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Pupa affinis (A. Adams, 1855) (Gastropoda: Acteonidae) a newly recorded species from Iraq, with an updated checklist of the marine gastropods from the Iraqi coast

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Abstract

The present study is part of an ongoing project on the mollusc diversity of Iraq. Specimens of the gastropod *Pupa affinis* were collected live from the intertidal zone of the northwest of the Persian Gulf, Iraq, in the Fao region. The species was identified to species level using standard taxonomic literature. It is widely distributed in the Persian Gulf; however, this study provides the first record from the Iraqi coast. Also, a checklist of the marine gastropods from the Iraqi coast is provided and now comprises 32 species belonging to 30 genera within 24 families.

Key words: Fao region, Molluscs, Persian Gulf

Introduction

The class Gastropoda is part of the large phylum Mollusca. They include snails, slugs and their relatives and this class is very species rich. They can live in marine, brackish, freshwater and terrestrial systems (Bieler, 1992). In Iraq marine Mollusca are poorly studied and only a few species are reported from Iraqi waters (Ahmed, 1975; Al-Hassan and Al-Hasani, 1985). Ahmed listed 43 marine species of molluscs (25 gastropods), while Al-Hassan and Al-Hasani listed 24 species (10 gastropods). Interestingly, Glayzer et al. (1984) listed 62 families and 230 species of marine molluscs from the neighbouring Kuwaiti coastlines. A more recent list of Kuwaiti mollusc species is given by Al-Kandari et al. (2020). The length of the coast is much larger in Kuwait and the habitat variation is much larger in Kuwait, possibly explaining this difference.

An extensive treatment of the molluscan species from the Persian Gulf is provided by Bosch et al. (1995), but they do not give specific records for species from Iraq. Fossil molluscs (Holocene) from the Hammar Formation from Iraq are recorded by Eames and Wilkins (1957) and Dance and Eames (1966). Some, or maybe all, of those species could be expected to still live in Iraqi coastal waters. More information on these young Quaternary deposits can be found in Plaziat and Younis (2005).

In the present paper, an updated checklist of the marine molluscs of the North-west coast of the Persian Gulf, Iraq, with the first record of the species *Pupa affinis* from the Iraqi coast is provided.

Material and Methods

Three specimens of *Pupa affinis* were collected by the first author from the Fao region Iraq, north-west of the Persian Gulf at 29°56'57.47"N, 48°34'7.38"E (Fig. 1), on 12 July 2012, on intertidal boulders. The specimens are preserved in 70% ethanol and deposited in the Marine Science Centre (MSC), with the collection voucher number (99), University of Basrah, Iraq. Identification of the species was done using Bosch et al. (1995). Measurements of the shells were taken with an electronic calliper and are given to the nearest mm.

