

## The begomovirus Tomato leaf curl New Delhi virus is not seed-transmitted in melon

Isabel M. Fortes<sup>1</sup>, Verónica Pérez-Padilla<sup>2</sup>, Beatriz Romero-Rodríguez<sup>1</sup>, Rafael Fernández-Muñoz<sup>1</sup>, Cristina Moyano<sup>2</sup>, Araceli G. Castillo<sup>1</sup>, Leandro De León<sup>2</sup> and Enrique Moriones<sup>1</sup>

<sup>1</sup> Instituto de Hortofruticultura Subtropical y Mediterránea "La Mayora", Universidad de Málaga-Consejo Superior de Investigaciones Científicas (IHSM-UMA-CSIC), Málaga, Spain

<sup>2</sup> Instituto Nacional de Investigación y Tecnología Agraria y Alimentaria (INIA), Madrid, Spain

Transmission of plant viruses through seed can be one of the major factors contributing to long-distance dispersal through global trade of seeds and can have important ecological consequences for virus dissemination. *Begomoviruses* (genus *Begomovirus*, family *Geminiviridae*), and among them isolates of the species Tomato leaf curl New Delhi virus (ToLCNDV), cause significant yield losses in economically important crops worldwide. These viruses are horizontally transmitted in nature in a circulative and persistent manner by the whitefly *Bemisia tabaci* but in recent years several reports have raised the possibility of vertical transmission through seeds for some members of this genus. We have investigated the possible transmission by melon (*Cucumis melo* L.) seeds of a ToLCNDV isolate of the "Spain" strain, in three different melon cultivars (all susceptible to ToLCNDV). The presence of ToLCNDV

in floral tissues and the detection of viral DNA in seeds reveals the seed-borne nature of this virus. However, grow-out studies conducted with the progeny of melon plants germinated from seeds collected from ToLCNDV-infected plants and evaluated at early (1 leaf) or at late (20 leaves) growth stages did not support the vertical transmission of ToLCNDV from seeds to the offspring.