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**The variability of *Harpa amouretta* (Röding, 1798)
(Gastropoda: Harpidae) in the Gulf of Aqaba (Red Sea)**

Moti KOVALIS

21 Miriam Street, Gan Yavne, Israel
koko61@gmail.com

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Abstract: The characteristic features and variability of *Harpa amouretta* (Röding, 1798), the sole representative of the family **Harpidae** in the Red Sea are discussed, especially for specimens originating from the Gulf of Aqaba.

Introduction: *Harpa amouretta* can be found in the entire Indo-Pacific. Yet, specimens from the Red Sea differ from Indo-Pacific specimens by a considerably smaller size and a thickened outer lip, which lead to the common use of *H. amouretta* (forma) *crassa* 'Philippi' Krauss, 1848 for Red Sea specimens, as well as for specimens from eastern Africa through India with the same features. Yet, Buijse & Verbinnen (2008) showed that it is not possible to maintain this forma name for Red Sea specimens, due to the enormous intraspecific variability of *H. amouretta*. This variability is also present in specimens from the Gulf of Aqaba, which are the subject of the present survey.

Material: The present study is based on 39 specimens exclusively found by local collectors on East Sinai coasts from the northern point in the City of Elat to Sharm-El-Sheikh, the southern point of the Gulf of Aqaba.

Discussion: The average measurements of the studied specimens are 33/20 mm, Some specimens reaching 48/29 mm were found in the southern part of the Gulf of Aqaba. These larger specimens are more elongated, with 11-17 axial ribs. The last axial rib forms the markedly thickened outer lip present in all specimens, a feature which long served as a characteristic feature for the forma *H. amouretta* forma *crassa* (Fig. 3). Additional characteristic features are the three apertural blotches (Fig. 2), which are present in all studied specimens. The siphonal blotch is always very small.

Thus, this study confirms the two main characteristic features of *H. amouretta* specimens from the Gulf of Aqaba (and elsewhere in the Red Sea), which are the thickened outer lip and the three apertural blotches. Yet, the morphological variability in pattern and colour or even size is very wide and confirms the study by Buijse & Verbinnen (2008). It is a fact that the population in the Gulf of Aqaba is considerably smaller than the population outside the Red Sea. This may possibly be explained by the unique position of the Gulf of Aqaba: it is the northernmost sea-arm of the Indo-Pacific region and marine life rapidly changes in northern direction. This is possibly due to changing habitats: the southern coasts of the Gulf of Aqaba consist of close lagoons and soft sandy beaches, whereas there are no lagoons in the northern part of Gulf. Further reasons may possibly be found in the water becoming less rich with marine food in northern direction, the weaker tidal movements and currents in the northern part of the Gulf and the degree of pollution (the northern tip of the Gulf is home to Elat (Israel) and Aqaba (Jordan), two cities with oil terminals, ship ports and a strong tourist sector, whereas the rest of Gulf is almost untouched). This may also explain why many other species such as *Conus textile* Linnaeus, 1758, *Conus geographus* Linnaeus, 1758, *Cypraea pantherina* Solander, 1786, *Canarium fasciatum* (Born, 1778), to name but a few, suddenly reach their distributional limit in a certain place and can no longer be found further northwards.

H. amouretta is not common in the Gulf of Aqaba and becomes rarer towards the north: it is very rare near Elat, Taba and Aqaba.

As no specimens from the southern Red Sea or the Arabian Sea (where the species lives sympatrically with *Harpa cabriti* (Fischer, 1860)) were studied, a comparison with populations from these areas was not made.

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Plate:

1-8: *Harpa amouretta* (Röding, 1798)

1a-b: live specimens from Taba, Sinai.

2a-b: Dahab, Sinai, Gulf of Aqaba. 48 x 29mm.

3a-b: Nuweba, Sinai, Gulf of Aqaba. 48 x 28mm.

4: specimen with irregular, narrow ribs. Taba, Sinai.

5: specimen with irregular wide rib spacing. Taba, Sinai.

6-7: ventral view showing the typical, thickened outer lip as found in Red Sea specimens. Taba, Sinai, Gulf of Aqaba.

8: upper whorls and protoconch of *H. amouretta*. Taba, Sinai.



1a



1b



2a



2b



4



3a



3b



6



7

8

