Chromatic harmony in symbiosis: Acquisition and characterization of pigments in *Zenopontonia soror*, associated with *Culcita novaeguineae*

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Coloration change is a common phenomenon in the marine environment, particularly for organisms that are cryptic or use passive/active camouflage (*e.g.* cephalopods). When two organisms are symbiotically associated, they may harbor similar colors that improve their survival by decreasing their predation rate. However, when the symbiont is separated from its host, it may suffer from host separation syndrome, which may have an impact on the discoloration of the symbiont resulting from stress. This study examines the symbiotic relationship between the shrimp *Zenopontonia soror* and the sea star *Culcita novaeguineae* living in Moorea (French Polynesia) to understand the pigment acquisition of the symbiont. To address this question, stomach content, stable isotopes and pigment extraction analyses were performed on the two associates to demonstrate the potential link between pigment acquisition and coloration of these organisms. The results of the pigment extraction showed similar carotenoid pigments in the tissues of the host and the symbiont. The gut contents analysis has revealed that both associates share a common food sources and the presence of sea star spicules. These results were confirmed by the stable isotopes analysis. This study describes, for the first time, the chemical composition of the pigments contained in symbionts tissues and provide further insights on how the coloration of the symbiont is impacted by its association with its host.