

Isolation of plant growth promoting bacteria associated *Typha domingensis*, a emergent aquatic macrophyte

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Aquatic macrophytes are plants that remove pollutants, maintaining water quality and acting as pollution bioindicators. *Typha domingensis* is an emergent macrophyte found in ecotones and broadly used in wetlands for wastewater treatment. Considering its biotechnological potential, plant growth promoting bacteria associated with this plant should help in bioremediation process through the production of hormones, biological nitrogen fixation and nutrient solubilization. Therefore, the objective of this study was to isolate and characterize beneficial bacteria associated to *T. domingensis* with potential to promote the growth of macrophyte. The bacteria were obtained from plants collected in the Campelo Lagoon (Campos dos Goytacazes) and Açú Lagoon (São João da Barra), in the North of Rio de Janeiro State, Brazil. Plant samples were plated in the media DYGS and NYDA, maintained at 30 ° C, and then isolated to morphological characterization and obtain pure cultures. There were obtained forty-one isolates, on large variety of colonies with different shapes, sizes, edges, surface and pigments, which shows the bacteria diversity found in association with this macrophyte. Sixteen bacteria have been tested for producing indole compounds in the absence and presence of tryptophan (100 µg L⁻¹) using Salkowski method. *Gluconacetobacter diazotrophicus* was used as a positive control, because it is well known as a producing bacterium of indole acetic acid. Ten isolates showed production of indole compounds, highlighting two strains that produced high concentrations in the presence of tryptophan - 84.2 and 97.4 µM while *G. diazotrophicus* produced 24.3 µM in the same conditions. This result suggests that these isolates have the potential to promote the growth of *T. domingensis* and can also show important characteristics for use in bioremediation processes.

Keywords: pollution, indole compounds, bioremediation

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