

**TITLE:** ANALYSIS OF ENDOPHYTIC BACTERIAL DIVERSITY ASSOCIATED TO *PASSIFLORA INCARNATA*.

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**ABSTRACT:**

The analysis of microbial diversity includes the assessment of genetic composition of microorganisms, the relation with the environment where they were found, and their ecological role within the ecosystem. Thus, microbes can be used for monitoring and predicting environmental change, as models for understanding biological interactions and even they are a source for new genes and organisms of value to biotechnology. This is the case of endophytic bacteria which live in the internal part of plants without causing disease symptoms. They can be isolated after plant surface disinfection or extracted from the internal plant tissue. They synthesize active compounds that are being used in public health and industry. However, an efficient and sustainable exploitation requires accurate insight of the structure of microbial communities that compose it. This study aimed to analyze the bacterial diversity associated to *Passiflora incarnata* leaves obtained by culture-dependent and culture-independent techniques. Leaf tissues were collected during growing stage of passion fruit (December-January) for extraction of total bacterial DNA and for the isolation of bacteria species, using standard cultivation methods for endophytic. The identification of isolates was performed by sequencing of 16S rDNA gene through Sanger method. From total bacterial DNA, hypervariable regions V5-V9 of 16S rDNA gene were amplified and sequenced by Illumina-based sequencing. Fifty-eight culturable bacterial endophytes were isolated and genetically characterized in eight genera, where the dominant population was *Bacillus* (72%). The molecular analysis of culture-independent diversity revealed the presence of seven phyla: Proteobacteria, Bacteroidetes, Firmicutes, Actinobacteria, Cyanobacteria, Nitrospirae and Chlamydiae. The same analysis, highlighted *Bacillus* among eighty-one genera. Moreover, most of *Bacillus* species identified by culture-dependent as well as culture-independent techniques are known as plant growth promoters what could be related with the fact that the plant was collected in their growth phase. It is suggested that bacterial community structure varies depending on the needs of the plant development stages.

**Keywords:** Microbial diversity, endophytic bacteria, *Passiflora incarnata*, *Bacillus*.

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