endopode is small (Plate 5c). In Iraq, there is same studies



Plate 1. A map showing the study areas in Iraq.

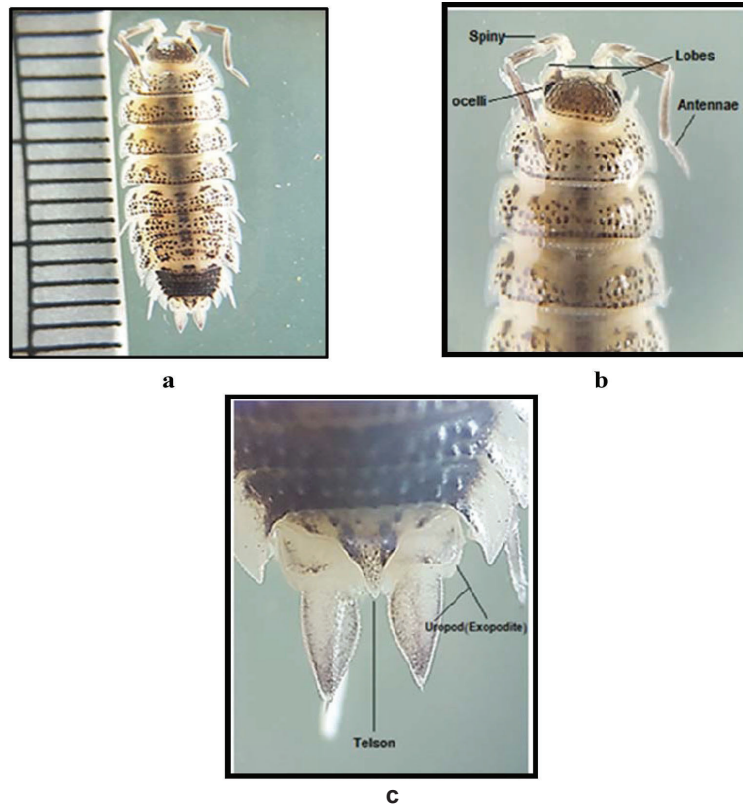


Plate (3). *Porcellios pinicornis* (a. The mean length. b. The cephalothorax, c. Dorsal view of uropod and telson).

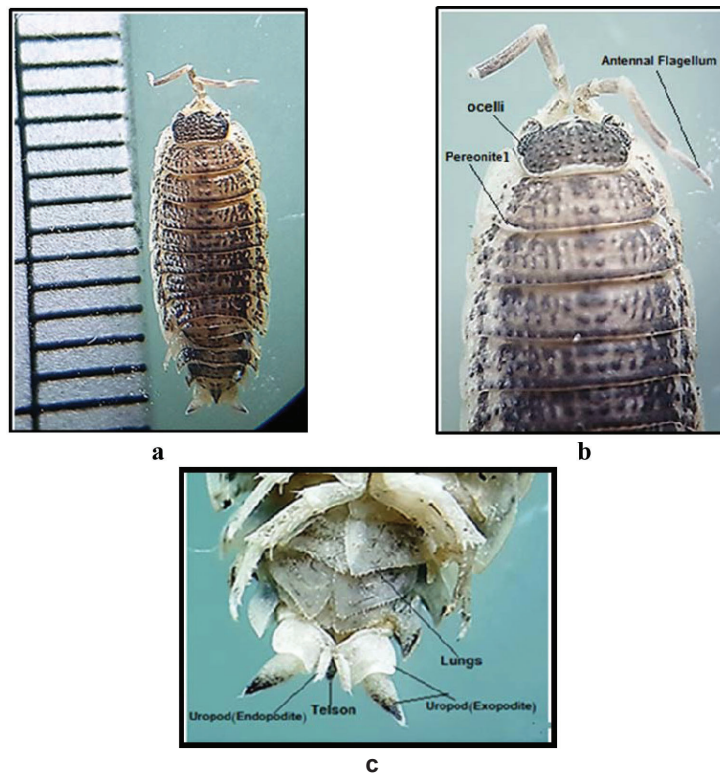
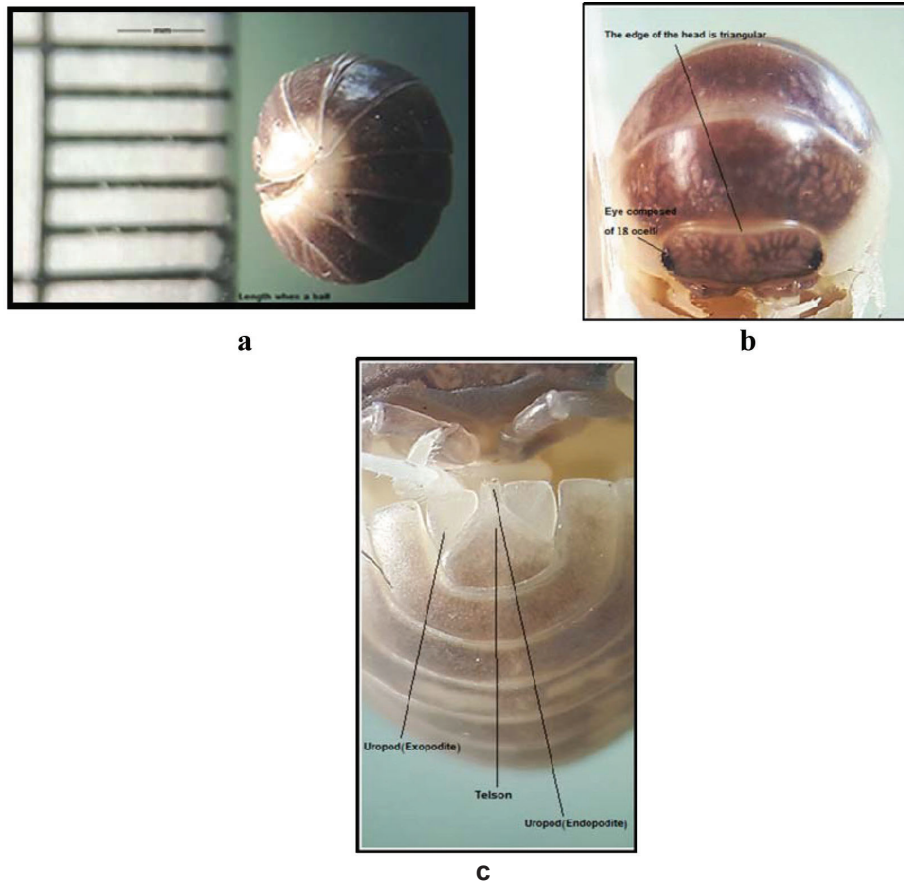


