

SELECTION OF RHIZOBIAL STRAINS FOR THE INOCULATION OF *PARAPIPTADENIA RIGIDA* BENTH (BENTH.) BRENNAN AND *ACACIA DECURRENS*

Authors de Oliveira, I. S. R.^{1,2}, da Silva, M. S. R. de Andrade^{1,2}, de Faria, S. M.², Jesus, E. da C.²

Institution ¹ Centro Universitário Estadual da Zona Oeste (Av. Manuel Caldeira de Alvarenga, 1203, Campo Grande - Rio de Janeiro - RJ); ² Centro Nacional de Pesquisa de Agrobiologia (BR 465, km 7, s/n, Ecologia, Seropédica – RJ).

Abstract:

Some legume species are used for the revegetation of degraded soils due to their fast growth and their ability to nodulate with nitrogen-fixing bacteria collectively known as rhizobia. The inoculation of these legumes with selected rhizobial strains warrant the N supply in the field, reducing the costs with the application of N fertilizers and benefiting the establishment of the plants under this condition. The objective of this study was to evaluate rhizobial strains pre-selected for *Parapiptadenia rigida* (Benth) Brennan and *Acacia decurrens*. The first species is native of the Brazilian Atlantic Forest and is important to revegetation programs in this biome; the second one is native from Australia and has been cultivated in several countries due to its multiple uses. An important stage of the strain selection program in Brazil is the evaluation in non-sterile soil. Under this condition, the competitiveness of efficient strains selected under sterile conditions is evaluated. The experiments were carried out for 6 (*P.rigida*) and 5 months (*A. decurrens*). The plants were sampled after this period and their shoot, root and nodule dry weight were evaluated. These variables were analyzed by an Analysis of Variance and, when detected significance, by the Scott-Knott's test ($P = 0.05$). Our results show that the inoculation with all strains promoted the increase in the shoot dry weight of *P. rigida* compared to the uninoculated control. However, this increase was significantly lower than the increase observed when the plants received N. No significant differences were observed in root and nodule dry weights, indicating that the inoculation effect was more pronounced in the shoot growth. The species *A. decurrens* responded to N fertilization only, and no significant differences were observed in root dry weight among the treatments. We conclude that the strains BR 827, BR 3804 and BR 9004 are competitive and can be recommended to the inoculation of *P. rigida* and that the strains BR 3607, BR 3608 and BR 3614 are not competitive enough to nodulate *A. Decurrens* under the evaluated conditions.

Keywords: rhizobia, tree legume, inoculation

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