



ABSTRACT BOOK

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Phylogenetic diversity of rhizobia nodulating *Crotalaria pallida* intercropped with coffee trees in Gia Lai province, Vietnam.

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Abstract

Robusta coffee is the largest cash crop in Vietnam and intensive farming practices significantly increased coffee production in recent decades. However, applications of fertilizers and pesticides significantly reduced the soil biodiversity and increased the incidence of soil soil-borne pests and diseases, mainly nematodes and *Fusarium*. *Crotalaria pallida* is a legume that can excrete nematicide compounds to control the populations of *Pratylenchus* and *Meloidogyne* in soils. However, the efficacy of the practice to reduce nematode incidence remains unknown. As this nematicide effect is produced by the complex legume-rhizobial interactions, it is important to have *C. pallida* nodulated with effective strains of rhizobia. At this stage, however, there is very limited knowledge about the genetic diversity of native rhizobia nodulating *C. pallida* in Vietnam.

The objective of our study is to investigate the phylogenetic diversity of rhizobia nodulating *C. pallida* intercropped with coffee trees from five different farms in the Gia Lai province. The genetic diversity of native rhizobia strains was identified by Polymerase Chain Reaction/Restriction Fragment Length Polymorphism of the Inter Genic Spacer (IGS) between rDNA 16S and 23S obtained with Msp I and Hae III restriction enzymes. The phylogenetic positions of strains were determined by using 16S rRNA sequencing. Our results identified 11 different IGS Groups within a total of 88 strains isolated from 125 nodules (25 nodules/farm). Strains for these different IGS groups were sequenced and the results showed that *Bradyrhizobium* strains (*B. arachidis*, *B. liaoningense*, *B. elkanii*, and *Bradyrhizobium* sp.) and *Rhizobium* strains (*R. multihospitium* and *R. tropici*) were able to nodulate *C. pallida*. The screening of potential elite inoculum strains from the 88 isolates will be performed in field trials with *C. pallida* intercropped in young-replanted coffee plantations in the Central Highlands to determine their efficacy for controlling nematode populations.

Keywords : Nematode infestation on coffee plantation; *Crotalaria pallida*; Phylogenetic diversity of rhizobia; Nematicide compounds; Legume-rhizobia interactions