Plate (4). *Porcellionides prunosus*. (a. The mean length. b. The cephalothorax, c. Ventral view of uropod and telson).

Table 1. The locations of the species (+) existing, (-) not exist.

Al-Anbar	Qadisiyah	Diyala	Babylon	Baghdad	Species
+	+	-	+	+	<i>Porcellioscaber</i>
-	-	+	-	+	<i>P.spinicornis</i>
+	-	+	+	+	<i>Porcellionidespruinosis</i>
+	-	+	-	+	<i>Armadilliumvulgare</i>

**Plate (5).** *Armadillidium vulgare*. (a. The mean length as a ball, b. The cephalothorax, c. Dorsal view of uropod and telson).

on the environment of these species like Al Bayati and Jweir (2016), so this article is a part of master thesis Hansh. (2019). These four species were studied taxonomically for the first time, in some areas in central of Iraq (Table 1).

References

- Al Bayati, S.S.S. and Jweir, H.J. 2016. A study of terrestrial environment of some date palm groves in Baghdad/ Iraq . *Baghdad Sciences Journal*. 13(1) : 1-6.
- Al-Nori, I.M.J. 2004. Ecology and Population study of four species of Terrestrial Isopoda in Al-Jadriya District – Baghdad – Iraq. A thesis submitted to the College of Science for Women, University of Bagdad.
- Al-Salman, I.M.A. 2012. Testing the ability of *Porcellionidespruinosis* (Brandt 1833) Isopoda- Crustaceans to decompose and consomecellulosean wastes indifferent ecosystems. *Baghdad Science Journal*. 9(3) : 397-405.
- Browne, C.L. and Paszkowski, C.A. 2014. The influence of habitat composition, season and gender on habitat selection by western toads (*Anaxyrusboreas*), Herpetological Conservation and Biology. *Herpetological Conservation and Biology*. 9(2): 417–427.
- El-Wakeil, K.F.A. 2015. Effects of terrestrial isopods (Crustacea: Oniscidea) on leaf litter decomposition processes. *The Journal of Basic and Applied Zoology*. 69: 10–16.

- Farkas, S. and Vilisics, F. 2013. A key to the terrestrial isopods of Hungary. *Natura Somogyiensis*. 23 : 89–124. In Hungarian.
- Fernandez-Palacios, J.M., Kueffer, C. and Drake, D. 2015. A new golden era in island biogeography. *Frontiers of Biogeography*. 7(1) : 13 – 20.
- Hansh, T.A. 2019. *A classification study for (Isopoda: Crustacea) in some Provinces of central Iraq*. A Thesis Submitted to College of education for pure science, Ibn Al-Haitham, Baghdad University, 115pp.
- Hassan, S.M. and Jweir, H.J. 2010. A study of some biological aspects of *Porcellioscaber* Laterellil 1804 (Isopoda: Porcellionidae). In Al-Jadriya region / Baghdad – Iraq. *Baghdad Science Journal*. 7(4) : 1310-1316.
- Hopkin, S. 2012. A key to the woodlice of Britain and Ireland. First edition 1991. Reprinted 2012. FSC 2012. *Publication Code*. 204 : 52 .
- Judd, S. and Perina, G. 2013. An Illustrated key to the morphospecies of terrestrial isopods (Crustacea: Oniscidea) of Barrow Island, Western Australia. *Records of the Western Australia Museum*. (83): 185-207.
- Minor, M., Meyer, V., Robertson, A. and Taiti, S. 2016. Illustrated key to terrestrial Isopoda of New Zealand. Working paper update, <http://nzslaters.massey.ac.nz>.
- Rife, G.S. 2000. Key to the isopoda of Ohio-after “AAW 1964”. The entomology Greenhouse, Ohio state university.
- Rodcharoen, E., Bruce, N.L. and Pholpunthin, P. 2017. *Cirolanaphuketensis*, a new species of marine isopod (Crustacea, Isopoda, Cirolanidae) from the Andaman Sea coast of Thailand, Zoo Keys. Pensoft Publishers. 695 : 1.
- Roy, D.B., Harding, P.T., Perston, C.D. and Roy, H.E. 2014. Celebrating 50 years of the Biological Records Centre. NERC/Centre for Ecology and Hydrology: 34 pp.
- Saba, S.S. and Jaweir, H.J. 2016. A study of soil invertebrates community in Date-Palm plantation in Baghdad – Iraq. *Baghdad Science Journal*. 13(1) : 1–6.
- Taiti, S. and Rossano, C. 2015. Terrestrial isopods from the Oued Laou basin, north-eastern Morocco (Crustacea: Oniscidea), with descriptions of two new genera and seven new species. *Journal of Natural History*. 49(33–34) : 2067–2138.