Persian Gulf cuttlefish selects its camouflage tactic regardless of contrast of the environment

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Abstract

No field study has been conducted to the date on observance and analysis of camouflage behavior of in the Persian Gulf sepia pharaonis (*S.pharaonis*) in coastal waters of Kish Island. In this study, I evaluated 61 samples of camouflage cuttlefish in Persian Gulf by photography method using professional diving camera. The recorded images were analyzed later with MATLAB; the camouflage tactics and color patterns were identified and compared considering the contrast of the environment. Finally, it was found that the cuttlefish used all types of camouflage tactics regardless of the surrounding background. These included burial, disruptive, background matching and masquerade tactics. I further categorized background matching (BM) into three groups; BM with high fidelity, BM with medium fidelity and BM with no fidelity. Neither tactic nor color changing pattern was influenced by contrast of environment. It seems that contrast of environment has no determining role in selecting camouflage tactic by gulf s.pharaonis. In 63 % of cases, background matching without fidelity was dominant tactic. I think smart Gulf *S.pharaonis* intentionally prefers to deceive its predator by being seen as a false bite instead of not being seen at all.

Key words: Scuba, burial, disruptive, background matching, masquerade

Methodology and Theoretical Orientation:

In this study, descriptive-correlative method was used. The author identified the camouflage cuttlefishes during scuba diving in Persian Gulf around Kish Island from October to November 2016. Two serial photos were captured from each case.

The first photo was taken two meters far from cuttlefish focusing on its body. The second photo was obtained promptly in the same position with no focusing.

Findings:

During 21 days of scuba diving, 85 cuttlefishes were photographed. After analyzing the photos and identification of the species by two separated national cephalopod experts and

identification keys, the cuttlefishes were classified as follows: *S.pharaonis*: 61, *S.arabica*: 15 and *S.omanica*: 9.

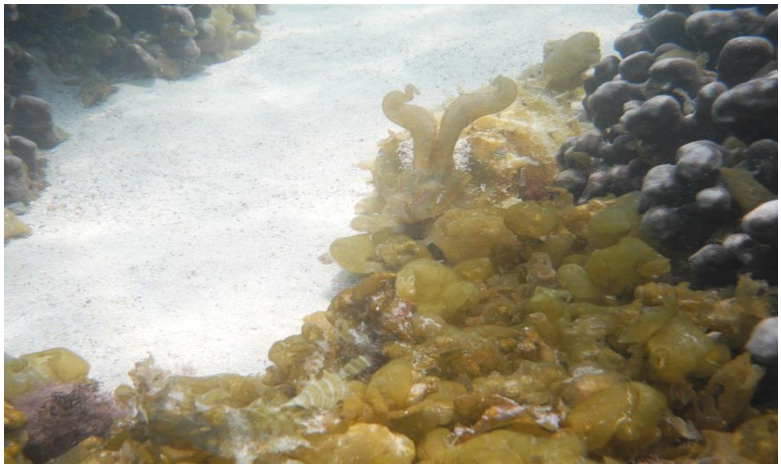
Finally, the tactics used by *S.pharaonis* strain as the dominant strain in studied site were evaluated and the relationship between the environmental factors and type of tactic/patterns were analyzed using MATLAB.

The observed camouflage tactics were divided into 4 main groups; Burial, disruptive, masquerade and background matching (BM). The latter was sub classified as BM with high, medium and no fidelity.

Conclusion and Significance:

In this study, types of camouflage tactics of *S.pharaonis* considering contrast of environment were investigated. To best of my knowledge it is the first study on camouflage cuttlefish in Persian Gulf. In contrast to the existing studies, my study showed that the contrast of environment had no significant role in determining the type of tactic selected by the *S.pharaonis*. PG S.pharaonis uses background matching with no fidelity more commonly than other tactics. My study is novel in considering the subgroups of background matching and being carried out in natural habitat of cuttlefish. These two features of my study might justify the inconsistency of my findings with existing similar reports. This issue must be further addressed in future studies done in natural habitats in different parts of world.

Image:



Recent Publications

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Biography (150-word limit)

Sara Asadi Gharabaghi got her master degree in marine ecology in 2013 .She is also a scientific scuba diver. She is a young researcher with more than 4 years professional experience in field and lab studies strongly focusing on behavior of marine animals, especially cephalopods, sharks .She has also good experience as a researcher in fish farming in the cage, especially on sea bass species. Recently, she is being involved in research project regarding to migration of sharks in Persian Gulf.

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