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The emergence of Tomato Leaf Curl New Delhi Virus in France

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The Mediterranean basin and Mainland France are facing the risk of *Tomato leaf curl New Delhi virus* or ToLCNDV (genus *Begomovirus*, family *Geminiviridae*) transmitted by the whitefly *Bemisia tabaci*. In Mediterranean countries, ToLCNDV was detected in 2012 in Spain (1) then throughout Southern Europe and North Africa (2). In September 2020, symptoms reminiscent to ToLCNDV were observed on zucchini in the Bouches-du-Rhône and Gard regions of France. The presence of ToLCNDV was confirmed using RCA (Rolling Circle Amplification) and PCR (Polymerase chain reaction) (3). Complete genome sequencing confirmed that the French isolates belonged to the “Mediterranean” ToLCNDV clade. However, molecular diversity studies suggested that at least two different variants, differing by 1-2%, have been introduced, possibly from different origins. Isolates from the two variants were cloned and characterized biologically, displaying contrasted severities in cucurbits with a recovery phenotype associated with one variant on susceptible melon and zucchini. Experiments are underway to characterize the molecular determinants of the phenotypic differences, the potential trade-off with other properties (host range in cultivated and wild hosts, transmission specificity and efficiency) and the risks of durable establishment of the virus in the environment.

References

- (1) Juárez, M., et al., (2014). *Plant Dis.*, 98: 857-857.
- (2) Fortes, I., et al., (2016). *Viruses*, 8: 307.
- (3) Desbiez, C., et al., (2021). *New Dis. Rep.*, 43: e12006.