

Freshwater Gastropod of Khuzestan Province, South-West Iran

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Abstract

Many freshwater gastropodes are involved in the life cycle of parasitic flukes. Some of these are important in public health and veterinary medicine. A comprehensive snail search was undertaken throughout provinces in Iran. In the first step, freshwater bodies of Khuzestan, were searched for potential intermediate host snails. Fifteen taxa, namely 8 prosobranch snails and 7 pulmonate snails were collected during the 1990s. *Neritina mesopotamica* Martens 1879 was found to be new species for Khuzestan.

Key words: *fresh water, gastropod, mollusk, snail, Iran.*

Introduction

Some freshwater snails act as intermediate hosts of digenetic trematodes of medical or veterinary importance. For example *Bulinus truncatus* and *Lymnaeid* snails transmit human Biharziasis and Fascioliasis, respectively (Andrews, 1999; Anonymous, 1979; Graczyk and Fried, 1999; Hubendick, 1951; Malek, 1980, and Sun,1999). However , no complete snail survey of Iran has been done (Solem, 1979). Therefore, a comprehensive snail search was undertaken supported financially by Tehran University of Medical Sciences, School of Public Health and Institute of Public Health Research, Tehran, Iran, and technically in part, by the Danish

Bilharziasis Laboratory, World Health Organization, collaborative centre for snail identification, Copenhagen, Denmark.

Material and Method

Freshwater bodies of Khuzestan province, south-west of Iran, including ponds, springs, marshy areas, swamps, drains, channels, banks of rivers, were searched mostly by a wire- meshed dip- net and also by feeling with the hands on rocks within algae and mosses for tiny snails in seepage water and caves(Mansoorian, 1989). Shells were put into plastic jars and labelled, living animals were first killed in boiling water, then transferred into 70% ethanol. Labelling included name of collector, name of locality and date of collecting. Identification of taxa was based on morphology of shells and soft parts, according to the Danish Bilharziasis Laboratory (Kristensen, 1984) .

Followings indicate the positions of the species found and their descriptions :

Systematic list of freshwater snails of Khuzestan , south-west Iran.

Phylum Mollusca

Class Gastropoda

Subclass Prosobranchiata

Order Mesogastropoda

Family Neritidae

-*Neritina mesopotamica* Martens, 1870

- *Theodoxus euphraticus* (Mousson ,1874)

Family Thiariidae

- *Melanoides tuberculata* Annandale ,1919

- *Melanopsis costata* Brot, 1879

- *M. doriae* Issel 1865

- *M. nodosa* Mousson ,1874

- *M. praemorsa* (Linnaeus ,1758)

Family Viviparidae

-*Bellamya bengalensis* (Lamarck, 1822)

Subclass Pulmonata

Order Basommatophora

Family Lymnaeidae

M. doriae Annandale 1918.

8.3 × 17.6 mm. Shell dextral, medium sized, smooth, brownish and banded. Fully grown shells comprise 7-8 flat whorls with sharp apex. Notch present at columellar margin. This taxon present all over the region (Mansoorian, 1994).

M. nodosa Mousson 1847.

7.6 × 16.8 mm. Shell similar to preceding species, but with sculptures and nodules on shell surface. Found only in Khuzestan, Iran (Mansoorian, 1994).

M. praemorsa (Linnaeus 1758).

11.4 × 18.7 mm. Most characters of the shell similar to the preceding species, but apex eroded and shells vary in colors with smooth surface. The taxon have limited distribution in the area (Brown, 1994).

Neritina mesopotamica Martens 1879(figs. 1-4) .

9.8 × 12.5 × 15.4 mm. Shell strong, hemispherical, patterned with a short or almost concealed spire, operculum almost ovate, calcareous paucispiral with internal apophyses, namely, the rib and peg. Radula rhipidoglossate. The shell has irregular white spots on the surface and is serrated on the parietal wall. Found in the Khorramshahr, Arvand Rood, Khuzestan, south-west Iran (Prashad, 1921; Mansoorian 1994).

Theodoxus euphraticus (Mousson 1874).

4.6 × 5 × 5.8 mm. Shell dextral, small, hemispherical with a short or concealed spire and highly variable in color . Operculum calcareous, ovate, paucispiral with rib and peg (Prashad ,1921; Roth, 1987).

PULMONATA

Lymnaea auricularia (Linnaeus 1758) .

14.4 × 18.2 mm. Shell medium sized with short spire , sharp apex, large body whorl, and ear-shaped aperture. All *Lymnaeid* snails have triangular tentacles and a monocuspid central tooth in the radula (Hubendick, 1951).

Physa acuta Draparnud, 1805.

9 × 15mm. Shell medium sized, sinistral, glossy with a sharp apex. Neither haemoglobin nor pseudobranch present. Transverse rows of radula V-shaped; central tooth multicuspid. Shell easily confused with *B. truncatus* both being sinistral (Brown, 1994).

