

## New Record Species Of Freshwater Ostracoda From Middle Of Iraq

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### Abstract

The current study included the record of a new genus and species for the first time to Iraq of the genus *Pseudocandona* Kaufmann, 1900 from Iraq\Karbala province. This species is close to the species *Pseudocandona* *zschokei* (Wolf, 1920) which is characterized by being carapace stout in lateral view. Dorsal margin straight to slightly concave in the middle. As for the species under study, it is characterized by: Carapace irregular to semi-triangular in lateral view, covered with small pits, anterior and posterior margin with small bristles. This masticatory process with two spinose teeth, uropod attachment with two branches.

### Keywords

Candonidae, *Pseudocandona* new record, Iraq.

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### Introduction

Ostracoda are small, bivalve crustaceans belonging to the phylum Arthropods. Their length ranges between 0.1-5 mm (Meisch, 2000) and lives in most aquatic habitats. Carapace covers the entire body, and it consists of two dorsally connected valves. Carapace suffers from moulting until it reaches adulthood. Ostracoda has a complex soft body consisting of eight pairs of appendages that perform several functions such as sensing, locomotion, cleaning, mating and feeding (Smith & Delorme, 2010; Horne et al., 2002; Meisch, 2000; Karanovic, 2012).

The specific morphology of the limbs is used for taxonomic identification.

These limbs have specific morphology that are important in taxonomic identification. In the past, there are about 2000 living species that live freely in fresh water and 200 parasitic species (Martens et al., 2008). Ostracoda is of great importance in evolutionary and environmental research, and in basic and applied research in palaeontology in a wide range during the decades (Martens and Horne, 2009). It also gives accurate information about the dynamics of permafrost and the climate during the late Quaternary.

(Wetterich, 2005; Kienast et al., 2011; Wetterich et al., 2009; Kuzmina et al., 2008)

The order Podocopa is a freshwater form that has two suborders (Metalcopina and Podocopina) (Delorme, 2001).

The subfamily Candoninae is one of the most subspecies that possesses a huge diversity of species in fresh water. It lives in most freshwater habitats as well as in subterranean waters. There are few species that are found in brackish water. The candoninae includes more than 250 recent species (Krstic&Shao.Zeng, 2000). )Among the 25 genera, 18 have a convincing prognosis with good different characteristics. (Meisch, 1996; Karahoric, ,1999 ,2001) Where Pseudocadona is a genera of the family Candoninae, the taxonomy is uncertain status.The genusPseudocadona has several distinctive characteristics, being surface , either smooth or pitted , and often has long stiff setae.carapace in different shapes, elongated or triangular in side view. LV over lops RV ventrally . This gene includes 35 live species (Meisch, 2000)

### Materials and Methods

Six samples collected from Aldewehiyah region / Holy Karbala province on August 2004 (32°, 34' 19.09" N44 °12'03.29"E)Fig.(1) by using zooplankton net . Samples preserves by using 70% Ethanol with drops of glycerol anddissected by fine pins to remove carapace and other appendages. Finally Specimens were drawingbyCamera lucida and characteristics were examined by using identification keys from Brons~tejn (1947), Henderson (1990), Meisch (2000) Fuhrmann (2012)





Fig (1) :Study area

## Results and Discussion

*Pseudocandona* sp. This species was recorded for the first time in Iraq.

## Systematic

Phylum; Arthropoda Latreille, 1829

Class: Crustacean Brunnich 1772

Order : Ostracoda Latreille, 1806

Family: Candonidae Kaufmann, 1990

Genus : *Pseudocandona* Kaufmann, 1900

Species : *Pseudocandona* sp.

## Description :

**Body ,Fig.2:** Carapace irregular to semi triangular in lateral view, 0.60 mm long. Colour white, covered with small pits. Eyes fused. Anterior and posterior margin with small bristles. Adductor muscle scars four and centric.

**Right valve, Fig.3:** Irregular shape. Surface with groups of small pits distributed in different places. Dorsal margin straight. Anterior and posterior margin with small bristles. Ventral margin slightly concave. Calcified inner lamella slightly convex.

