

Terceira Sessão: Conservação e áreas afins – Comunicações orais

Microbial profile of the hydrocoral *Millepora alcicornis* during a bleaching event reveals site-specific patterns

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During the summer of 2019, Brazilian zooxanthellate corals and hydrocorals were severely impacted by a bleaching event caused by marine heatwaves. One of the most affected species was the hydrocoral *Millepora alcicornis*, one of the few branching species found in Brazil. This study is one of the first to evaluate and describe the bacterial profile of this species before, during, and after a bleaching event, focusing on two locations in Arraial do Cabo – RJ, which have distinct environmental pressures. Significant differences in the bacterial community were observed between the colonies from Praia dos Anjos and Praia do Forno (more and less impacted, respectively). While the Anjos colonies exhibited a more homogeneous bacterial community, the colonies from Praia do Forno displayed more distinct profiles, which may have been influenced by the difference in the extent of environmental impact that each beach is subjected to. Overall, it was observed that bleached samples were more distinct from healthy and recovered samples. Additionally, no statistically significant differences were observed between healthy, semi-recovered, and recovered samples, suggesting that the microbiome tends to return to normal early in the colony recovery process. Among the identified bacterial genera, some are potentially beneficial to the host's health, such as *Thalassospira*, *Kiloniella*, and *Endozoicomonas*, which showed significant variations during the bleaching and recovery of the colony, especially from Praia dos Anjos, and may be associated with processes that contribute to the acclimatization or recovery of the holobiont. Unclassified bacteria from the *Flavobacteriaceae* family, commonly associated with diseases, constituted the core microbiome of *M. alcicornis*, showing increased abundance in colonies undergoing recovery compared to bleached colonies, suggesting a possible opportunistic process.

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