

High temperature increases the vulnerability of Red Sea zooplankton to ambient UVB radiation

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Abstract:

Red Sea zooplankton has been shown to be highly dependent to ambient UVB radiation levels compared to reports for zooplankton communities elsewhere. We tested experimentally the hypothesis that the warm temperature (30 – 32 °C) temperature in Red Sea surface waters, likely pushing the organisms towards the upper limit of their temperature tolerance, is responsible for their high vulnerability to UVB radiation. This hypothesis was tested by comparing the response, in terms of mortality rates and respiration rates, of representative Red Sea zooplankton species to ambient UVB levels at in situ ambient temperatures (30 – 32 °C) compared to experimentally reduced temperatures (25 – 27 °C). The results confirmed that the resistance of UVB zooplankton to ambient UVB levels is highly increased in cooler waters and supports, therefore, the hypothesis that the warm temperatures of the Red Sea explains the high vulnerability of zooplankton species to ambient UVB levels.