

SHORT COMMUNICATION
NEW RECORD OF THE LAND SNAIL *POLYGYRA CEREOLUS*
(MEGERLE VON MÜHLFELD, 1818)
(GASTROPODA, STYLOMMATOPHORA, POLYGYRIDAE) FOR
MALACOFUNA OF IRAQ

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ABSTRACT

In this study, the specimens of land snails *Polygyra cereolus* (Megerle von Mühlfeldt, 1818) (Gastropoda, Stylommatophora, Polygyridae) are collected between March and April 2021 from gardens and nurseries in Baghdad province, this species was recorded as a new record to Iraq molluscan fauna. Description of the most important characteristics, measurements of the shell are presented with digital photographs, subsequently this study represents the first record of the Polygyridae in Iraq.

Keywords: Gastropoda, Iraq, *Polygyra*, Polygyridae, Snail.

INTRODUCTION

Phylum Mollusca has about 100,000 living described species (Hickman *et al.*, 1982), Gastropoda is the largest class of phylum Mollusca, about 40,000 living species belong to it, with six subclasses were recognized in the recent taxonomy of Gastropoda according to Bouchet *et al.* (2017); Stylommatophora, the order of terrestrial Mollusca is one of the subclass heterobranchia which comprises over 15000 described species (Steinbeck, 1945), distributed among 40 families (Myers *et al.*, 2021).

Land snails are poorly studied in Iraq; some records of land families, genera, and species of Iraq are available according to (Pallary, 1939; Germain, 1921; Biggs, 1959). Many species of the family Helicidae have been recorded from Iraq; this family represents one of the most locally common land snails' families. Polygyridae Pilsbry, 1895 is a family of terrestrial pulmonate gastropods, belongs to the order Stylommatophora. It includes about 23 genera with 230 species, their size of species are ranging between 4-44 mm with globose shell,

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keeled or flattened (Pereze, 2008); and characterized by their thick ended reflected lip or peristome when reach sexual maturity (Webb, 1960). Their peristome may have 1-3 teeth, polygyrids active in moist conditions and some species burrow deep in soil during drought, and this family is widespread in North America (Pereze, 2008).

The genus *Polygyra* Say, 1818 characterized by helicoid shell, globose or depressed globose to lens-shaped or planorboid; carinated or rounded periphery, closed or open umbilicus, surface striated or hirsute, well reflexed lip; aperture typically obstructed by three teeth; one parietal, two upon the lip (Walker, 1906). *Polygyra cereolus* (Megerle von Mühlfeldt, 1818) is the only species in the genus *Polygyra* to have been reported as an invasive species, it is a North American, Florida- native snail and has been spread extensively with ornamental plants and other agricultural products (Charles and Lenoble, 2020).

Recently, many regional and neighboring of Iraq countries have been recorded this species for the first time, Saudi Arabia (Neubert, 1995), United Arab Emirates (Feulner *et al.*, 2005), Qatar (Al-Khayat, 2010), Turkey (Frank, 2016), Egypt (Ali and Robinson, 2020).

Due to the lack of studies on this group, the current study was suggested to add new information about malacofauna in Iraq.

Specimens' collection

Snail specimens (n=35) were collected by direct hand picking from some gardens and nurseries in Baghdad province from the period between March and April 2021, at a temperature ranging between (23°C-33°C) snails are found at the soil surface of irrigated seedlings of *Rosa* sp., citrus and ornamental rose, and near shrubs in the gardens (Tab.1, Pl. 1).

Table (1): Collected specimens with data.

No	Number and State of the specimen	Plant	Locality	Date	Geographical Co-ordinates
1	11 empty shells or dead Molluscan	Citrus seedlings	Nursery, Palestine street	25.iii.2021	33°21'43.6" N 44°25'56.5" E
2	1 alive Molluscan and 11 empty shells or dead Molluscan	<i>Rosa</i> sp. seedlings	Nursery, Palestine Street		
3	4 alive Molluscan and 6 empty shells or dead Molluscan	Ornamental rose seedlings	Nursery, Al - Adhamiya	3.iv.2021	33°23'31.8" N 44°21'42.9" E
4	2 empty shells or dead Molluscan	Shrubs	Garden/ Bab Al-Muadham/ Ibn Rushd Education College	18.iv.2021	33°21'13.3" N 44°23'26.6" E

The collected specimens are washed with water and preserved in 80% ethanol alcohol; the identification of snails is carried out based on the shell characters according to a specific diagnostic key (Pratt, 1981) then photographed by Optika digital camera connected to dissecting microscope. Specimens were deposited in the Natural History Museum and Research Center/ University of Baghdad.

