



SYMBIOTIC PERFORMANCE OF COWPEA RHIZOBIA ISOLATED FROM BRAZILIAN SEMI-ARID REGION

Rejane de Carvalho Nascimento¹, Indra Elena Costa Escobar², Rafaela Simão Abrahão Nóbrega³, Paulo Ivan Fernandes Júnior⁴

¹Mestranda no Programa de Pós-Graduação em Solos e Qualidade de Ecossistemas, UFRB, Cruz das Almas, BA; carvalho.rejane@hotmail.com; ²Pós doutoranda, Universidade Federal de Pernambuco, UFPE, Recife, PE; ³Professora da Universidade Federal Do Recôncavo da Bahia, UFRB, Cruz das Almas, BA; ⁴Pesquisador Embrapa Semiárido, Petrolina, PE.

Introduction - The application of nitrogen fertilizers is able to provide significant increases in productivity, as well as the risks of environmental pollution, such as leaching losses and the emission of nitrous oxide, encourage the search for alternatives that reduce the of your use. In this aspect the inoculants containing nitrogen fixing bacteria (NFB) in the bean crop is a promising. The objective of this work was to verify the symbiotic efficiency of rhizobia, evaluating the potential of these strains in competition with native bacteria in the Brazilian semi-arid region and the authorized strains. **Materials and Methods** - The study was conducted in greenhouse of the Embrapa Semiarid in Petrolina, PE. Pots filled with soil samples (Argisol) were cultivated with cowpea beans. The experiment was conducted in 10 treatments, 6 bacteria isolated from soils in the Southwest of Piauí, the strains BR 3267 and BR 3262 and two control treatments were evaluated, one without inoculation and with ammonium nitrate (NH_4NO_3) and other absolute control (SI) without inoculation and without nitrogen fertilization. For inoculation, bacteria were grown in YM medium. An aliquot of 1 mL of the culture broth was inoculated on each seed. The assay was conducted up to 40th the emergence when the experiments were harvested, separated and left to dry in an air flow chamber at 65 °C for 72 h and then weighed for determination of the variables shoot dry matter (SDM), root dry matter (RDM), nodule dry matter (NDM) and total nitrogen content (TNC). **Results and Discussion** - Among the inoculated strains I-15, PI-21-A and ICAT3-C had a significant difference of the other strains tested, presenting results equivalent to BR3267, with N-mineral and SI for SDM. While BR3262, ICB4-2-A, IZBT6-4 and ICAT3-D showed poor results in SDM suggesting that there was no good adaptation of the strain to local edaphoclimatic conditions. **Conclusions** - The isolates PI-21-A and ICAT3-C were able to promote the development of the cowpea equivalent to the development of the plants that received fertilization with mineral N and inoculation with the authorized strain, being suitable to carry out other field studies for agronomic evaluation.

Keywords: Biological nitrogen fixation, inoculant, Rhizobial
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