

The Effect of Photoperiod on the Orientation and Shell Selection Behavior of the Persian Gulf Hermit Crab, *Diogenes avarus* (Heller, 1865)

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Abstract

The aim of this study was to investigate the orientation and shell selection behavior of hermit crab *Diogenes avarus* under different photoperiod situations (6L: 18D, 12L: 12D, 18L: 6D) after 48 hours. The results showed that the light affected the orientation and shell selection behavior of hermit crab *Diogenes avarus*. This means that the orientation of the control group were uniform ($P > 0.05$), but their orientation in different lighting regimes compared with control, were non-uniform ($P < 0.05$). In light treatments, there was not a significant difference between the percentage of orientation towards the target in the light regime 12L: 12D and 6L: 18D ($P > 0.05$). However, by increasing the time of lighting 18L: 6D, hermit crab orientation toward the target was significantly decreased ($P < 0.05$). The results showed that orientation and shell selection behavior were influenced by the optic period, and when the light was less, the hermit crab was more active in orientation behavior and shell selection.

Keywords: *Diogenes avarus*, Photoperiod, Orientation and shell selection behavior, Persian Gulf.
