

Summary report – Training Course on Culture Collections for Developing Countries on Microbial Resources Information Management and Utilization by WDCM

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Graduate in Biomedicine, Master degree and Doctorate in Microbiology on State University of Londrina, Paraná (2011). Postdoctoral in Genomic on Embrapa (2011). Currently, technician on laboratory of Biotechnology of Soils in Embrapa and the main Works are the maintenance of Culture Collection, Molecular Biology (Sequencing, PCR, bioinformatics, metagenomics, etc), Taxonomy of Bacteria, analysis and production of inoculant.

Culture Collection of Diazotrophic and Plant Growth Promoting Bacteria

ABSTRACT

Culture collections are essential to researches development, because standardize the preservation of organisms, keeping the quality of material in addition to store them safely avoiding the loss of them. In our Laboratory of Biotechnology of Soils we work with Diazotrophic and Plant Growth Promoting Bacteria we use them for production of inoculants (soybean, corn and common bean), taxonomic and biodiversity studies like a MLSA (Multilocus Sequencing Analysis) and genome sequencing. Therefore, the international cooperation is essential to be better quality of management and technical for the culture collections in addition to the exchange of knowledge between different countries.

Key words: Rhizobia, Soybean, Inoculant, Taxonomy

1. Brief introduction of your Culture Collection.

The “Diazotrophic and Plant Growth Promoting Bacteria Culture Collection of Embrapa Soja” (WFCC Collection # 1213, WDCM Collection # 1054), is located at the Laboratory of Soil Biotechnology, in Londrina, State of Paraná, Brazil. The collection started in 1991, initially with an emphasis on rhizobia strains, but

now also encompassing several other plant growth promoting bacteria. Since the beginning, there has been a continuous search for the implementation of a variety of genetic methodologies (rep-PCR, sequencing of 16S rRNA, MLSA and genome) that could contribute to a better genetic characterization of the strains, but always trying to correlate the genetic groupings with the symbiotic and plant growth promoting properties. Results from basic research with the collection include the description of several new rhizobial species and phylogenetic groups, while the applied research identified new strains that are now being used as commercial inoculants in Brazil. The collection counts today with 3,150 strains and 1,100 DNAs of strains. Strains are maintained as follows: 1) cryopreserved (-80°C and -150°C) in proper liquid medium for each species mixed with 30% of glycerol; b) lyophilized; c) at 4°C in solid medium proper for each species for current use. The DNAs are maintained at -20°C. Viability of the strains is verified based on a percentage of the strains evaluated every year for growth and morpho-physiological properties and, for the strains of greater agronomic importance, verification of symbiotic and plant growth promoting properties under greenhouse conditions every two years. There has also been an effort towards the execution of actions related to the implementation of the quality systems established in Brazil for

culture collections, including ISO 17025 and the application of OECD principles. The collection has supplied strains to public and private Brazilian institutions, and for public international institutions, always following the Brazilian legislation, more time-consuming in the case of international institutions. Data about the strains is available at a national platform of Embrapa, that will be soon publically available, and is now being incorporated to the WDCM catalogue.

2. Benefit from the training courses.

- Knowledge about international standards on Culture Collections
- Integration with other Culture Collections
- Promote Future Collaboration

3. Suggestion on WDCM work.

4. Comments or suggestion on the training courses.

- The time for the training course should be more condensed whit more hours a day and less days. Ex: 8 am to 12 am – 13 pm to 17 pm
- The Wi-Fi didn't work on the first week and the class practice was difficult to do.

- Some classes were very specific and not related on culture collection.
- Jane and Maria welcomed us very well and were very helpful before and during training.

5. Suggestion on further cooperation between WDCM and your collections.

Our institution have people in China to take care about international agreement, so we propose a collaboration with WDCM on human resources, exchange of technology knowledge and mainly for exchange of strains.