A possible way to confer TR4 fungus resistance to Cavendish bananas

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A team of researchers from Wageningen University, working with colleagues from several institutions in Colombia, has found a possible means to confer TR4 fungus resistance to Cavendish bananas. In their study, published on the open access site *PLOS ONE* (2022). DOI: 10.1371/journal.pone.0273335

(A-G): External and internal symptoms at six weeks after single inoculations with (A) *Fusarium odoratissimum* TR4, (B) *F. oxysporum* f. sp. melongenae, (C) *F. oxysporum* f. sp. cepae, (D) *F. oxysporum* f. sp. *lycopersici*, (E) *F. oxysporum* f. sp. *gladioli*, (F) *F. oxysporum* f. sp.*cubense* R1, and (G) *F. tardichlamydosporum* R2. (H-N): External and internal symptoms at six weeks after primed inoculations as follows (H) First inoculation with TR4 followed by challenging with R1 and (I-N) first inoculation as per (B-G) followed by a challenge with TR4. Credit: *PLOS ONE* (2022). DOI: 10.1371/journal.pone.0273335

Members of the team noted that prior research has shown that some plants become temporarily immune to certain types of fungus when exposed to a different kind of fungus—one they can fend off naturally. In this case, they wondered if exposing Cavendish banana plants to TR1 would give them protection against TR4.

To find out, they dug up some sample plants and dipped them in a solution containing TR1 fungus. After drying them, they exposed the plants over different intervals of time to TR4 spores. They found that the approach worked—the plants that had been exposed to TR1 showed significant resistance to TR4 for up to 10 days.

The researchers were not able to explain why the exposure made the plants more resistant, noting that plants do not have the kind of immune cells that remember pathogens—but they are optimistic that improvements to their technique could prove helpful in combating TR4.


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