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Antioxidant boost to corals to endure thermal stress as a climate change scenario

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Climate change has compromised large areas of coral reefs around the world due to raising temperatures and the arrival of heat waves. These conditions create an uncontrolled production of the so-called reactive oxygen species (ROS) that attack the tissues of corals, as well as the loss of the symbiont microalgae, which are the main source of energy to the coral, leading to mass bleaching events and coral death. Some species of microalgae produce ROS scavengers *de novo*, such as antioxidants, that can destroy these harmful compounds. Additionally, many antioxidants are commercially available in their purified form; however, the way of delivery as feed is crucial given their fast degradation rates due to their unstable chemical properties. Here we discuss our results of challenging the coral species *Stylophora pistillata* to thermal stress scenarios while providing them with antioxidant protection using two approaches, protection through the food web and environmentally in the surrounding water. *S. pistillata* was fed with *Artemia salina*, which was first fed with microalgae and antioxidant-enriched pellets, using vitamin C and E, fucoxanthin, astaxanthin and curcumin. The environmental antioxidant protection of the same five compounds was tested by preparing composites containing the antioxidants. These findings will contribute to strengthening the resilience of fragile coral species as well as protecting and restoring reef biodiversity.