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(Vanitha, L.S.)
Molecular characterization of begomovirus causing leaf curl disease in sunflower

Vanitha, L.S.

Ph.D Thesis Abstract

Sunflower (*Helianthus annuus* L.) is one of the three important edible oilseed crops grown in the world after soybean and groundnut. The crop has been found suffering from many diseases. Recently a leaf curl disease caused by a begomovirus has been observed in Northern Karnataka, India. Sunflower leaf curl virus infected plant are associated with symptoms such as vein clearing, vein thickening, upward curling of leaves, reduction in the leaf size, enations, stunted growth with reduced ear head resulted poor seed set. The occurrence of disease incidence up to (58.20%) in MARS, Pamanakallur (10%) of Raichur district. Murdi (10%), Narasapur (25%), Kanakagiri (12.50%), Somanakoppa (16%), Mangaluru (25%), Beur (15.50%), Gundlanur (8%), Betagere (10.50%), Katarki (20%) disease incidence was noticed in villages of Koppal District, Northern Karnataka.

Twenty viruliferous whiteflies were required for 100 per cent transmission of SuLCV. Among twelve plant species tested, SuLCV was successfully infected the plant species viz, tobacco, tomato, Zinnia, Parthenium and Acanthospermum sp. The virus was detected using CP specific primers which amplified ~570 bp product of core CP of the viral genome which was cloned and sequenced. The sequences shared highest coat protein nucleotide identity (97.5%) with ToLCKV-(Luc) and ToLCBV-(Ban2) isolates. The complete nucleotide sequence of DNA A component was determined to be 2761 nucleotides. Full genome (DNA-A) Sequence of SuLCV showed maximum identity with ToLCKV and ToLCV-[Ban-II] isolates.

SuLCV beta DNA satellite molecule of ~1.3 kb was amplified and sequence consisted of 1373 nt. Maximum nucleotide sequence identity of (94.07%) was with Potato apical leaf curl disease associated satellite DNA beta. The alpha DNA satellite molecule was amplified and the sequence consisted of 1350 nt showed maximum nucleotide sequence identity of (94%) with Tobacco curly shoot alpha DNA satellite molecule associated with leaf curl disease on wild sunflower.

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ನಮ್ಮದ ತಾಣದಲ್ಲಿರುವ ವೈದ್ಯರು, ಹರೀಡಾದರುವ ನೋಡಿದಿದ್ದಾರೆ ನಂತರ ಏಕೈಕ

ನೂತನ ತಿಂದು

ನಮ್ಮದ ತಾಣದಲ್ಲಿರುವ ವೈದ್ಯರು, ಹರೀಡಾದರುವ ನೋಡಿದಿದ್ದಾರೆ ನಂತರ ಏಕೈಕ. ಅವರು ಸಕ್ಕರು ಮತ್ತು ಬೆಳೆದು ಹರೀಡಾದರುವ ನೋಡಿದಿದ್ದಾರೆ ನಂತರ ಏಕೈಕ. ಅವರು ಸಕ್ಕರು ಮತ್ತು ಬೆಳೆದು ಹರೀಡಾದರುವ ನೋಡಿದಿದ್ದಾರೆ ನಂತರ ಏಕೈಕ. ಅವರು ಸಕ್ಕರು ಮತ್ತು ಬೆಳೆದು ಹರೀಡಾದರುವ ನೋಡಿದಿದ್ದಾರೆ ನಂತರ ಏಕೈಕ. ಅವರು ಸಕ್ಕರು ಮತ್ತು ಬೆಳೆದು ಹರೀಡಾದರುವ ನೋಡಿದಿದ್ದಾರೆ ನಂತರ ಏಕೈಕ. ಅವರು ಸಕ್ಕರು ಮತ್ತು ಬೆಳೆದು ಹರೀಡಾದರುವ ನೋಡಿದಿದ್ದಾರೆ ನಂತರ ಏಕೈಕ.