

A combination of two bacteria genera improves plants' health

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Researchers of BacBio Laboratory of the University of Malaga have evidenced that the combination of '*Bacillus subtilis*' and '*Pseudomonas*' bacteria can improve plants' health. Credit: University of Malaga

For the first time researchers of BacBio Laboratory of the University of

Malaga have evidenced that the combination of *Bacillus subtilis* and *Pseudomonas* bacteria can improve plant health.

Published in *Nature Communications*, the study documents the protective role of these bacteria when they coexist in the same space. "It was previously known that some bacteria separately contribute to the improvement of some plants, for example, to their growth. In this study, we have taken a step forward by proving that bacteria, if mixed, can confer even greater benefits," says Professor Diego Romero of the Department of Microbiology, main researcher of BacBio.

The expert explains that scientists have always believed these bacteria exclude themselves, so not only does this study evidence that they can live in harmony, but also proves that using them in combination promotes their positive effects on plants. "The applications are endless. Apart from promoting a [sustainable agriculture](#) by reducing fertilizers, these results may have an impact on any [research field](#), such as antibiotic resistance," says Romero.

The researcher Carlos Molina-Santiago is the main author of this article, who worked with about ten members of the Laboratory, also in collaboration with research groups of the University of Bordeaux, the University of San Diego (USA), and Dr. John R. Pearson of Bionand. The study has been supported by EU funding through the ERC-Starting Grant, which promotes top-quality research projects.

BacBio Laboratory, located in the Bioinnovation building of the UMA, has been studying bacteria physiology and their interaction with the environment since 2013. Plants are another priority line of research, particularly, the Cucurbitaceae, a plant family which comprises melon and cucumber.

More information: Carlos Molina-Santiago et al, The extracellular matrix protects *Bacillus subtilis* colonies from *Pseudomonas* invasion and modulates plant co-colonization, *Nature Communications* (2019). DOI: [10.1038/s41467-019-09944-x](https://doi.org/10.1038/s41467-019-09944-x)

Provided by University of Malaga

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