

# Tomato plant aroma to protect crops

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The Tomato, (*Lycopersicon lycopersicum*) flowering, associated with a young, developing fruit. Credit: Earth100/Wikipedia

Tomato plants emit an aroma in order to ward off bacterial attacks. This volatile compound is hexenyl butyrate (HB), and according to testing by researchers at the Institute for Plant Molecular and Cellular Biology, it

has great potential for protecting crops from infections, drought, etc. The finding has been published in the journal *Frontiers in Plant Science*.

"The application of this compound in fields is a new natural strategy for improving crop yields. Treatments will protect crops from biotic and [abiotic stress](#) easily, efficiently and at a low cost," says Purificación Lisón, researcher at the Institute for Plant Molecular and Cellular Biology (UPV-CSIC.)

The compound closes the stomata, which is the key to protecting plants. According to the researchers at IBMCP, there are no other products on the market with these properties, making it significant for the farming industry. Another advantage is that it is easy to use. As a volatile compound, it can be applied by spraying onto plants and also by using diffuser devices.

The properties of this compound include zero toxicity, making it safe for food, and it is inexpensive. In addition, it is easily synthesized, and according to the tests done at IBMCP, it is highly efficient, which makes it effective at low doses.

The researchers have proven that the treatment of the tomato plants with this compound causes the closing of the stomata and protects them from infection by the *Pseudomonas syringae* bacteria, increasing their resistance to it. In addition, they have observed that the treated [tomato plants](#) are more tolerant to drought. They have also confirmed its efficiency in several types of vegetables, especially tomatoes, corn, alfalfa citrus and tobacco families.

"This is what we have demonstrated up until this point, but the compound has huge potential. It can be used as a protective barrier against situations such as drought and to protect plants from other infections produced by several pathogens whose entrance door is the

stomata," says Purificación Lisón, researcher at the Institute for Plant Molecular and Cellular Biology (UPV-CSIC.)

## Controlled ripening

Another application could be controlling fruit development and the ripening processes. In those cases, treatment with the compound could be used in order to cause, in a controlled manner, treated [plants](#) to enter an induced "lethargy" of sorts, as the [stomata](#) closing involves delaying developmental processes. This could provide farmers with a new strategy for controlling harvest times and adjusting them better to the needs of the market.

**More information:** María Pilar López-Gresa et al. A New Role For Green Leaf Volatile Esters in Tomato Stomatal Defense Against *Pseudomonas syringe* pv. tomato, *Frontiers in Plant Science* (2018). [DOI: 10.3389/fpls.2018.01855](https://doi.org/10.3389/fpls.2018.01855)

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