Fusional marines hues: exploring the shared colors of the *Zenoponotnia soror* shrimp and starfish

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The phenomenon of color change is frequently observed in the marine environment, particularly in cryptic organisms or those using passive/ active camouflage, such as cephalopods. When there is a symbiotic association between two organisms, this can result in a similarity of color, favoring their survival by reducing the risk of predation. It has been observed that the asteria shrimp, *Zenopontonia soror*, living in Moorea (French Polynesia), adjusts its coloration to match that of its host. In order to reveal the mechanism by which the symbiont acquires pigments, stable isotope analysis and pigment extraction were carried out on both partners. The aim was to demonstrate the potential link between pigment acquisition and the coloration of these organisms. The results of the pigment extraction revealed the presence of similar carotenoids in host and symbiont tissues. Furthermore, data from stable isotope analysis indicate that the symbiont feeds the host, and that the host and symbiont share a common food source. This study presents, for the first time, the chemical composition of pigments present in symbiont tissues. It thus contributes to a better understanding of the influence of host association on symbiont coloration.

Keywords
Symbiosis ; Colors; Carotenoids ; Stable Isotopes