



# Yellow Mosaic Disease (YMD) of Mungbean (*Vigna radiata* (L.) Wilczek): Current Status and Management Opportunities

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Globally, yellow mosaic disease (YMD) remains a major constraint of mungbean production, and management of this deadly disease is still the biggest challenge. Thus, finding ways to manage YMD including development of varieties possessing resistance against mungbean yellow mosaic virus (MYMV) and mungbean yellow mosaic India virus (MYMIV) is a research priority for mungbean crop. Characterization of YMD resistance using various advanced molecular and biochemical approaches during plant–virus interactions has unfolded a comprehensive network of pathogen survival, disease severity, and the response of plants to pathogen attack, including mechanisms of YMD resistance in mungbean. The biggest challenge in YMD management is the effective utilization of an array of information gained so far, in an integrated manner for the development of genotypes having durable resistance against yellow mosaic virus (YMV) infection. In this backdrop, this review summarizes the role of various begomoviruses, its genomic components, and vector whiteflies, including cryptic species in the YMD expression. Also, information about the genetics of YMD in both mungbean and blackgram crops is comprehensively presented, as both the species are crossable, and same viral strains are also found affecting these crops. Also, implications of various management strategies including the use of resistance sources, the primary source of inoculums and vector management, wide-hybridization, mutation breeding, marker-assisted selection (MAS), and pathogen-derived resistance (PDR) are thoroughly discussed. Finally, the prospects of employing various powerful emerging tools like translational genomics, and gene editing using CRISPR/Cas9 are also highlighted to complete the YMD management perspective in mungbean.

**Keywords:** begomovirus, gene editing, greengram, pathogen derived resistance, translational genomics, vector management