

# Citrus industry wastes shift the soil bacterial communities structure in soils

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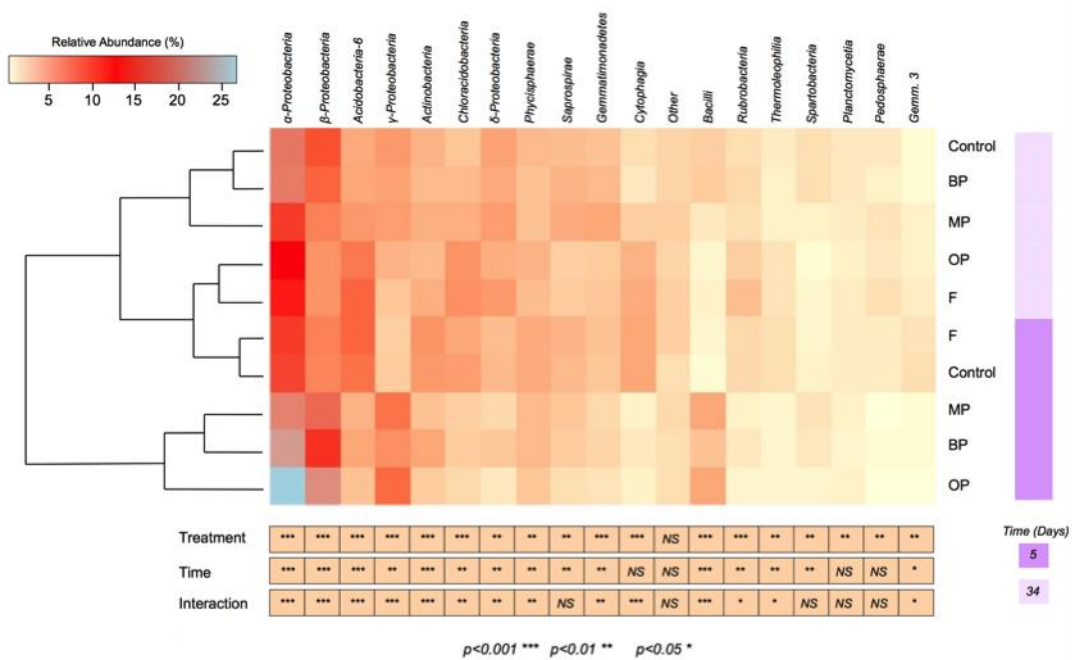
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Citrus industry generates a substantial amount of wastes across Mediterranean and their application in agriculture could be a valuable tool to sustain agro-ecosystems productivity and an environmental friendly approach for their management. In this microcosm study we examined the impact of orange, mandarin and banana peels on soil bacteria community and compare it to fertilized and non-fertilized controls. Diversity indexes and bacterial community structure was assessed using next generation sequencing in two sampling points. Both type of waste and time had strong and interactive effects on the bacterial community of soils. The lowest diversity was noticed 5 days after the initiation of the experiment in soils that received agricultural wastes. The lowest diversity was noticed in soils received orange peels followed by those received banana and mandarin peels. However, during time the bacterial diversity increased significantly and it was similar with that measured in control and fertilized soils. Copiotrophic bacterial groups were stimulated in soils treated with agricultural wastes while the abundance of most bacterial Phyla detected was suppressed. This study shows that agricultural wastes derived from citrus industry have a strong but temporal effect on bacterial community structure and represents a basis for future research regarding the impact of different organic amendments on bacterial community networks.

Figure 1. Heat-map of the response of bacterial community structure based on Brays-Curtis similarity index at class level during time and to the different treatments. The bottom panel shows the significant impact (ANOVA) of the treatment, time and their interaction on each Bacterial class



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