**Left valve ,Fig.4:** Irregular shape to semi-square in lateral view. Dorsal margin straight. Ventral margin slightly concave. Anterior and posterior margin with small bristles. Surface with small groups of small pits.

**1<sup>st</sup> Antenna ,Fig.5 :** Consist of six segments. Natatory setae long and well developed

**2<sup>nd</sup> Antenna ,Fig. 6 :** Consist of four segment. Exopod reduced with 2 short and 1 long seta.Endopod two segments : first ,supplied by natatory seta (5+1),Second with two smooth seta , five claws and on feathery setae.

**Mandible ,Fig.7 :**Basal with five teeth at end edge. Palp consist of six segments. Vibrating plat with five seta , four smooth and long and one short and feathery . apex with 3 spine.

**Maxilla ,Fig. 8 :**Vibrating plate with 21 feathery seta , basal : third mastic atory processes with tow spine thick teeth. Palp long and thin with three spains.

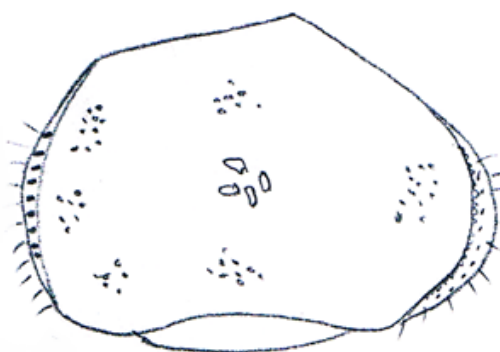
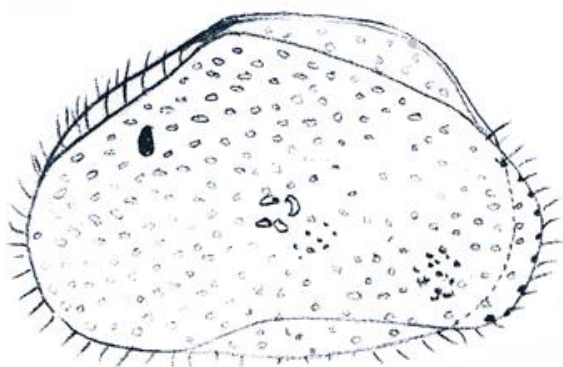
**1<sup>st</sup>Thorcoopoda , Fig.9:** vibrating plate with four stout seta . masticator process bear ten seta.

**2<sup>nd</sup>Thoracood, Fig 10:** Five segmet,Second with three seta and three groups of hairs. Last segment bear one long claw and on short setae.