Taxonomy and description

In this study, the family Polygyridae is recorded for the first time in Iraq, and the fact that the identification of this family was after collecting many specimens belongs to several land snail families in the studied regions previously recorded in Iraq, therefore, the first step was constructed simple identification key to separate these families as below:

Identification key to some Iraqi terrestrial snail families:

- 1- Shell higher than wide, conical or fusiform, uniform without color bands **Achatinidae**
- Shell wider than high.....2

- 2 - Large shell about 30mm in diameter, globose or subglobose white to creamy color with brown bands**Helicidae**
- Smaller shell, discoidal or depressed, ripped, aperture with reflected lip, umbilicus open**Polygyridae**

Class, Gastropoda

Order, Stylommatophora

Family, Polygyridae Pilsbry, 1895

Genus, Polygyra Say, 1818

Polygyra cereolus (Megerle von Mühlfeld, 1818)

Description (Pl.2): Discoidal shell, light brown to bronze in color, with radial white bands or lines in the lower surface; upper surface with regular ribs; spire slightly elevated; 6.5 whorls, protoconch of 2 whorls without ribs, from it the whorls slowly expanded, the periphery (last whorl) angular at upper, the base is slightly rounded; umbilicus open; the last whorl expanded near the aperture, aperture with reflected white lip, the inside of the outer and basal margins of peristome is reflected and thickened giving the aperture the heart or apple shape, the parietal margin possesses a short vertical tooth. The average measurements of 10 specimen shells shown in Table (2).

Table (2): Measurements of shells (in mm)

Shell diameter	Shell high	Aperture high	Aperture width
7.1 – 7.5	3.0 – 3.2	2.0 – 2.3	1.2 – 1.7

Habitat: due to its favorable moisture conditions that provided by irrigation this species is well acclimatized to gardens (Charles and Lenoble, 2020).The specimens of *P. cereolus*

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collected from irrigated soil in the shade these include areas beneath potted plants, on the soil surface of seedlings and under shrubs, thus the moist soil and shade was the preferable habitats.

Remark: *P. cereolus* is very closely in appearance with *P. septemvolva* Say, 1818 and the distinction between these two species has been consumed the efforts of Malacologists. The main and more obvious difference between these two species is in the umbilicus, the innermost four or five whorls in the former are less open so it has steeper-sided to its umbilical core than that of the second, for this umbilicus in *P. cereolus* appear less open and more funnel-shaped in comparison with that's of *P. septemvolva* (Lee, 1998).

