DIAZOTROPHIC PLANT GROWTH-PROMOTING BACTERIA IN SUGARCANE

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ABSTRACT

Due to the environmental problems resulting from *N*-fertilizer application in sugarcane, techniques such as the inoculation with diazotrophic plan-growth promotion bacteria (DPGPB) (BI) have shown very satisfactory results. After the sugarcane harvest, a large amount of trash is left on the ground. This residue represents a large part of the energy contained in this culture, and for this reason its removal has been suggested for other purposes. However, the amount of residue to be removed from the soil where the sugarcane was inoculated with DPGPB on the soil enzymatic processes has not been clearly demonstrated. This work was conducted in order to evaluate this gap comparing them with the treatment that received *N*-fertilizer (NF). The acid phosphatase activity (APA) was lower in BI treatment. This fact may be associated with an increase in root growth in the inoculated plants, allowing the P uptake in areas further away from the roots. Urease was higher in BI treatment at all trash levels, indicating a possible greater mineralization of organic N in this treatment. In the same way the β-glucosidase was higher in BI treatment, but without effect of the trash levels. The lower APA in BI treatment may indicate a beneficial effect of DPGPB not only with regard to nitrogen fertilization, but also in relation to phosphate fertilization.

Keywords: acid phosphatase, β-glucosidase, N-fertilizer, soil enzymes, urease