

TITLE: THE SALINITY INFLUENCE ON THE GROWTH AND PRODUCTION OF INDOLE ACETIC ACID BY BACTERIA OF THE GENUS PANTOEA

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Abstract:

Salinisation of the soil is increasing in many parts of the world, causing various problems and damaging the plant development and consequently low productivity. Under saline stress conditions, halotolerant bacteria can stimulate the development of plants, working efficiently in the production of indole acetic acid (IAA) and other features to promote growth. In this sense, the aim this paper was to evaluate the influence of different concentrations of NaCl on the bacterial growth and IAA production by *Pantoea* spp., isolated from plants of sugarcane grown in the State of Pernambuco. Four *Pantoea* spp. strains were evaluated (UAGC972, UAGC975, UAGC976 and UAGC978), all sugar cane root endophytic. The strains were inoculated in liquid culture médium, containing 5mM L-tryptophan and various concentrations of sodium chloride (0, 1.0, 2.5 and 5.0%). Bacterial growth was accompanied by optical density (spectrophotometer, 600 nm), and the production of IAA by colorimetric method (spectrophotometer, 530 nm). Both analyzes were performed 24, 48, 72 and 96 h after inoculation. The experiment was performed in triplicate and comparisons of means of bacterial growth and IAA production subjected to analysis by Tukey test at 5% probability. It was observed that times 24 and 48 hours, did not influence the optical density independent of the bacteria. The strain UAGC972 presented a greater production of indole acetic acid when compared to the others, especially at concentrations of 0, 1.0 and 2.5% NaCl. With the increase of time, there has been a greater production of fitohormônio, with exception to 5.0% where all strains were statistically similar showing a stability in production. The tested strains present ability to grow and produce indole acetic acid in vitro under different concentrations of NaCl, showing potential to be explored as inoculants, mainly due to tolerance to adverse salinity conditions.

Keywords: auxin, plant bacteria interaction, plant growth, halotolerant bacteria.

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