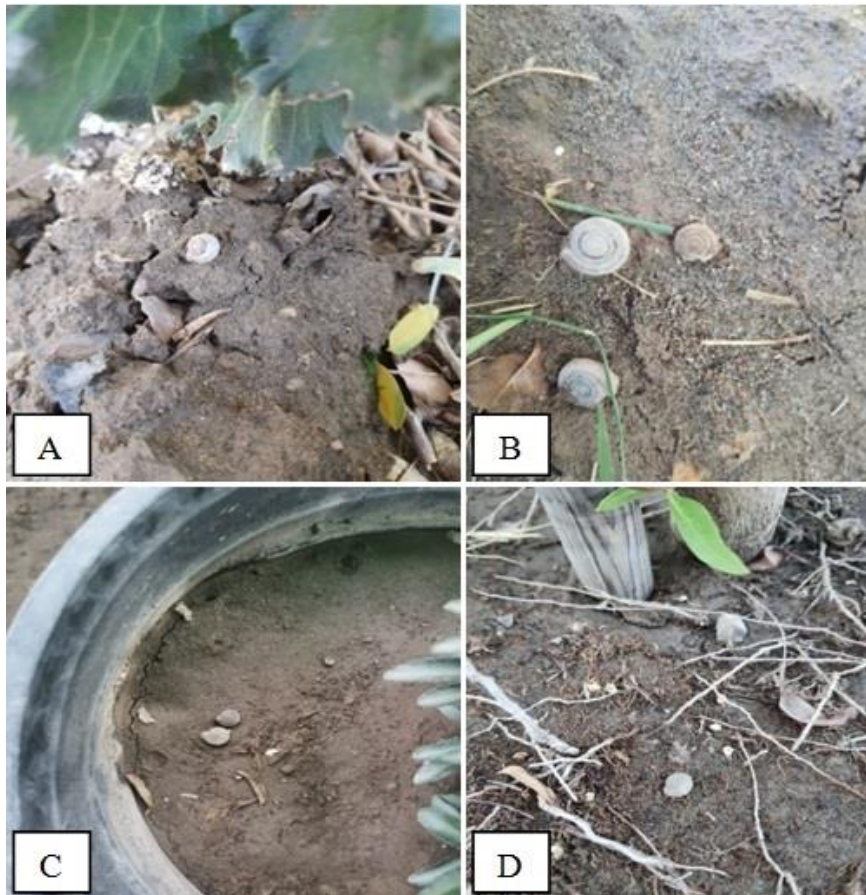


Plate (1): *P. cereolus* found in: (A) Adamiyah, (B) Bab Al Muadham, (C, D) Palestine street.

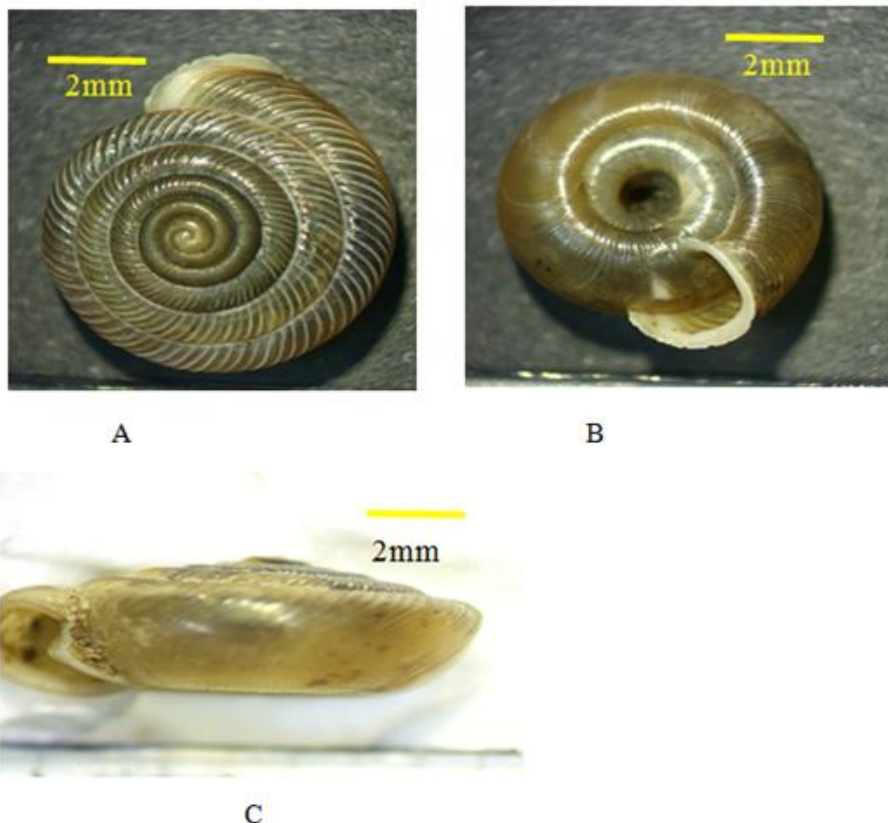


Plate (2): *P. cereolus*; (A) Dorsal view, (B) Ventral view, (C) Lateral view showing angular last whorl.

CONFLICT OF INTEREST STATEMENT

The results of the current study are part of the requirements of M.Sc. in Zoology, Department of Biology/College of Science-University of Baghdad for the first author. Also, we are the authors of this manuscript, declare and confirm that no significant financial or other relationship with any official institution.

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تسجيل جديد للحلزون الارضي

***Polygyra cereolus* (Megerle Von Mühlfeld, 1818)**

(Gastropoda, Stylommatophora, Polygyridae)

لفونا الرخويات في العراق

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الخلاصة

جمع خلال هذه الدراسة عينات من الحلزون الأرضي (*Polygyra cereolus* (Megerle von Mühlfeld, 1818) خلال شهري اذار و نيسان لعام 2021 من الحدائق والمشاتل في محافظة بغداد . سجل هذا النوع لأول مرة لفونا الرخويات في العراق.

ذكر في الدراسة أهم الصفات المظهرية وسجلت قياسات القوقع معززة بالصور، كما تمثل هذه الدراسة أول تسجيل لعائلة Polygyridae في العراق.