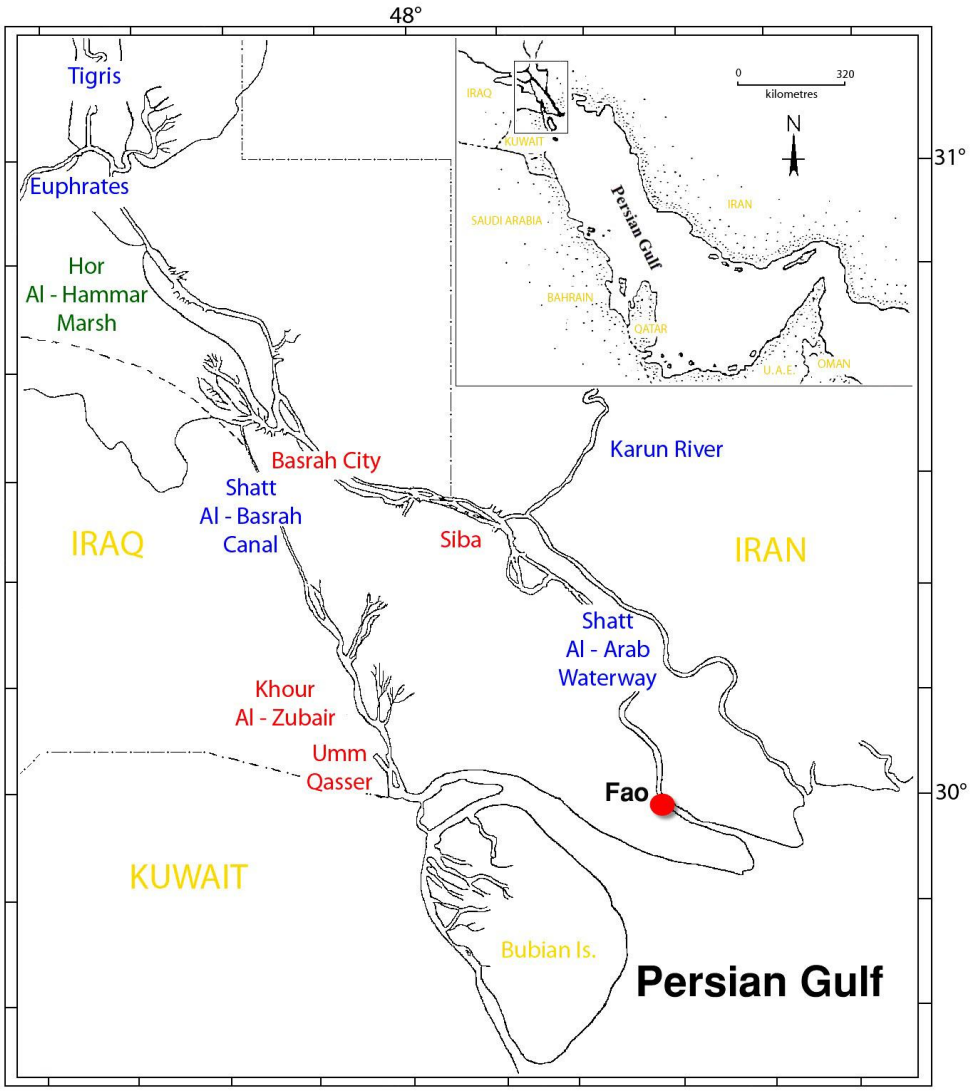

Figure 1: Collection site (red dot) for the gastropod mollusc specimens of *Pupa affinis*.

Results and Discussion

Superfamily: Acteonoidea d'Orbigny, 1842
Family: Acteonidae d'Orbigny, 1842
Genus: *Pupa* Röding, 1798
Pupa affinis (A. Adams, 1855) (Fig. 2A-B)

Shell description

Thin, glossy, elongate ovate shell, last whorl straight sided, sutures deep, base obliquely sloping below the double columellar fold. All whorls encircled by regular shallow pitted grooves. Two or three broad spiral bands of greyish-brown dashes per whorl?, which avoid the adjacent grooves. The aperture and columella are white. Light translucent orange periostracum (Fig. 2A-B) present. Maximum length was 20 mm with the other individuals at 18 and 17.5 mm. *Pupa affinis* lives in the intertidal zone, on muddy substrates or some can live on intertidal boulders.

The species is widely distributed in the Indo-West Pacific, and locally present in the Persian Gulf, Gulf of Oman and the south of Oman (Bosch et al., 1995). This is the first time it is recorded from the Iraqi coast.

Checklist of reported marine gastropods from the Iraqi coast

The most diverse families on the Iraqi coast are the Muricidae, Trochidae and Naticidae with 4, 3 and 2 species, respectively. In comparison, the Trochidae and Muricidae are represented by 7 and 6 species, respectively, from the Kuwaiti coast (Al-Kandari et al., 2020).

Family Fissurellidae Fleming, 1822
Genus *Diodora* Gray, 1821
Diodora funiculata (Reeve, 1850)
Ahmed (1975: 17, fig. 1)

Family Chilodontaidae
Genus *Euchelus* Philippi, 1847
Euchelus persicus (Martens, 1874)
Al-Hassan and Al-Hasani (1985: 20, as *Euchelis asper*).

