



**SIMGBM**  
Società Italiana di  
Microbiologia Generale  
e Biotecnologie Microbiche

# Microbiology 2023

XXXIV SIMGBM Congress

Cagliari

September 21-24, 2023

Programme and abstracts



## | Abstracts - POSTER SESSIONS |

whereas it had similar abundances in the sea and in the BSB. Its representative OTUs showed significant trends according to different parameters along the salinity gradient. OTU1 abundance increased along the salinity gradient, with decreasing water temperatures and increasing rainfalls, and it showed a maximum in January; OTU2 increased with increasing BOD<sub>5</sub> and it showed the highest abundances in the period August-October; finally, OTU 3194 increased according to decreasing salinities. In BSB, a significant variation was shown in relation to the seasonality by OTU 3194, which started increasing in spring to reach a maximum in summer. The results of this study suggest that *Pontimonas* could easily settle in hypersaline habitats, having also broad euryhaline representatives, and it might include possible extreme halophilic members.

B42

**The effects of plant-growth promoting actinobacteria on *Origanum vulgare* growth and bioactive molecule production**

S. La Scala<sup>1</sup>, T. Faddetta<sup>1</sup>, S. Amata<sup>1</sup>, C. Rizzo<sup>1</sup>, A. Palumbo Piccionello<sup>1</sup>, A. Carrubba<sup>2</sup>, F. Caradonna<sup>1,3</sup>, G. Gallo<sup>1,3</sup> and P. Quatrini<sup>1</sup>

<sup>1</sup>STEBICEF Department, University of Palermo, Italy

<sup>2</sup>SAAF Department, University of Palermo, Italy

<sup>3</sup>National Biodiversity Future Center, Palermo, Italy

Plant growth promoting (PGP) bacteria are naturally occurring in plant crop soil and rhizosphere. They are increasing attention for their possible use as biofertilizers, since PGP bacteria exert beneficial effects on plant growth and development by improving, as examples, nutrition uptake, abiotic and biotic stress tolerance in plants<sup>[1]</sup>. Among the PGP bacteria, the actinobacteria are considered very promising due to their metabolic versatility, bioactive metabolites production and drought resistance. Sicily, like most semi-arid Southern European regions, hosts drought-resistant plants such as aromatics, with a diversified microbiota and high nutritional value, due to the production of valuable bioactive molecules. In this context, the two PGP actinobacteria *Kocuria rhizophila* and *Streptomyces violaceoruber* have been investigated for their possible effects on *Origanum vulgare* growth and bioactive molecule production. In particular, *O. vulgare* cultures were grown in pots and, subsequently, inoculated with actinobacterial cultures or mixtures thereof, using water, bacterial growth medium and a commercial microbial mix biofertilizer as control conditions, respectively. In this regard, the inoculum contribution on the composition of the soil microbiota has been also investigated by mean of culture-dependent approaches to reveal the presence of actinobacteria. The plants were then transplanted into an open field and grown until flowering. Preliminary results showed that PGP bacterial treatments exerted significant effects on selected morpho-physiological parameters like plant height. In addition, leaves and flowers were sampled to perform solid phase microextraction (SPME) analyses to reveal possible qualitative and quantitative changes on plant volatile organic compounds that could be ascribed to plant-actinobacteria interaction.

Reference:

<sup>[1]</sup><http://dx.doi.org/10.3390/metabo13030374>