

BROCHURE INTERNATIONAL SYMPOSIUM ON SSDNA VIRUSES -IS³DV-

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IS76?

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Is succeeding in superinfection a characteristic of the recombinant TYLCV-

TYLCV-IS76 is a natural recombinant of tomato yellow curl virus (TYLCV) in which 76 nts of the intergenic region were replaced by the homologous sequence of tomato yellow curl Sardinia virus (TYLCSV). TYLCV-IS76 emerged in Morocco and was shown to be highly competitive in resistant cultivar carrying the Ty-1 resistance gene, a gene that prevents symptoms and reduces viral load. In competition experiments, the accumulation level of TYLCV-IS76 was higher than that of parental viruses regardless of its time of infection, i.e., simultaneously with parental viruses or with 1 or 4 months delays. In addition to reveal the super fitness of this recombinant, this result suggests that cross protection, a mechanism that could have occurred between closely related genomes, does not protect resistant plants infected with TYLCV against TYLCV-IS76. As gene silencing-based antiviral defence is involved in the Ty-1 resistance mechanism and can also participate to cross protection, the question was: is the superinfection success a specific feature of TYLCV-IS76, or is it a more general feature of tomato-infecting begomoviruses? This question was addressed experimentally by testing if viruses, slightly different from TYLCV-IS76, can also superinfect tomato plants. A Ty-1 resistant tomato cultivar and an isogenic susceptible one were used to test if the Ty-1 gene is involved in the superinfection phenomenon. This study may unveil a new aspect of the unusual fitness of TYLCV-IS76, and shed new light on potential interactions prevailing in plants co-infected with begomoviruses.
