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

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Transmission of plant viruses through seed can be one of the major factors contributing to longdistance 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.

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