Evaluation of Several Accessions and Wild Relatives of *Cucumis melo* against Cucumber Vein Yellowing Virus (CVYV)

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Cucumber vein yellowing virus (CVYV) was described in Israel in 1960 by Cohen and Nitzany. Later it was also observed in Jordan (1), Turkey (6) and recently, has been described affecting protected melon crops in Almería, Spain (3). Since the fall of 2000, the virus has spread drastically, causing serious economic losses in protected cucurbits crops in the Southeast of Spain.

The virus is transmitted by the sweet potato whitefly, *Bemisia tabaci* (Gennadius) in a semipersistant manner. Its host range seems to be restricted to cucurbits (5), although the virus has been also found affecting other species (4).

The symptomology is characterised by a yellowing of the leaf vein area, becoming systemic, with chlorosis of the youngest leaves. In extreme infections, plant stunting and fruit damage have been described. Fruits affected show chlorotic spots on their skin and/or internal necrosis.

The high virus transmission efficiency and the difficulty of *B. tabaci* control make necessary the search for genetic resistance/tolerance to the virus. Presently, there is not any total or efficient resistance to CVYV described in melon, and the behaviour of any wild *Cucumis* species against the virus is unknown. Once the mechanical inoculation technics were optimized and an accurate molecular diagnostic method established, we started an evaluation of the melon and wild *Cucumis* species collection maintained at the Experimental Station La Mayora, CSIC, Spain for CVYV resistance/tolerance.

During last year, 152 melon genotypes coming from different geographic areas have been evaluated as well as several accessions of the following species: *C. myriocarpus* (one), *C. metuliferus* (one), *C. africanus* (two), *C. zeyheri* (one), *C. dipsaceus* (two), *C. prophetarum* (one), *C. meeusii* (one), *C. ficifolius* (one), and *C. anguria* var *anguria* (one). The commercial cultivar Rochet has been used as a susceptible control in the experiments. Ten plants/accession has been mechanically inoculated with the virus and two plants/accession were used as control.

The virus isolate, CVYV-A1LM, was obtained by the authors from a commercial cucurbit crop in Almería (Spain). The virus isolate was maintained in melon plants of 'Rochet'. Ten plants of each accession were inoculated mechanically by rubbing active carbon and carborundum-dusted cotyledons with extracts from these infected foliar tissue homogenized in 0.01 M K_2HPO_4 buffer (pH 7). Plants were inoculated at the fully expanded cotyledon stage. Mock-inoculated and non-inoculated controls were included routinely. To ensure efficent virus inoculation, five days after the first inoculation, plants were reinoculated also in the cotyledons. Presence or absence of virus symptoms was recorded for each plant ten days after the second inoculation. The asymptomatic accessions and the plants with no clear symptoms were tested for the virus inoculated by molecular hybridization using a RNA digoxigenin probe containing a cDNA insert of 1.5 Kb.

All plants of the susceptible control, 'Rochet', showed systemic infection 12 days after artificial inoculation. Plant showed strong interveinal chlorosis in the second true leaf, more serious in the growing tips.

All plants of the 152 melon accessions artificially inoculated showed systemic response 12-15 days after inoculation. Two melon accessions, C-29 (Casaba Golden Beauty) and C-867 (Ambrus-Fele) showed a heterogeneous response to the virus, since only 3 plants showed symptoms of infection. If this response is confirmed, those melon accessions could be of interest in resistance/tolerance breeding.

Plants of *C. prophetarum* showed only local lesions in the cotyledons and no virus was found in the plant. The plants of the species *C. metuliferus*, *C. africanus*, *C. dipsaceus,* and *C. zeyheri* do not show any symptoms. But, after molecular hybridization, CVYV

was found in plants of *C. metuliferus, C. zeyheri* and one of the accessions of *C. africanus*. The rest of the plants were totally resistant. Strong sexual barriers between the wild species and *C. melo* make the use of these resistance sources very difficult.

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