

Foreign Winner		◀
Third Winner	Rank	◀
Basic Research	Category	◀
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Indian	Nationality	◀
Indian Agricultural Research Institute	University	◀
Characterization, Diagnosis, Comparative and functional genomics of whitefly transmitted geminiviruses infecting grain legumes, cotton and tomato	Project Title	◀
Abstract		◀



Complete genome of whitefly transmitted begomoviruses infecting grain legumes cotton and tomato in India were characterized their and phylogenetic relationship was studied. The study revealed that among begomoviruses occurring in Indian subcontinent yellow mosaic viruses infecting legumes are unique and distinct from any other New World or Old World begomoviruses. Genetic diversity studies have identified recombination events that contribute to emergence of new strains that cause epidemics. For the first time, association of satellite DNA ? with bipartite begomoviruses was shown for Tomato leaf curl New Delhi virus. Agroinoculation protocols involving cloned components were evolved for several begomoviruses, which help in screening for resistance and viral gene function studies. Virus specific immuno and nucleo-based diagnostics have been developed for specific detection of, cassava mosaic, yellow mosaic viruses of legumes, cotton, tomato and potato leaf curl viruses. Investigation of viral gene functions showed that the ORFV2 present only in Old World begomoviruses has a vital role in viral DNA replication. Promoters of yellow mosaic viruses of legumes have been characterized which could be used for gene expression studies in legumes. RNAi constructs have been made that will be deployed in developing transgenic resistance to these economically important viruses.



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