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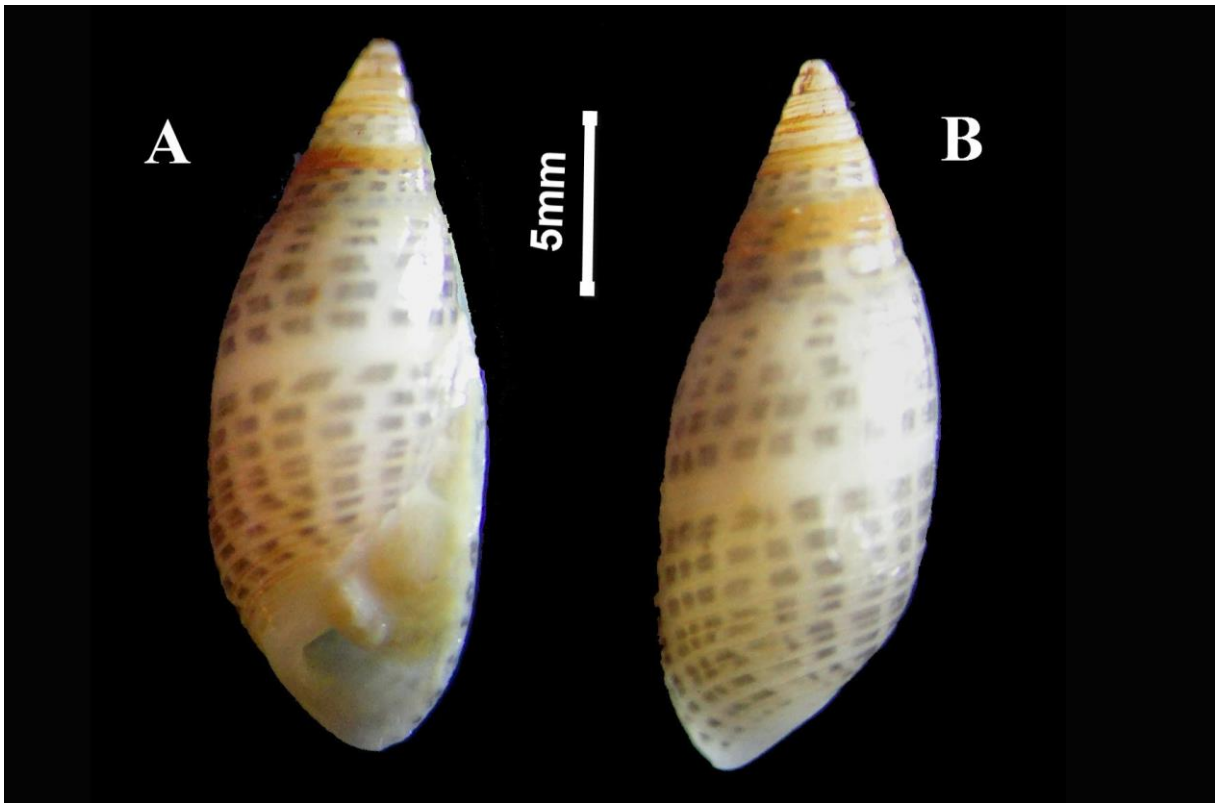

Figure 2: *Pupa affinis*, A, ventral and B, dorsal views, length 20 mm.

Family Trochidae
Genus *Priotrochus* P. Fischer, 1879
Priotrochus kotschyi (Philippi, 1849)
Ahmed, 1975: 17, fig. 2a-b
Pseudominolia Herbert, 1992
Pseudominolia biangulosa (A. Adams, 1855)
Ahmed, 1975: 18, fig. 3 (as *Minolia caifasii*)
Umbonium Link, 1807
Umbonium vestiarium (Linnaeus, 1758)
Ahmed, 1975: 18, fig. 4a-c

Family Turritellidae
Genus *Turritella* Lamarck, 1799
Turritella fultoni Melvill, 1898
Ahmed, 1975: 20–21, figs. 10a-band 11 (as *Turritella nivea* and *Turritella fultoni*); Al-Hassan and Al-Hasani, 1985: 20 (as *Turritella terebra*)

Family Cerithiidae
Genus *Cerithium* Bruguière, 1789
Cerithium scabridum Philippi, 1848
Ahmed, 1975: 22, fig. 13 (as *Cerithium pfeifferi*)

Family Potamididae
Genus *Pirenella* Gray, 1847
Pirenella arabica Reid in Reid and Ozawa, 2016
Ahmed, 1975: 21–22, figs. 12 and 14 (as *Cerithidea fluviatilis* and *Cerithium morus*)

Family Epitoniidae
Genus *Acrilla* H. Adams, 1860
Acrilla acuminata (G. B. Sowerby II, 1844)
Ahmed, 1975: 22, fig. 15

Family Strombidae
Genus *Conomurex* Bayle, 1884
Conomurex persicus (Swainson, 1821)
Al-Hassan and Al-Hasani, 1985: 20

Family Rostellariidae
Genus *Tibia* Röding, 1798
Tibia curta (G. B. Sowerby II, 1842)
Al-Hassan and Al-Hasani, 1985: 20 (as *Tibia insulaechorab*)

