

Viral alliances overcoming plant defenses

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Washington State University researchers have found that viruses will join forces to overcome a plant's defenses and cause more severe infections.

"These findings have important implications in our ability to control these viruses", says Hanu Pappu, Sam Smith Distinguished Professor of Plant Virology and chair of WSU's Department of [Plant Pathology](#).

"Mixed infections are quite common in the field and now we know that viruses in these mixed infections are helping each other at the [genetic level](#) to overcome host defenses and possibly lead to the generation of new viruses."

Pappu publishes his findings in the latest issue of the journal [PLOS ONE](#). Joining him are PhD student Sudeep Bag and Neena Mitter, an associate professor at Australia's University of Queensland.

The researchers focused on Iris yellow spot virus and Tomato spotted wilt virus after Bag discovered that, when they infect the same plant, they helped each other overcome a plant's defense response. With Mitter's help and sophisticated molecular techniques, Bag found both viruses dramatically changed their [genetic expression](#), breaking down the plant's defenses and leading to more severe disease. Bag also found that genes from the Tomato spotted wilt virus seemed to "aid and abet" Iris yellow spot virus as it spread throughout the plant and caused more disease.

Growers should take this phenomenon into account, says Pappu, with

broader [management tactics](#) targeting more than one virus and possible variations.

More information: The paper, "Complementation between Two Tospoviruses Facilitates the Systemic Movement of a Plant Virus Silencing Suppressor in an Otherwise Restrictive Host," can be found at [dx.plos.org/10.1371/journal.pone.0044803](https://doi.org/10.1371/journal.pone.0044803)

Provided by Washington State University

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