

Detection of *Tobacco streak virus* infecting sunflower by ELISA and RT-PCR method

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ABSTRACT

Sunflower necrosis disease caused by *Tobacco streak virus* (TSV) is major threat to sunflower crop. The presence of TSV in necrosis disease affected leaf samples collected from major sunflower growing areas of Andhra Pradesh, Karnataka, Maharashtra and Tamil Nadu was confirmed by direct antigen-coated enzyme linked immunosorbent assay using TSV specific polyclonal antiserum. All the isolates showed positive reaction in ELISA test using TSV specific polyclonal antiserum, indicating the presence of TSV. The ELISA values varied from 0.57 to 1.18 as compared to the positive control *i.e.* TSV infected cowpea (1.59) and healthy control (0.07). Disease reaction and symptomatology of three test plants *viz.*, cowpea cv. C-152, sunflower cv. MORDEN and *Nicotiana tabacum* cv. SAMSUN to these virus isolates were studied under artificial inoculated condition by sap transmission. Using primers specific to the coat protein region of TSV, RT-PCR was successful in amplifying TSV- CP gene from sunflower tissue. A DNA band of expected size (approximately 700 bp) was observed in all the necrosis disease affected sunflower samples collected from Maharashtra, Karnataka, Tamil Nadu and Andhra Pradesh. Characterization of the isolates of virus through cloning and sequencing may reveal the occurrence of pathotypes/serotypes from different sunflower growing locations of the country.

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