9.28%. Then, it was replaced by the late successional algae, Padina in the *Vaughaniella* stage, and *P. sphaerocarpa*. The effects of herbivory and nutrient enrichment on algal abundance varied across algal functional groups and seasons. During the dry season, neither herbivory nor nutrient enrichment affected Ulva cover but during the rainy season, *Ulva* cover was influenced by nutrient enrichment. However, the abundance of algae in this early stage was not apparently affected by either herbivory or nutrient enrichment. Our results indicated that the timing of disturbance strongly influenced the algal abundance and successional patterns in this tropical intertidal community.

Keywords: Algal recruitment, eutrophication, herbivory

Oral presentation

DOES OCEAN WARMING POSE A SIGNIFICANT THREAT TO THE SURVIVAL OF MARINE FORESTS? THE POSSIBLE FATE OF *CYSTOSEIRA HYBLAEA* (FUCALES)

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Canopy-forming brown algae support highly productive ecosystems, whose decline was ascribed to the interplay of several anthropogenic impacts. Climate change may disrupt the biology of these species, nonetheless the role of temperature in early-life stages development is poorly known. This study aimed to evaluate the response of *Cystoseira hyblaea* Giaccone, a winter-reproducing Southern-Mediterranean endemic species, to thermal stress by testing five temperatures (12, 15, 18, 24, 28 °C) on early stages and adults. To assess egg release, zygote settlement, and embryo growth rate, ca. 1200 receptacles were cultivated on 6 Petri dishes per temperature treatment. At 0, 20, 44, 92 h after fertilization, 10 random subareas of 2x2 mm were examined in 3 Petri. Adults' chlorophyll a fluorescence was measured at 0, 24, 72, 120 h on 9 fronds in each of the 3 aquaria per treatment. The embryo developmental rate was highest at 12 and 15 °C, whereas it was delayed at 18 and 24 °C. Mortality rates increased at 18 and 24 °C and no zygotes survived at 28 °C. Adults showed a more plastic physiological response and thermal stress did not significantly affect PSII efficiency. In a scenario of ongoing rising temperatures, the warming effects could be a threat for recruitment of *C. hyblaea* and increase its vulnerability to further stressors, with possible cascading effects on the ecosystem. Knowledge of factors that impair the survival of early stages should be integrated into conservation and restoration management to preserve canopy-forming macroalgal populations and their associated biodiversity and ecosystem services.
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Keywords: Canopy-forming macroalgae, thermal stress, early-life stages

Oral presentation

IS SEAWEED ADAPTATION TO ENVIRONMENTAL STRESSES DEPENDENT ON ITS MICROBIOME INFOCHEMICALS?

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The underlying infochemical-mediated strategies causing changes in algal–bacterial interaction are not still completely known but given that bacteria release algal growth- and morphogenesis-promoting factors (AGMPFs) required for (green)macroalgae growth and development, adaptive responses to environmental stressors must be considered within the community structure too. To investigate and assess the complex interactions underlying macroalgae and its microbiome responses to various stress factors particularly temperature, we propose a reductionist analysis of a tripartite model system consisting of the axenic green alga *Ulva* (Chlorophyta) re-infected with two essential bacteria. This analysis will allow us to decipher the stress response of each symbiont within this cross-kingdom interaction and will help to understand the enormous ecological success of *Ulva*. This research includes the effect of recently isolated bacteria from the Potter Cove, King George Island (Isla 25 de Mayo) in Antarctica, on the model system *Ulva mutabilis* Føyn purified gametes. The results indicate that cold-adapted bacteria release AGMPFs, inducing cell differentiation, and cell division in purified cultures. Integrating the chemical ecology to aquatic-microbiome investigations will allow us to shed light on underlying adaptation and acclimation mechanisms in macroalgae to stress situations with implications, e.g., for the sustainable management of aquacultures.
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Keywords: Cross-kingdom interactions, adaptation, *Ulva mutabilis*

Oral presentation

MODELLING THE SEASONAL GROWTH AND COMPOSITION OF *FUCUS VESICULOSUS* IN ITS BENTHIC COMMUNITY UNDER DIFFERENT GLOBAL CHANGE SCENARIOS

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