

Colour forms of *Chama pacifica* Broderip, 1835 in the Gulf of Aqaba, Eilat

Moti KOVALIS

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

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Abstract: Colourful and spiny forms of *Chama pacifica* Broderip, 1835 have lately been observed in the northern part of the Gulf of Aqaba. This widely spread Indo-Pacific and Mediterranean *Chama* is most often found in very eroded and spineless condition. This paper will deal with the *C. pacifica* complex in the Red Sea and the Mediterranean Sea.

Introduction: *Chama pacifica* Broderip, 1835 is a shallow water species and can most commonly be found near the line where waves break. This is the reason for the eroded appearance. On top of this, this nature of *C. pacifica* is responsible for the flourishing of this species in the Mediterranean Sea where it migrated through the Suez Canal. The habitat in the shallow water of the Mediterranean Sea is a perfect platform for this *Chama* due to the rough conditions in the southeastern part of this sea. The Mediterranean specimens are considerably bigger than Red Sea specimens and can reach up to 90mm (coll. author). They are also very variable in colour and shape. This huge spectrum of shapes and sizes has led to an endless list of synonymous names, subspecies and other false identifications of the species. Below, the *Chama pacifica* complex in the northern part of the Gulf of Aqaba and the southeastern Mediterranean Sea will be discussed by means of samples personally found by the author during his diving expeditions.

The original description of *Chama pacifica* made by Broderip (1835) was very brief as was common practice in those days. Unfortunately, the very general description deals

with the most recognizable features such as the spines and simply describes them as "skulls". Today, we know that the so-called skulls are eroded spines.

Discussion: When the first European conchologists received their material from the early expeditions, we can assume there were not more than a few samples from each species on their table. Those dangerous expeditions to the new southern countries often ended with the death of (almost) all expedition members in those days. We also have to remember that the expeditions did not only serve the conchological field, but zoologists, botanists and other scientific fields as well. The shipping of tonnes of new finds was not a simple task. It is therefore assumable that Broderip did not see many samples of *Chama* species on his table. Nowadays, with scuba diving being very easy, it is easier to observe many species in their natural habitat and to study more material. This often leads to insight in the much wider spectrum of sizes, colours and shapes not discussed in the original descriptions.

As the present figures show, this common species is very variable and colourful. When we compare Broderip's original description to the present material, it barely fits the colourful forms of *Chama pacifica*. Remarkably, the colourful form has one extra characteristic feature: it appears with a very spiny and colourful lower valve (see figures). These colourful specimens were found on artificial surfaces relatively hidden from the waves where they could grow longer and perfect spines. This form is very rare and has only recently been noticed. The study of this bivalve in other places in the Sinai area is now impossible due to the political situation in the Sinai area, but a small research among local collectors showed that the colourful form might be present in other places than the Eilat area.

On the other hand, the regular form, which Broderip probably studied, has a spineless or almost spineless lower valve. This form appears with one row of white spines on the edge of the aperture. Other specimens of the regular form appear with white ribs with eroded spines. This phenomenon is often noticed in Mediterranean specimens in which the spines are eroded and broken. Broderip did not mention any ribs or spines on the lower valve. The colourful form does not bear visible ribs, but it is simply covered with dense rows of colourful spines. The leading colours in this form are orange, yellow and white (until now no colourful specimen without spines covering the entire lower valve has been observed). The upper valve in the regular form has only got white spines on the right side of the upper valve. The interior is white, with a large dark blotch on the right side of the interior. This feature, which is one of the most salient characteristics of the species, was not mentioned by Broderip (1835). The internal blotch is also present in specimens from the Mediterranean Sea. Since no further specimens from different localities were studied, we can only assume that the blotch is absent in the Holotype from Lord Hoods Island, Pacific Ocean. In his *Revision of the Chamidae of the Red*

Sea, Delsaerd (1986) figures specimens from different localities, but only on the Eilat specimens (Gulf of Aqaba) the blotch can clearly be seen.

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Fig. 1: regular form

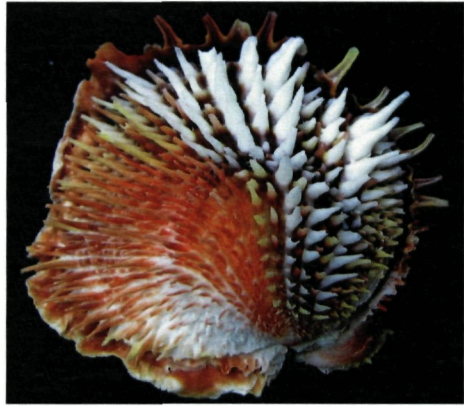


Fig. 2: colourful form (Eilat)

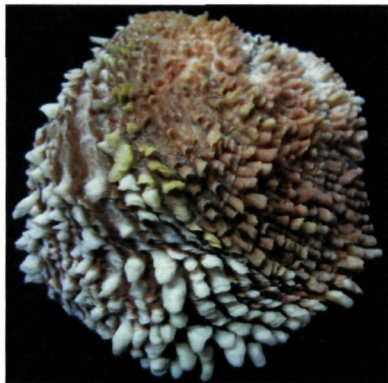


Fig. 3: form with scales



Fig. 4: form with spines.



Fig. 5: lower valve with ribs

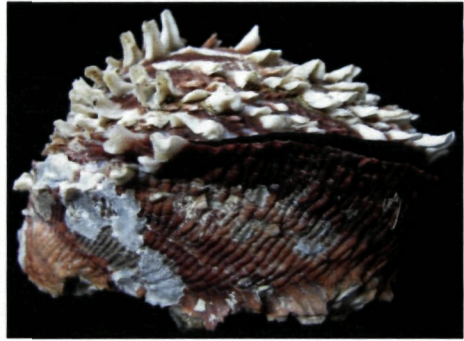


Fig. 6: lower valve without ribs nor scales



Fig. 7: interior, showing the interior blotch (Eilat specimens)

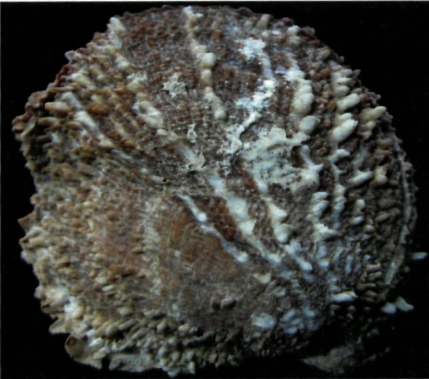


Fig. 8: Mediterranean specimen



Fig. 9: colourful specimen from Eilat.



Fig. 10 (above): colourful form with ribs and spines on both valves.
Fig. 11 (below): regular form with spineless lower valve.