

EFFECT OF THE TEMPERATURE IN BIOLOGICAL INTERACTIONS BETWEEN THE CORAL *Tubastraea coccinea* AND THE SPONGE *Darwinella* sp. IN ARRAIAL DO CABO, RJ.

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The invasive cup coral *Tubastraea coccinea*, originary from the Pacific, was introduced in Brazil in the 80s. Today it can be found in many sites along the Brazilian Coast. *Tubastraea coccinea* has a great competitive ability and may overgrow weaker opponents due to chemical and physical defenses. At Arraial do Cabo, located in Southeast Brazil, the sponge *Darwinella* sp. is commonly found near *T. coccinea*. To evaluate if these species have any effect on each other's growth, *in situ* experiments were performed. The first experiment, using artificial plates, was conducted at the Instituto de Estudos do Mar Almirante Paulo Moreira testing area, located at Cabo Frio Island. Colonies of *T. coccinea* and *Darwinella* sp. were fixed to PVC plates in 8 different treatments: 1) only *Darwinella* sp.(control 1); 2) only *T. coccinea* (control 2); 3) *Darwinella* sp. with *T. coccinea* mimic (0 cm- distance); 4) *Darwinella* sp. with *T. coccinea* mimic (2 cm-distance); 5) *T. coccinea* with *Darwinella* sp. mimic (0 cm-distance); 6) *T. coccinea* with *Darwinella* sp.mimic (2cm- distance); 7) *T. coccinea* with *Darwinella* sp. (0 cm-distance); 8) *T. coccinea* with *Darwinella* sp.(2cm-distance). At the second experiment, conducted on the natural substrate, three treatments were replicated: 1) only *Darwinella* sp.(control 1); 2) only *T. coccinea* (control 2); 3) *T. coccinea* with *Darwinella* sp. (0 cm). At the third experiment, the allelopathic effect of the crude extract of *T. coccinea* on growth of *Darwinella* sp. was tested. Our results demonstrated that there were no significant differences on growth of *Darwinella* and *Tubastraea* between the different treatments along time on artificial plates and on natural substrate. Likewise, the crude extract of *T. coccinea* did not inhibit the sponge's growth. However, variations on *Darwinella* sp. growth were observed through time, probably due to the occurrence of low water temperature events, since Arraial do Cabo is a region under strong influence of upwelling. Thus, the data obtained showed that the growth of both species (*Darwinella* sp. and *T. coccinea*) is not affected (negatively or positively) by the presence of the other. Temperature variations in the Cabo Frio upwelling region seem to be more important in control the dynamics of these species populations than the biological interactions.

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