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Serological and molecular characterization and diagnosis of viruses expressing similar necrotic symptoms in blackgram and greengram

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In the recent years, viruses causing necrosis, transmitted by thrips has assumed epidemic proportion and became a serious production constraint in blackgram and greengram. Leaf curl disease caused by Peanut bud necrosis virus(PBNV) considered being a major threat. Recently, Tobacco streak virus(TSV) has also been reported to be a cause of leaf curl symptoms paving confusion in field diagnosis to assess the disease incidence. Although both the viruses cause necrosis and are transmitted by thrips, the method of transmission and virus vector relationships vary and hence need different approaches of management practices. Symptomatic leaf samples collected from various locations of Andhra Pradesh, subjected to DAC-ELISA against TSV and PBNV polyclonal antisera. The samples tested positive to PBNV (PBNV-BG, PBNV-GG) and the samples positive to TSV (TSV-BG, TSV-GG) expressed typical symptoms in infectivity tests. The nucleo-capsid protein(N) gene of PBNV-BG&GG and coat-protein(CP) gene of TSV-BG&GG were amplified by RT-PCR yielding a fragment of the expected size, ca.~830bp and ca.~700bp respectively. The determined nucleotide sequences of PBNV and TSV isolates were deposited at GenBank. The sequenced region in PBNV isolates contained a single ORF of 831 bases that could potentially code for a protein of 276 amino acids while TSV isolates contained a single ORF of 717 bases that could encode for a protein of 238 amino acids. Comparative sequence analysis revealed that TSV-BG shared hundred per-cent sequence homology with TSV-GG at nucleotide and amino acid levels, whereas PBNV-BG shared maximum sequence homology with PBNV-GG at nucleotide(99.7%) and amino acid(100%) levels.

Biography

Dr. K. Jyothirmai Madhavi has completed her Ph.D from Acharya N G Ranga Agricultural University, Andhra Pradesh, India and joined Dr. YSR Horticultural University as Assistant Professor(Plant Pathology). She has published seven research papers and one invited paper in peer reviewed journals. She has presented in XX National Conference of Indian Virological Society(IVS) on "Managing Emerging and Re-emerging Plant, Animal, Human and Aquatic Viral Diseases: One Health Perspective", VIROCON-2011 at National Research Centre for Equines(NRCE), Hisar, India. She also presented in "3rd Global Conference: Plant Pathology for Food Security" at Maharana Pratap University of Agriculture and Technology, Udaipur, India.

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