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A single amino acid in the helicase domain of PMMoV-S is responsible for its enhanced accumulation in *C. chinense* (L3L3) plants at 32 °C

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Temperature has a pleiotropic effect on plant viruses, affecting disease symptoms, viral accumulation and spread. High temperatures also affect plant virus resistance by altering plant resistance (R) genes and are frequently associated with enhanced RNA silencing activity, whereas low temperatures inhibit this regulatory mechanism. In contrast, basal resistance (or innate immunity) is inhibited by high temperature indicating that regulatory components other than R genes are also modulated by temperature. Pepper mild mottle virus (PMMoV), a member of the genus Tobamovirus, is one of the major viral pathogens in pepper crops all over the world. In *Capsicum chinense* (L3L3) plants a higher accumulation of the Spanish strain (PMMoV-S) as compared to the Italian strain PMMoV-I is detected when plants are grown at 32°C. By using a reverse genetic approach, we have established that a single amino acid at position 898 in the helicase domain of the polymerase protein, outside of the conserved regions of the helicase, is critical for the higher accumulation of PMMoV-S observed. It also is necessary for both increased accumulation of viral RNA of both polarities in pepper protoplasts and enhanced cell-to-cell movement in *C. chinense* plants. The influence of thermoresistance of PMMoV-S, a P1,2 pathotype, and its prevalence on pepper cultivars over PMMoV-I, a P1,2,3, pathotype, is discussed.

Biography

Isabel García-Luque has completed her PhD in 1984 from the Complutense University in Madrid. She is member of the CSIC from 1986, and now is research group leader and research scientist at the CSIC. She has stayed at the USDA, the Rockefeller University, the CNRS. She has published more than 40 research articles, more than one hundred communication/posters at either national/international congresses. She has participated in more than 20 research projects and she has directed 8 Ph D thesis.

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