

## CMM-O.11

### CHARACTERIZATION AND GENETIC DIVERSITY OF *RHIZOBIUM* ISOLATES ASSOCIATED WITH COMMON BEAN (*Phaseolus vulgaris* L.) FROM SOUTHERN ECUADOR.

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**RESUMEN.** Molecular techniques are replacing the traditional methods for microbial characterization. Although it is undeniable the accuracy and saving time of molecular techniques over traditional methods, it is clear the need of the latter for biological nitrogen fixation processes. This study aimed to determine the variability of symbiotic diazotrophic isolates associated with common bean (*Phaseolus vulgaris* L.) from different agro-ecological zones of southern Ecuador. A total of 9 cantons were sampled, which were geo-referenced using the Global Positioning System. Isolates variability was performed by morpho-cultural characterization, biochemical, physiological and genetic identification tests, where assessed: Gram stain, growth, color, slime, elevation and edges of colonies; growth on several media, such as Mac Conkey, Kligler Agar, Yeast Extract Mannitol Agar-Congo Red, Peptone Glucose Agar and catalase production; growth at different NaCl concentrations and pH and temperatures levels. The genetic identification of isolates was performed by 16S rDNA molecular technique. From a total of 50 initial isolates, 34 of them differed in at least one morpho-cultural parameter assessed. The results of biochemical and physiological tests showed the purity of the isolated strains, which corresponded to *Rhizobium* genus characteristics. DNA extraction, amplification and sequencing of 16S rRNA genes revealed *Rhizobium* genus in all the isolates strains with high genotypic species diversity. From a total of 31 sequences aligned 8 species of *Rhizobium* were identified, demonstrating the high genetic variability of this genus at Southern Ecuador. These studies lay the foundation for evaluating the efficiency of native diazotrophic strains for inoculants production.