

TITLE: GENETIC DIVERSITY OF NATIVE RHIZOBACTERIA FROM SOILS OF WEST OF PARANÁ

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ABSTRACT:

The ever-increasing population in our world demands higher food production capacity. Both diversity and efficiency of bacteria present in Brazilian soil are indicated as two of the main reasons of the nation's success in agribusiness. Considering better understanding the influence of those populations upon plants and as well for identifying its biotechnological potentials for reducing costs, the usage of chemical fertilizers and for improving productivity per hectare for major crops. Plant growth promoting rhizobacteria, may synthesis compounds that help nutrition and protect plants from diseases and pests. This investigation had as objective verify the genetic variability of 22 extracted and sequenced soil bacteria from west of Paraná state, by applying molecular tools to verify the microbial diversity and study of highly preserved evolutionarily regions like rRNA genes as 16S, 23S and intergenic space region (ITS), used for molecular characterization, specially the (ITS) due to its peculiar aspect of having a high heterogenic genetic diversity amongst bacteria. After growth in Dygs liquid medium per 48 hours at 37 °C and agitation of 85 rpm, the strains were submitted to DNA extraction. The DNA obtained from extraction was used in the polymerase chain reaction (PCR) for region ITS. The clustering process in the amplification profiles for region ITS formed 9 distinct groups, where the G1 and G4 group has been reported as a high 3-indolacetic acid producer, being the *Enterobacter* the gender with best results and average vegetal growth rates amongst the compared groups. On group G2, had reports increasing growth of plants aerial parts and roots. Using the ribosomal gene 16S sequences on the group analysis resulted in 6 groups, according to each bacterial gender. The *Enterobacter* gender achieved the best results, showing a high genetic variability and plant growth promoting properties, producing compounds as 3-indolacetic and phosphate solubilization. Therefore, the present study allowed the evaluation of the genetic diversity of rhizobacteria found in the soil on west of Paraná state, with potential in plant growth promoting.

Keywords: plant growth promoting, molecular analysis, genetic diversity.

Development Agency: Universidade Federal do Paraná