

SEQUENCING OF THE 16S RNA AND *nodC* GENES AND TAXONOMIC ANALYSIS OF RHIZOBIA ISOLATED FROM NODULES OF *CLITORIA FAIRCHILDIANA* R. A. HOWARD

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Abstract:

Clitoria fairchildiana R. A. Howard is a legume tree, native from secondary formations of the Brazilian Amazon. This species was extensively used as an ornamental plant in several other regions of Brazil due to its flowers and large canopy, which provides shadow, giving origin to one of its common names, “sombreiro”. *C. fairchildiana* nodulates with rhizobia, but its symbiosis has not been extensively studied yet. The examination of the symbionts of *C. fairchildiana* has the potential to contribute to increase the knowledge about the ecology and taxonomy of rhizobia, including the description of new species. The objective of this study was to characterize rhizobia isolated from nodules of *C. fairchildiana* collected in their region of origin, and in the Southeast of Brazil, where it was introduced. Rhizobia were isolated from five plants inoculated with soil from Pará State, in the Amazon region, and from three plants inoculated with soil from Minas Gerais State, in the Southeast region. Eight isolates were chosen based on a BOX-PCR analysis and their 16S rRNA and *nodC* genes were sequenced. Six isolates were classified as *Bradyrhizobium* spp. and the remaining two were classified as *Burkholderia* spp. The nodulation of *C. fairchildiana* with *Burkholderia* spp. has been previously reported, however, to our knowledge this is the first report of its nodulation with the genus *Bradyrhizobium*. Amplification of the *nodC* gene was positive for all *Bradyrhizobium* isolates, but not for the *Burkholderias*, thus further work is necessary in order to confirm if they are true rhizobia. A phylogenetic analysis of the 16S rRNA gene divided the *Bradyrhizobium* isolates in two clusters: one of these clusters included isolates from Minas Gerais and phylogenetically related to *B. elkanii*; the other included isolates from Pará and phylogenetically related to yet to be classified strains. This indicates the existence of a relationship between taxonomy and the geographical origin of isolates, as also previously suggested by the BOX-PCR analysis. Further analyses are underway in order to confirm this hypothesis.

Keyword: Rhizobial diversity, sequencing, nodulation, tree legumes

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