

Title: RESPONSE TO OXIDATIVE STRESS MEDIATED BY BACTERIAL ISOLATES FROM *Aedes aegypti* AND THE AQUATIC MACROPHYTES *Salvinia auriculata* and *Pistia stratiotes*

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Abstract:

Oxygen-free radicals, more generally known as reactive oxygen species (ROS), are highly harmful to organisms since they can lead to damage of proteins, lipids, carbohydrates and DNA, which ultimately results in oxidative stress. Because of this, the oxidative burst is used as an early defense response in host-microbe interactions. Organisms that co-exist in the same habitat. In the aquatic environment, the proliferation of aquatic plant create conditions that commendably expand mosquito production. Thus, by sharing the same niche, the plants *Salvinia auriculata* and *Pistia stratiotes* can be colonized by the same microorganisms found in the mosquito *Aedes aegypti*. Added to this, these plants are often found in contaminated environments, making them subject to oxidative stress, as the mosquito feeds on blood, also susceptible to oxidative stress caused by excess iron (hemoglobin). This work aims to study, *in vitro*, the response to oxidative stress promoted by bacterial strains isolated from the aquatic macrophytes *S. auriculata* and *P. stratiotes* and the mosquito *A. aegypti*, in order to generate data that enable to understand their role in the detoxification of ROS. Initially, the Cultural Collection at UENF of has been accessed, looking for common isolates between mosquito and aquatic plants. Of the 66 isolates of mosquitoes and 24 of plants, 20 bacteria were selected. The total of five plant isolates and 15 *A. aegypti* isolates were examined using catalase test (H₂O₂ 3 % v/v), hydrogen peroxide (10 M). All of them were also identified by 16S rRNA gene. All the isolates were classified as catalase positive and two isolates were resistant to H₂O₂. Until this moment, fifteen isolates were resequenced isolates were sequenced and compared with sequences from GenBank, which allowed to identify the genus *Enterobacter* (ten isolates), *Pantoea* (three isolates), *Pseudomonas* (one isolates) and *Stenotrophomonas* (one isolates). The results demonstrate that all isolates presented antioxidant defenses against oxidative stress. The most common isolate between aquatic plants and *A. aegypti* was the genus *Enterobacter*. In the next step, will be realized experiments with *Enterobacter* isolates to better understand the coevolution with the hosts, mosquito and aquatic plants.

Keywords: Reactive oxygen species, catalase, Hydrogen peroxide and 16S rRNA gene.

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