

Environmentally friendly method shows promise in control of devastating potato disease

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Author Ramesh R. Vetukuri with plants. Credit: Pruthvi B. Kalyandurg, Poorva Sundararajan, Mukesh Dubey, Farideh Ghadamgahi, Muhammad Awais Zahid,

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Late blight, caused by the fungal-like *Phytophthora infestans*, is one of the most devastating diseases affecting potato and tomato crop and, most famously, was the cause of the notorious Irish potato famine. Despite years of research, intensive fungicide spraying remains the only effective way to control the pathogen as it is very powerful at overcoming plant resistance. Due to the environmental concerns related to this practice, researchers continue searching for alternative control methods.

One possible alternative involves utilizing a method known as [spray](#)-induced gene silencing to control the pathogen. This method was crafted using double-stranded RNA, which is known to trigger a process that removes similar molecules from recipient cells. Researchers sprayed the double-stranded RNA onto potato leaves infected with *P. infestans* and found a clear reduction in [late blight](#), showing that spray-induced gene silencing successfully inhibited the development of the disease.

"We showed, for the first time, that spray-induced gene silencing can control late blight," said Ramesh Vetukuri, a plant pathologist at the Swedish University of Agricultural Sciences who was involved with this research. "Our study is also the first to indicate that *P. infestans* sporangia can take up dsRNA from the surroundings and that it efficiently suppresses the expression of target genes."

Additionally, because this method is not labor intensive and can be applied to most pathogens, it has potential to control many pathogens in an environmentally friendly manner. "We anticipate that using spray-induced gene silencing to control diseases will reduce the usage of chemical pesticides. This technology can also be quickly adapted for new targets," Vetukuri added.

More information: Pruthvi B. Kalyandurg et al, Spray-Induced Gene Silencing as a Potential Tool to Control Potato Late Blight Disease, *Phytopathology*® (2021). [DOI: 10.1094/PHYTO-02-21-0054-SC](https://doi.org/10.1094/PHYTO-02-21-0054-SC)

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