P4.14 Bulk and rhizosphere bacterial communities of the Caatinga vegetation: drought effects

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The semi-arid climate of Brazilian Northeast is characterized by low precipitation, high temperatures and a typical vegetation called Caatinga. It presents plants such as cacti that have developed adaptive structures to this environment. Bacteria have also evolved some mechanisms to live along with these plants. There are few studies about microorganisms inhabiting the Caatinga biome as well as microorganisms associated to the cacti. *Cereus jamacaru*, a typical cactus from this biome, is commonly found and it maintains its characteristics all over the year. Therefore, the aim of this study is to analyze the spatial distribution of soil and *Cereus jamacaru* rhizosphere bacterial community using cultivation-independent approaches and to evaluate how drought affects these organisms. Soil and cacti rhizosphere were collected from five sampling points throughout the Caatinga. Each of these samples had their DNA extracted and PCR amplified to obtain 16S rRNA gene fragments which were visualized by DGGE analysis. The DGGE fingerprints showed seasonal shifts for the non-rhizosphere soil samples, while for rhizosphere samples, it is not possible to observe such difference in band patterns, thus indicating a possible adaptation from the rhizosphere communities to the rainy and dry season. For the rainy season, it is possible to see a greater variation of the different sampling points for rhizosphere samples than for bulk soil. On the other hand, for the dry season, that variation is not so clear, and the DGGE profile seems to be more uniform. The difference observed in rainy season rhizosphere samples might be due to soil physical and chemical characteristics, which are important features that could also design the structure of soil communities. Further use of Principal Component Analysis (PCA) will allow the identification and correlation of bands with different soil types. Canonic Correlation Analysis (CCA) will enable the recognition of the main factors influencing bacterial community composition. This work will provide a baseline for the understanding of soil and rhizosphere bacterial community structure in Caatinga vegetation of semi-arid climate.