

TITLE: Characterization of rhizobia isolated from two different cultivar of bean cultivated in Cerrado of Mato Grosso do Sul

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ABSTRACT:

The bean is a legume that in addition to excellent nutritional value and it is a species of great genetic value because of its high potential of biological N₂ fixation. The nitrogen fixation occurs through symbiosis with rhizobia, which also have features to promote plant growth as the production of phytohormone and solubilization of inorganic phosphates. The objective of the present study was to characterize morphophysiologicaly isolated from nodules of two bean cultivars, Jalo and Majestic. We used nine reference strains (BR114, 10016, 10026, 527 and 322) from Embrapa Agrobiologia Culture collection, donated for research and to comparison morphological phenotypic with 17 bacterial isolates, being 11 Jalo bean and 6 from Majestic. We evaluated the morphological characteristics of colonies for all bacterial isolates and reference strains, and the parameters were: time of growth, diameter, shape, appearance, mucus production amid solid with Congo red and YMA medium modification of pH of the culture YMA medium with blue bromothymol, submitted to bacteriological growth in greenhouse to 28°C. With regard to physiological characteristics were evaluated and temperature tolerance to salinity. For the tests of tolerance to temperature bacteria have been replicated by means of grooves, in petri dishes containing YMA medium solid, with pH adjusted to 6.8, afterwards were subjected to growth in temperatures of 30, 40, 45 and 50°C in bacteriological camera. As for salinity tolerance test the bacterial isolates were replicated in a petri dish containing YMA medium solid with three different NaCl concentration; 0.14M, 0.27M and 0.47M. Considering the morphological parameters of all 17 bacterial isolates, 100% showed rapid growth, around three days, and 94.1% change the media for acid pH. 100% of the isolates formed colonies < 2 mm diameter. For the form and appearance: 64.7% present flat form and 17.6% presented and conical dome, among them 57.6% are translucent and 34.6% has the milky appearance and only 7.6% is opaque. In relation to the mucus, 57.6% produce mucus and 42.2% not produce. Regarding the physiological features 100% are tolerant to temperatures of 30 and 40°C, 96% at 45°C and 50°C, relative to test of salinity tolerance, all isolates was growth in all the saline concentrations evaluated. The results have been promising since feature tolerance to high temperatures and can proliferate in saline soils.

KEYWORDS: rhizobia bacteria, symbiosis, stress.

DEVELOPMENT AGENCY: UFMS, Fundect and CNPq