Family Xenophoridae
Genus *Stellaria* Schmidt, 1832
Stellaria paucispinosa Kosuge and Nomoto, 1972
Al-Hassan and Al-Hasani, 1985: 20 (as *Stellaria solaris*)

Family Naticidae
Genus *Neverita* Risso, 1826
Neverita didyma (Röding, 1798)
Ahmed, 1975: 23, fig. 15 (as *Polynices ampla*); Al-Hassan and Al-Hasani, 1985: 20
Sigatica Meyer and Aldrich, 1886
Sigatica pomatiella (Melvill, 1893)
Ahmed, 1975: 23, fig. 16 (as *Polynices mamilla*)

Family Ficidae
Genus *Ficus* Röding, 1798
Ficus gracilis (G. B. Sowerby I, 1825)
Al-Hassan and Al-Hasani, 1985: 20

Family Muricidae
Genus *Hexaplex* Perry, 1810
Hexaplex rileyi D'Attilio and Myers, 1984

Ahmed, 1975: 24, fig. 19a-b (as *Murex anguliferus*)
Indothais Claremont, Vermeij, S. T. Williams and D. Reid, 2013
Indothais scalaris (Schubert and Wagner, 1829)
Ahmed, 1975: 24, fig. 20a-b (as *Thais carinifera*)
Murex Linnaeus, 1758
Murex echinodes Houart, 2011
Ahmed, 1975: 23, fig. 18a-b (as *Murex tribulus*)
Rapana Schumacher, 1817
Rapana rapiformis (Born, 1778)
Al-Hassan and Al-Hasani, 1985: 20

Family Columbellidae
Genus *Mitrella* Risso, 1826
Mitrella blanda (G. B. Sowerby I, 1844)
Ahmed, 1975: 24, fig. 21a-b

Family Nassariidae
Genus *Nassarius* Duméril, 1805
Nassarius jactabundus (Melvill, 1906)
Ahmed, 1975: 25, fig. 21a-b (as *Niotha clathrata*)
Nassarius frederici (Melvill and Standen, 1901)
Ahmed, 1975: 38, fig. 52a-b (as *Aciculina* sp.)

Family Ancillariidae
Genus *Ancilla* Lamarck, 1799
Ancilla farsiana Kilburn, 1981
Ahmed, 1975: 25, fig. 23a-b (as *Ancilla ampla*); Kilburn, 1981: 399

Family Cystiscidae
Genus *Gibberula* Swainson, 1840
Gibberula cf. *mazagonica* (Melvill, 1892)
Ahmed, 1975: 26, fig. 24a-b (as *Gibberula granum*)

Family Mangeliidae
Genus *Mangelia* Risso, 1826
Mangelia fulvocincta G. Nevill & H. Nevill, 1875
Ahmed, 1975: 26, fig. 26a-b

Family Clathurellidae
Genus *Etrema* Hedley, 1918
Etrema spurca (Hinds, 1843)
Ahmed, 1975: 26, fig. 25a-b

Family Acteocinidae
Genus *Acteocina* Gray, 1847
Acteocina involuta (G. Nevill and H. Nevill, 1871)
Ahmed, 1975: 28, fig. 29a-b (as *Retusa canaliculata*)

Family Pyramidellidae
Agatha laevis (Angas, 1867)
Ahmed, 1975: 27, fig. 27 (as *Odostomia laevis* Angas, 1867)
Turbonilla Risso, 1826
Turbonilla umbrina Melvill, 1918
Ahmed, 1975: 27, fig. 28

Family Acteonidae
Genus *Pupa* Röding, 1798
Pupa affinis (A. Adams, 1855)
First record in this study.

Family Siphonariidae
Genus *Siphonaria* G. B. Sowerby I, 1823
Siphonaria cf. *crenata* Blainville, 1827
Al-Hassan and Al-Hasani, 1985: 20 (as *Siphonaria basseinensis*)

Family Assimineidae
Genus *Assiminea* J. Fleming, 1828
Assiminea zubairensis (Glöer and Naser, 2013)

The current record of *Pupa affinis* from the Iraqi coast raises the number of recorded gastropods from this region from 31 to 32 species. More studies are required to investigate the gastropod fauna of the Iraqi coast to increase our knowledge about the diversity of these gastropods in this region. Special attention should be paid to micro-molluscs as hardly any are recorded here and there should be quite a number of species present.

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Conflicts of interest

The authors declare that there are no conflicting issues related to this research article.

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