**Title: Study of cadmium-resistant growth promoting bacterial community associated with aquatic macrophyte** *Salvinia auriculata* Aubl

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Human consumption has increased industrial demand and, consequently, contamination levels metal in the world. Cadmium (Cd) is a toxic heavy metal, which is becoming a growing problem, because of its harmful effects on biological systems. Thus, the wastewaters produced by products with cadmium have contributed to accelerate the environmental degradation. Aquatic macrophytes are able to accumulate and remove toxic compounds from the water, being used as bioindicators for monitoring aquatic ecosystem. However, their ability to grow in high contaminated environment is reduced. An alternative to improve their performance is to use the association with beneficial bacteria that stimulates plant growth promotion. Our objective was to evaluate plant growth promoting characteristics in these bacteria and its cadmium resistance. In a previous work, 22 strains associated with floating aquatic macrophyte *Salvinia auriculata* Aubl. were isolated and identified. They were subjected to biological nitrogen fixation test, using semi-solid media JMV, NFB and JNFb the 30 °C. A total of 12 isolates were able to fix atmospheric nitrogen, highlighting the genera *Pseudomonas* sp. *Stenotrophomonas* sp*, Bacillus sp., Pantoea sp.* Following the Salkowski method, the bacteria's production of indole compounds were also evaluated. Among the seven isolates that were quantified, was observed from 4.5 up to 16.2 µM of indole acetic acid (IAA) produced in the absence of tryptophan and from 6.1 up to 29.1 µM produced after addition of this precursor. The genus *Pseudomonas sp*. had the highest concentration of IAA. It was also determined the minimum inhibitory concentration (MIC), using increasing concentrations of $CdCl_2.H_2O$ in DYGS culture medium incubated at 30 °C for 2 days. To date, 8 bacteria were tested, revealing that 2 isolates have minimum inhibitory concentration superior to 10 mM of Cd. These isolates belong to the genera *Stenotrophomona sp*. and *Bacillus sp*. This was the first study to identify bacteria that promote plant growth associated with *S. auriculata.* With this data we can explore the biotechnological potential of these microorganisms, and understand better of such beneficial association and its potential for bioremediation of contaminated environments.

Key words: Aquatic environment, metal, bioremediation, plant-bacteria, association

Funding: CAPES, FAPERJ and UENF