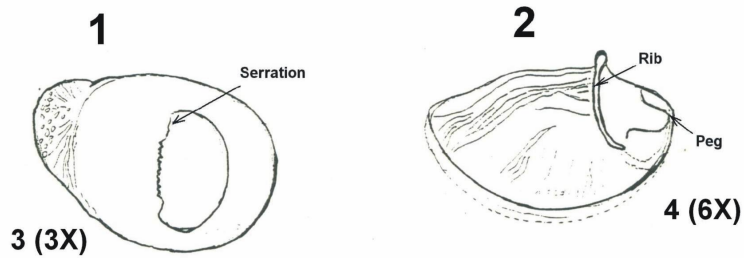
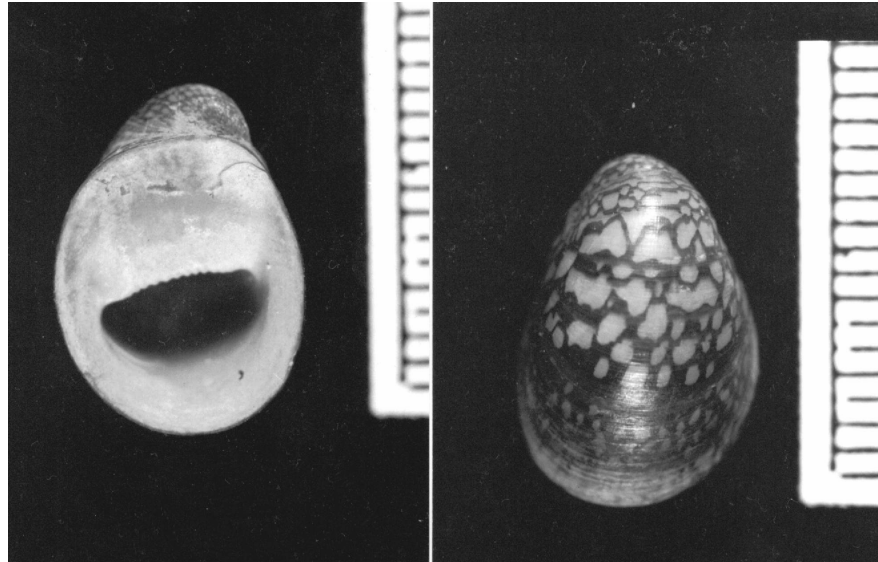
Results and Discussion

The late Georg Mandahl-Barth (Unpublished data, 1958), Danish Bilharziasis Laboratory, Charlottenland, Copenhagen, Denmark, a World Health Organisation (WHO) centre for snail identification, in a communication with Institute of Public Health Research, Tehran University of Medical Sciences, Iran (formerly Institute of Malariology and Parasitology, affiliated to University of Tehran, Iran), identified 10 freshwater snails for Khuzestan in samples which were sent to him for identification. He reported the following taxa: *Bellamya bengalensis*; *Bulinus truncatus*; *Lymnaea auricularia*; *L. a. gedrosiana*; *L. truncatula*; *Melanoides tuberculata*; 3 species of *Melanopsis*; and a few offspring snails of *Bithynia* species. I have never encountered *Bithynia*, but I collected 6 more taxa, including *Gyraulus euphraticus*; *Lymnaea stagnalis*; *Melanopsis doriae*; *Neritina mesopotamica*; and *Planorbis intermixtus*. Massoud & Hedayati-Far (1979), recorded 3 species other than Mandahl-Barth's but *L. stagnalis*; *Neritina mesopotamica* (figs 1- 4) and they did not give localities. Mandahl-Barth also released a provisional key for freshwater snails of Iran, but did not report any *Lymnaea stagnalis* for Iran and Khuzestan; instead he contributed *Neritina schlaeflii* from Ghaes island, an offshore territory, which belongs to United Arab Emirates (UAE), for the time - being.

Conclusions

Seven pulmonate snails, namely *Bulinus truncatus*; *Gyraulus euphraticus*; *Lymnaea auricularia*; *L. a. gedrosiana* and *L. truncatula*; *Physa acuta*; *Planorbis intermixtus*; 8 operculated mollusks, viz. *Bellamya bengalensis*; *Melanoides tuberculata*; *Melanopsis costata*; *M. doriae*; *M. nodosa*; *M. praemorsa* and *Theodoxus euphraticus* were reported for Khuzestan province. *Neritina mesopotamica* was found to

be a new species for Khuzestan, and Iran. Two taxa of Bivalvia, i.e. Corbicula spp and Unio spp were also collected during this snail survey and further investigations are underway in this regard.



Figures
1-3: *Neritina mesopotamica*, aperture view
2: *Neritina mesopotamica*, dorsal view
4: Operculum with rib; and peg
1-2: Each scale = 1mm.

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