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CONFERENCIA

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EL MICROBIOMA DE LOS CÍTRICOS: DE LA METATAXONOMÍA A LA BÚSQUEDA DE BACTERIAS BENEFICIOSAS

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Máster y P.D. en **Biología Celular y Molecular
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Ayudas Plan Propio de Investigación y
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Citrus are the most cultivated fruit crop worldwide. Modern citrus industry needs new bioproducts to overcome currently phytopathological threats, tolerate biotic and abiotic stresses and increase yield and quality. Commercial citrus trees are grafted plants, where rootstocks are the hub of the most importantly horticultural and pathological traits. Mutualistic microbes present in root-associated communities (plant microbiome) have a great impact on host physiology and health, then providing a potential source of a variety of benefits for their host. The present study was devoted to assembly the rhizospheric citrus microbiome of two citrus rootstock genotypes grown in the same soil for over 20 years. We not found a significant genotype-dependent fine-tune of bacterial communities, since any citrus rootstock genotype selected an specific bacterial community. Nevertheless, some differentially abundant OTUs were found in higher proportions in Carrizo citrange, suggesting that this citrus rootstock genotype has higher affinity for certain bacteria. A “core-citrus” microbiome was established by selecting those OTUs shared among plants within and across genotypes (high adaptation) after 20 years of plant cultivation. Furthermore, host-selection (rhizosphere effect) was evaluated for each “core-citrus” OTU by comparing its abundance in roots vs. bulk soil bacterial communities. In parallel, an extensive census of the cultivable microbiome was performed to collect a large number of rhizospheric citrus isolates. Crossing 16S rRNA gene sequences from citrus isolates with those counterparts host-selected OTUs sequences from the “core-citrus” microbiome members, we linked metataxonomic data to microbe selection, allowing us to provide a citrus-adapted and host-selected rhizospheric bacterial collection (rcitrusBC) as a source to mine for plant beneficial microbes for future biotechnological applications required for the citrus industry.