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A methionine to threonine substitution in the overlapping MP/CP reading frames causes the symptom differences between two isolates of Youcai mosaic virus

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In Asia, Chinese cabbage (*Brassica rapa*) is mainly grown and utilized in various ways as a healthful food source. However, increasing virus damage resulting from changes in trade of agriculture products including seedlings and seeds, as well as climate change and repeated cultivation, has reduced Chinese cabbage production. According to recent research, three plant viruses - *Turnip mosaic virus* (TuMV), *Cucumber mosaic virus* (CMV), and *Youcai mosaic virus* (YoMV) - are reported to affect Chinese cabbage yields. Recently we detected new isolates of YoMV in Korean radish fields, and full-length infectious clones of two isolates were generated in the dual 35S/T7 promoter driven pJY binary vector. Four amino acid differences (V383I, M492I in 125kDa, T1245M in 182kDa and M17T in CP) between two isolates resulted in either severe or mild symptom development in *Nicotiana benthamiana*. In order to reveal the amino acids related to severe pathogenesis, four hybrid constructs were generated through by gene exchanges between the isolates. Hybrid constructs maintaining CP residue 17 as threonine in the MP/CP overlap region developed severe symptoms. Further analysis expressing CP_{M(17)T} from a *Potato virus X* vector produced differential symptoms in *N. tabacum* cv. *Xanthi*, inducing HR (T17) and mild symptoms (M17) respectively.

Biography

Hyoun Sub Lim was trained for his PhD in University of Illinois at Urbana-Champaign and he continued Postdoctoral studies in University of California at Berkeley. His researches have mainly focused on plant viral movement in plant cell for more than 20 years and more than fifty published papers proved his field in Plant Virology. Currently he is a Professor in Chungnam National University, Korea and has worked as an Editorial Board Member of Plant Pathology journal.

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