**3<sup>rd</sup>Thoracopod, Fig. 11:** Three segments ,terminal bear one reversed seta and short enlarged seta.

**Uropod ,Fig .12:**Posterior end bear two claws and two seta. Uropodal attachment with two branch.

0.05mmA B



C

DE0.01mm

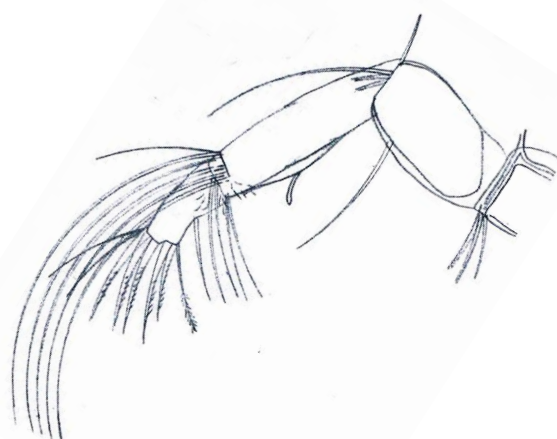
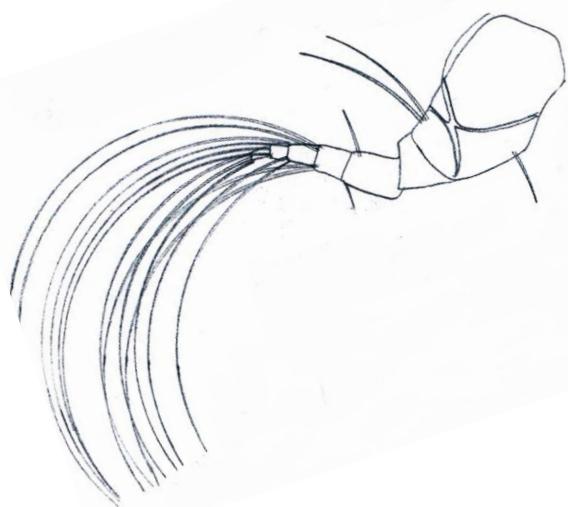
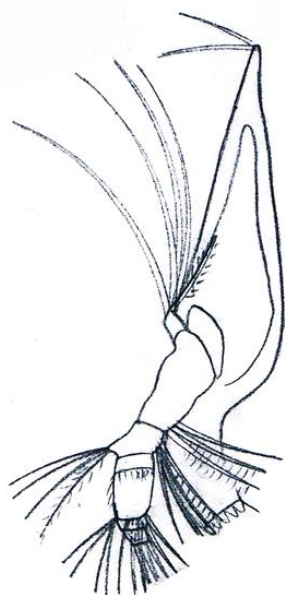
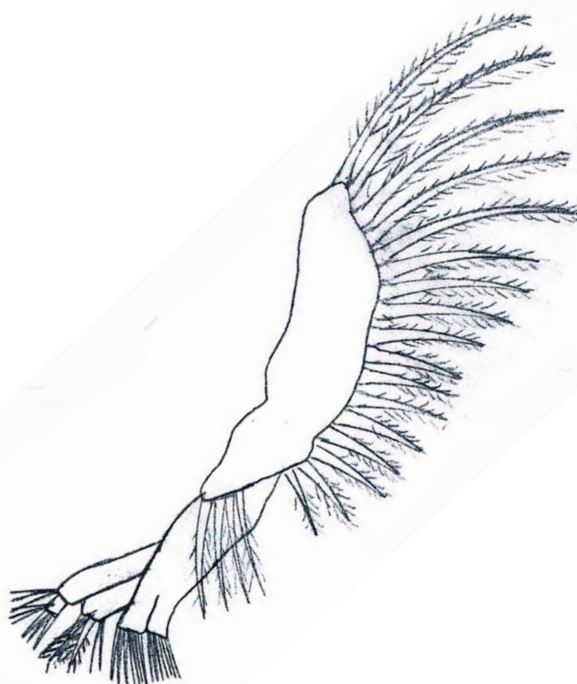


Figure 1 :Pseudocandona sp. A;Adult female B;Right valve C; Left valve D;First Antenna E; second Antenna .

0.01mm

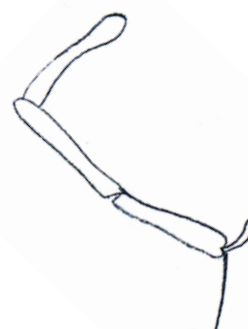
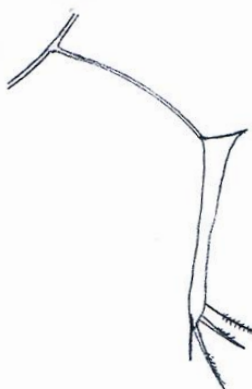
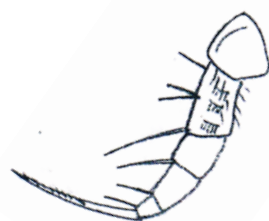


A B





C



E

D

F

Figure 2 :Pseudocandona sp. A;Mandible B; Maxilla C; first thoracopod D; Second thoracopod E; Thidr thoracopod F;Uropod.

## References

**Bronstein, Z. S.** 1947. Ostracodes des eauxdouces. In: Faune de l'URSS. Crustacés (Eds. E. N. Pavlovsky and A. A. Stackelberg). InstitutZoologique de l'Académie des Sciences de l'URSS, N.S, Moscou-Leningrad, 31, 2, 1, 1-339.

