

TITLE: GROWTH AND INDOLE ACETIC ACID PRODUCTION UNDER SALT STRESS IN BACTERIA ISOLATED FROM ATRIPLEX NUMMULARIA L.

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Abstract:

The salinization is the main cause of soil desertification in Brazil, especially in semi-arid regions of the Northeast, in particular by inadequate irrigation management. Excess salts in the soil is one of the factors that affect plant development. As a possible alternative to continue producing in saline soils is the use of halotolerant bacteria in promoting plant growth. Therefore, this paper had the objective of analyze the ability of halotolerant bacteria to growth and indole acetic acid production in culture medium with different concentrations of NaCl. Two bacteria isolated from *Atriplex nummularia* L., grown on the interior of Pernambuco state, (root endophytic -UAGAt33 and rhizosphere -UAGAt 71) were analyzed. Initially, these bacteria were incubated in TSA 10 % liquid, supplemented with 5 mM L -tryptophan, and different concentrations of NaCl (0 %, 1.0 %, 2.5 % , 5.0 %, and 7.5 %) at 28 ° C for 24, 48 and 72 hours. Bacterial growth was observed by optical density (spectrophotometry, 600 nm) and the production of indole acetic acid was evaluated by colorimetric method (spectrophotometry, 530nm). The experiment was done in triplicate and statistical data obtained by Tukey test with 5% probability. The optical density and the production of indole acetic acid were positively influenced through increasing time, in both bacteria. Regarding the NaCl concentrations, the treatment of 7.5% was a limiting factor for the bacterial growth as a phytohormone synthesis, at concentrations of 0 %, 2.5 % and 5.0 % were equivalent. These bacteria when exposed to concentration of 1.0 % NaCl presented their best performance to optical density and indole acetic acid production. The halotolerant bacteria analyzed have high tolerance to salinity, so can be very useful as plant growth promoting in adverse conditions.

Keywords: microorganisms halotolerant, soil desertification, endophytic bacteria.

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