Sugarcane growth promotion by endophytic bacterial strains

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The aim of this study was to evaluate the sugarcane growth promotion by the inoculation of homologous endophytic bacterial strains. Forty-one strains were isolated from surface-sterilized roots and stems of sugarcane variety SP80-3280, cultivated in Jaú, SP, with 50 kg N ha^{-1} under fertirrigated conditions and without N addition. A greenhouse experiment was carried out with micropropagated sugarcane plantlets of the promising genotype IAC-5000. The results showed a clear physiological effect on the development of inoculated plants, resulting higher root and shoot biomass promoted by seven strains. Five of them were obtained from sugarcane roots and isolated on JNFb medium. Although the inoculation did not affect the leaf chlorophyll content, the activity of nitrogen assimilatory enzyme, nitrate reductase, was improved by four strains, which also increased plant biomass and shoot N content and N-use efficiency. However, by the detection of *nif* H gene, only four strains were able to do nitrogen fixation, which strains were isolated from root plants grown without N fertilizer. These results suggest that some strains may be used as possible biofertilizer for sugarcane crop.

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