Primeira Sessão: Ecologia e Fisiologia – Comunicações orais

The price of resilience: impacts on sexual reproduction of the coral Mussismilia braziliensis (Verrill, 1868) after the most severe bleaching event of the Southwestern Atlantic

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Coral reefs are home to at least 25% of all marine biodiversity and provide important ecosystem services to human society. The increase in ocean temperature and acidification, resulting from anthropogenic activities, have been responsible for numerous impacts on coral reefs in recent decades. The bleaching phenomenon, which occurs due to the rupture of the symbiosis between dinoflagellates of the Symbiodiniaceae family and scleractinian corals, is a major current concern. Bleaching causes the coral to lose its main source of nutrition, compromising its physiological activities and obtaining energy. If symbiosis is not reestablished, corals eventually die. Little is known about the impacts of bleaching on the sexual reproduction of reef-building corals. In Brazil, Mussismilia braziliensis is an endemic species, with occurrence restricted to Bahia and one of the most important reef-builder in Abrolhos. This study evaluated the impact of the most severe bleaching event ever recorded for the South Atlantic on the reproduction of M. braziliensis. The species recovered quickly from bleaching, prioritizing its energy stores and heterotrophy to keep colonies alive. Bleaching coincided with the beginning of gametogenesis, compromising reproduction in several ways. Only 10% of colonies spawned, there was a marked reduction (67%) in the number of bundles released per colony when compared to years without bleaching, and embryo viability was 3.75 ± 3.76%. In addition, some gamete bundles showed all spermatozoa dead soon after spawning. Impairment of sexual reproduction leads to impairment of reef cover, therefore studies with this approach should be prioritized in times of drastic environmental changes.

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