Identification of virus determinants and mechanisms that regulate Tomato leaf curl New Delhi virus host range

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Tomato leaf curl New Delhi virus (ToLCNDV) is a whitefly-transmitted bipartite begomovirus (genus *Begomovirus*, family *Geminiviridae*), whose genome contain two single-stranded DNA molecules (DNA-A and DNA-B). This virus causes damage to multiple cultivated plant species mainly belonging to the *Solanaceae* and *Cucurbitaceae* families and was limited to Asian countries until 2012, when it was first reported in Spain, causing severe epidemics in cucurbit crops. Our results have demonstrated that isolates spreading throughout the western Mediterranean Basin belong to a novel strain of ToLCNDV (strain ES) and cause severe infections in cucurbit crops but poorly infect tomatoes. However, existence of ToLCNDV isolates that severely affect tomato plants has been reported and infectious clones are available for one of these isolates (India isolate, kindly provided by S. Chakraborty, Jawaharlal Nehru University, New Delhi, India). Our main goal is to identify the viral determinants and to understand the mechanisms associated to the ability of some isolates of ToLCNDV to infect tomato efficiently. This information will help to prevent the threat of ToLCNDV damage in tomato in the Mediterranean Basin. We have agroinoculated tomato cv Moneymaker with infectious clones of ToLCNDV-Spain isolate (ToLCNDV-[ES]; our isolate unable to induce efficient infections in tomato) and ToLCNDV-India isolate (ToLCNDV-[IN], which efficiently infects tomato). The results from local and systemic infections with both viruses and pseudorecombinants between A and B components of the bipartite ToLCNDV-[ES] and ToLNCDV-[IN] will be shown and discussed.