Natural hosts of Grapevine fanleaf virus in Iran

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Grapevine fanleaf is an important disease of grapevine worldwide. Its causal agent, Grapevine fanleaf virus (GFLV) belongs to the genus Nepovirus in the family Secoviridae. Despite wide range of experimental hosts, GFLV has been restricted to vitis species in nature; however, it was detected in Bermuda grass, knotweed and raspberry in Iran. To search for other natural hosts of GFLV, weeds were collected from vineyards of Khorasan-Razavi and Fars provinces. Infection of the samples was determined using antibodies raised against Iranian isolates of GFLV in indirect-ELISA. ELISA results showed 118 GFLV-infected samples out of 184 samples tested. Non-vitis hosts consisted of Bermuda grass (Cynodon dactylon), knotweed (Polygonum sp.), raspberry (Rubus ulmifolius), Johnson grass (Sorghum halepense), plantain (Plantago major), and sweet-clover (Melilotus sp.). Mechanical inoculation of extracts of these plants induced chlorotic spots and vein clearing in Chenopodium quinoa plants. Using specific primer pairs a 1760 bp fragment corresponding to complete length of coat protein gene and 230 nucleotides proximal to 3’ end were amplified from the ELISA positive samples. Sequencing of the amplified fragments revealed that non-vitis isolates of GFLV had 86-91 percent of identity with those deposited in the GenBank. Results revealed that Iranian isolates of GFLV have a host range wider than expected and occur in considerable variation.