

Title:

Determining the prevalence of geminiviruses in vegetable crops in the Mediterranean

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Abstract body text:

Geminiviruses (family Geminiviridae) are among the most damaging viruses in vegetable crops and particularly in the Mediterranean Basin. Through an international 3-year collaboration federated by a PRIMA call (Partnership for research and innovation in the Mediterranean area), a project involving public and private institutions from Italy, Jordan, Tunisia, Morocco, and France was launched on the prevention and control of new and invasive geminiviruses infecting vegetables in the Mediterranean. The prevalence of geminiviruses previously reported in this areas (i.e. tomato yellow leaf curl associated viruses, tomato leaf curl New Delhi virus, chickpea chlorotic dwarf virus, squash leaf curl virus and watermelon chlorotic stunt virus) has been monitored with virus-specific PCR tests on DNA extracted from symptomatic tomato and cucurbit plants. Meanwhile, the presence of potentially new geminiviruses circulating in the region is being investigated by deep-sequencing of DNA extracted from insects collected in the surveyed areas (mainly whiteflies, aphids, and leafhoppers). Harmonized procedures for collecting, storing, and analysing leaf and insect samples have been set up, allowing to compare results of virus incidence among countries. In 2020, more than one thousand leaf samples and about two hundred insect samples were collected in various agroecosystems as follows: Morocco, in Berkane area in the north-east and Souss region in the south; Tunisia, in Center, North, and Sahel regions; Italy, in Campania and Sicily; and in northern area of Jordan. Based on these surveys, the geminivirus prevalence in the Mediterranean Basin is being updated.