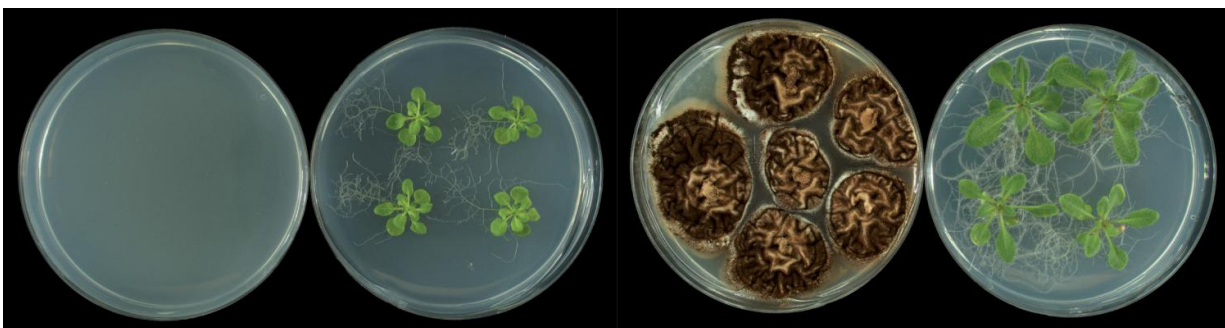


Compounds emitted by phytopathogen microbes encourage plant growth

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A wide range of microorganisms, including fungi and phytopathogenic bacteria, are capable of emitting volatile compounds which boost plant growth and flowering. Credit: CSIC

A wide range of microorganisms, including fungi and phytopathogenic bacteria, are capable of emitting volatile compounds which boost plant growth and flowering, and in accumulating up reserves as demonstrated in a study led by scientific researchers at Navarra's Institute of Agro biotechnology, in northern Spain, which is a mixed centre shared between Spain's National Research Council (CSIC), the Public University of Navarra, and the Regional Government of Navarra.

The discovery could have applications in sustainably improving crop yields as an alternative to conventional agrochemicals and in encouraging the interaction between plants. In addition, it will help in reducing the

number of strains of beneficial micro-organisms. The results appear in two articles in the magazines *Plant Cell and Environment*, and *Plant Physiology*.

"This study puts forward for the first time the 'bad little critters, beneficial workers' concept, according to which non-beneficial microorganisms constitute an untapped and favourable pool of bio-stimulants with a high biotechnological potential", explains Javier Pozueta, CSIC investigator at the Institute of Agro-biotechnology.

Furthermore, the articles gather the results from projects carried out into biochemical and molecular mechanisms involved in the 'positive' response in [plants](#) to [volatile compounds](#) emitted by microorganisms which, from an anthropocentric standpoint, are considered to be 'negative' or 'non-beneficial'.

Such studies demonstrate that microbial compounds have a positive effect on the capacity of a plant to convert CO₂ from the air into biomass. The work is consistent with the idea that organisms are related to, or communicate with, themselves using 'info-chemicals', or messenger substances.

The findings constitute a valuable source of study given the growing demand for food which has arisen as a consequence of the increase in the world population as well as the progressive reduction in arable farmland.

More information: Ángela María Sánchez-López et al, Volatile compounds emitted by diverse phytopathogenic microorganisms promote plant growth and flowering through cytokinin action, *Plant, Cell & Environment* (2016). [DOI: 10.1111/pce.12759](https://doi.org/10.1111/pce.12759)

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