TITLE: PROSPECTING OF RHIZOBIUM FOR SOY CULTIVATION IN SOILS WITH DEFICIENT NATURAL DRAINAGE IN THE PAMPA BIOME

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Abstract:

Study of the biodiversity of bacterial communities that colonize root nodules of leguminous plants in hydromorphic soils is crucial for the identification of rhizobium strains adapted to poor drainage conditions. New strains that are obtained in these conditions become a valuable genetic resource for the cultivation of soy in rotation with rice crops in lowland regions. To this end, the aim of this work was the search and prospecting of rhizorbium in soils with deficient natural drainage in the Pampa biome. Haplic Planosol samples were collected at a depth of 0-10 cm, from areas with historical flooded rice crop cultivation. Strain isolation was realized by serial dilution technique, starting from 10 g of soil in 90 mL of sterile distilled water placed in 250 ml Duran flasks, being agitated for 10 minutes. Plating was performed by a *Spiral Plater*, using yeast extract-mannitol agar dyed with congo red; plates were incubated at 28 ℃. *Rhizorbium* growth was monitored daily, seeing that growth of the genus *Rhizobium* is fast (3 to 7 days), while that of *Bradyrhizobium* is slow (7 to 12 days). After purification of the colonies, morphological characterization, visualization in optical microscope and Gram staining was conducted. A total of 22 bacterial specimens were isolated, of which 99% were rapid growing and 100% were Gram negative. The *Rhizobium* (21) and *Bradyrhizobium* (1) strains are preserved in the Multifunctional Temperate Climate Microorganism Collection and will be evaluated with respect to their agricultural efficiency for biological fixation of nitrogen by soy genotypes tolerant to saturated soil conditions.

Keywords: biological fixation of nitrogen**,** strain, soy, lowlands

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