

## Molecular identification of Tomato Leaf Curl Virus from temperate region of Jammu and Kashmir

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Tomato is one of the most economically important vegetable crops of India and its production in India is greatly hampered due to Tomato Leaf Curl Virus (ToLCV) which is one of the most damaging viral diseases of tomato worldwide. Detection of ToLCV from temperate region of Jammu and Kashmir was carried out using Polymerase Chain Reaction (PCR). The survey data revealed that the ToLCV was present in temperate zone of Jammu and Kashmir. The percentage of disease incidence ranged from 12.80% to 23.00% respectively. Maximum incidence (23.00%) of ToLCV was observed in Srinagar while minimum incidence (12.80%) was observed in Baramulla district. In Budgam district, the disease incidence of 15.20% was reported. Amplicons of size 700bp were obtained from the infected samples collected from different locations. The three amplified-PCR products (each representative of Srinagar, Baramulla and Budgam districts) were sequenced and the sequences were submitted to NCBI database and the accession numbers viz. KY-094937, KY-094936 and KY-094939 were obtained respectively. Phylogenetic analysis suggested that ToLCV Srinagar and Baramulla isolates clustered in Group 1 with Tomato leaf curl New Delhi virus isolate X1A segment DNA-A, Tomato leaf curl New Delhi virus isolate eggplant segment DNA-A and Tomato leaf curl New Delhi virus isolate parthenium segment DNA-A complete sequence whereas the ToLCV Budgam isolate clustered in Group III.

**Key words:** Tomato leaf curl virus, polymerase chain reaction, disease incidence, amplicon, phylogenetic analysis

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