

Begomoviruses Associated with Leaf Curl Disease of Tomato in Java, Indonesia

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*The sequences reported in this paper will appear in the DDBJ, EMBL and GenBank Nucleotide Sequences under accession numbers [AB189845](#) to [AB189849](#) for ToBadI-5, ToBadII-20, ToPur-6, ToMag-2, ToBadII-23, respectively; [AB189851](#) to [AB189854](#) for AgPur-2, AgBadI-1, AgMal-4, AgMag-5, respectively; [AB205117](#) for ToBadIII-1, [AB189913](#) for AgBadII-5 and [AB213599](#) for ToBadI-5B.

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Abstract

We report that several begomoviruses are associated with tomato leaf curl disease in Java, Indonesia. Tomato plants with leaf curl symptoms were collected from Bandung (west Java), Purwokerto (central Java), Magelang (central Java) and Malang (east Java) of Indonesia, the major tomato-growing areas of the country. Viruses were detected using the polymerase chain reaction (PCR), with universal primers for the genus Begomovirus. PCR-amplified fragments were cloned and sequenced. Based on sequence comparisons and phylogenetic analyses, the viruses were divided into three groups. With respect to amino acid (aa) identities of the N-terminal halves of the coat proteins compared in this study, group I was most closely related to Ageratum yellow vein virus (AYVV) (97%), Ageratum yellow vein China virus-[Hn2] (AYVCNV-[Hn2]) (96%) and Ageratum yellow vein virus-[Taiwan] (AYVV-[Tai]) (95%), and ageratum-infecting begomovirus from Java (99%). Group II had high sequence identity with a tentative species of tomato leaf curl Java virus (ToLCJAV) (96% aa) for the CP. Group III was most closely related to a proposed species of Pepper yellow leaf curl Indonesia virus (PepYLCIDV) (90% aa identity) by its partial CP sequence.

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Keywords

tomato leaf curl disease • begomovirus • Tomato leaf curl Indonesia virus • Ageratum yellow vein virus • pepper yellow leaf curl Indonesia virus