

WISLER, GAIL C., H.-Y. LIU, J.E. DUFFUS. USDA-ARS, Salinas, CA 93905. Genomic comparisons among several furo-like viruses of sugar beet.

The degree of relationship among five beet necrotic yellow vein virus (BNYVV) isolates and eight other furo-like viruses termed beet soil borne mosaic virus (BSBMV) from sugar beet in the United States was evaluated by serology of both structural and nonstructural proteins, particle morphology, host range, fungal transmission, and analysis of the RNA genomes. Polyclonal antisera to the C-terminal 60 amino acids of the BNYVV coat protein (CP), the 14- and 75-kDa nonstructural proteins, and seven monoclonal antibodies were specific to BNYVV in Western blots. Antisera to the BNYVV CP and to its cloned CP reacted strongly with the 22-kDa CP of the BNYVV isolates but weakly to the 24-kDa CP of the BSBMV related isolates. Antisera to the 42-kDa BNYVV movement protein reacted with a 42-kDa protein of the BNYVV isolates, and also with a ca. 44-kDa protein of all but one BSBMV-related isolate. The eight non-BNYVV isolates all gave reactions of identity in Western blots using antisera to the CP of the two original BSBMV isolates from Texas, with a molecular mass of ca. 24-kDa, which is distinct from the 22-kDa for the CP of all BNYVV isolates. No cross-reactivity was observed in reciprocal immunodiffusion tests between the CP of BNYVV or the BSBMV isolates, whereas all BNYVV gave reactions of identity to each other and likewise, all BSBMV-related isolates gave reactions of identity to one another. Three BSBMV-like isolates were tested and shown to be transmitted by Polymyxa betae. The symptoms of BSBMV isolates were different from those of BNYVV on indicator plants. Three BSBMV-related isolates were analyzed for polyadenylation of the RNA's, and for the size and number of their RNA's in comparison to BNYVV. Like BNYVV, all RNA's of BSBMV-related isolates were polyadenylated, but the size and number of RNA's differed from BNYVV. Based on the various parameters evaluated here, the eight BSBMV isolates appear to be furoviruses, but are distinct from BNYVV.