**Delorme, L. D.** (2001) 'OSTRACODA', Ecology and Classification of North American Freshwater Invertebrates, pp. 811–848. doi: 10.1016/B978-012690647-9/50021-1.

**Fuhrmann R.** (2012). Atlas quarta`rer und rezenter Ostrakoden Mitteldeutschlands. (Atlas of Quaternary and recent ostracods of central Germany.) Altenburg, Germany: Natural History Museum Mauritianum.

**Henderson P.A.**(1990). Freshwater ostracods: keys and notes for the identification of the species. London: Linnean Society.

**Horne D.J., Cohen A. & Martens K.** (2002). Taxonomy, morphology and biology of Quaternary and living Ostracoda. In J.A. Holmes & A.R. Chivas (eds.): The Ostracoda: applications in Quaternary research. Pp. 5?36. Washington, DC: American Geophysical Union.

**Karanovic, I.** (1999). A new genus and two new species of Candoninae (Crustacea, Ostracoda) from Montenegro (SE Europe). Mémoires de Biospéologie, 26, 47-57.

**Karanovic, I.** (2001). Meischcandona gen. nov. from Africa, with a key to the genera of the subfamily Candoninae (Crustacea, Ostracoda). Bulletin de l'Institut Royal des Sciences naturelles de Belgique, Biologie, 71, 93-99.

**Karanovic I.** (2012). Recent freshwater ostracods of the world. Heidelberg: Springer.

**Kienast F., Wetterich S., Kuzmina S., Schirrmeister L., Andrev A.A., Tarasov P., Nazarova L., Kossler A., Frolova L. & Kunitsky V.V.** (2011). Paleontological records indicate the occurrence of open woodlands in a dry inland climate at the present-day Arctic coast in western Beringia during the Last Interglacial. Quaternary Science Reviews 30, 2134?2159

**Krstić, N.; Shao-zeng, G.** (2000). A proposal for the systematics of the subfamily Candoninae (Ostracodes) with the description of the Macedocandona, new genus. GeologicaMacedonica, 14, 25-48.

**Martens, K. (ed.)** (1998). Sex and Parthenogenesis – Evolutionary Ecology of Reproductive Modes in Non-marine Ostracods. Backhuys Publishers, Leiden, 334 pp.

**Martens K., Schön I., Meisch C. & Horne D.J.** (2008). Global diversity of ostracods (Ostracoda, Crustacea) in freshwater. Hydrobiologia 595, 185?193.

**Martens, K. and Horne, D. J.** (2009) 'Ostracoda', Encyclopedia of Inland Waters, pp. 405–414. doi: 10.1016/B978-012370626-3.00184-8.

**Meisch, C.** (1996). Contribution to the taxonomy of Pseudocandona and four related genera, with the description of Schellencandonanov. gen., a list of the Candoninae genera, and a key to the European genera of the subfamily (Crustacea, Ostracoda). Bulletin de la Société des Naturalistesluxembourgeois, 97, 211-237. —. 2000. Freshwater Ostracoda of western and central Europe. In: Süßwasserfauna von Mitteleuropa (Eds). J.

**Meisch C.** (2000). Freshwater Ostracoda of western and central Europe. Berlin: Springer.

**Smith A.J. & Delorme L.D.** (2010). Ostracoda. In J.H. Thorp & A.P. Covich (eds.): Ecology and classification of North American freshwater invertebrates. Pp. 725-773. Amsterdam: Elsevier.

**Wetterich S., Schirrmeister L. & Pietrzeniuk E.** (2005). Freshwater ostracods in Quaternary permafrost deposits from the Siberian Arctic. *Journal of Paleolimnology* 34, 363-376.

**Wetterich S., Schirrmeister L., Andreev A.A., Pudenz M., Plessen B., Meyer H. & Kunitsky V.V.** (2009). Eemian and Late Glacial/Holocene palaeoenvironmental records from permafrost sequences at the Dmitry Laptev Strait (NE Siberia, Russia). *Palaeogeography, Palaeoclimatology, Palaeoecology* 279, 73-95