TITLE:RESISTANCE OF PLANT GROWTH PROMOTING BACTERIA ISOLATED FROM THE AQUATIC PLANT *Salvinia auriculata* TO LEAD

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ABSTRACT:

Lead metals (Pb) levels have increased in recent years in aquatic compartments due to the indiscriminate use of fertilizers in agriculture, the lack of sanitation and the discarding of crude industrial waste.Pb is toxic even at very low concentrations, not performing any known biological function. This metal is considered dangerous because it accumulates by biomagnification and can cause to mutagenic and teratogenic effects. Many researches have been devoted to the development of new technologies for the removal of this contaminant.Bioremediation is an eco-friendly, low-cost technique that uses living organisms, such as bacteria, for depollution of environments. Some microorganisms are capable of developing in contaminated environments, since they have efficient protection mechanisms against metal toxicity. Thus, the objective of the present work is to evaluate the resistance of plant growth promoting bacteria isolated from the aquatic plant Salvinia auriculata to Pb.For this, minimum inhibitory concentration (MIC) assays were performed in solid LB medium with 18 bacterial isolates, using concentrations of 1, 7 and 14 mM of Pb (NO3). Initially, the bacteria were inoculated in liquid medium and incubated at 175 rpm until OD600nm equal to 1.0. Then, aliquots of 10 µL of each culture were inoculated individually into Petri dishes, containing concentrations of metal crests. Plates were maintained at 30 °C for 5 days.As a result, 16 bacteria presented resistance of 7 mM, with values well above that allowed by the National Council for the Environment for fresh water of class I and III, besides being one of the highest levels of resistance found in the literature. Thus, these isolates demonstrated the potential to assist in bioremediation processes in environments with high levels of Pb, and may be used in the future for the development of a bioinoculant concerning the removal of metals.

Keywords: aquatic pollution, metal; microorganism, bioremediation.

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