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REVIEW

Evaluation of germplasm: An avenue of identifying resistant donor in addition to characterization of emerging pathogen

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Germplasm with the ability to withstand biotic and abiotic pressures are the keys for sustainable agriculture under the contexts of exploisive population and changing climate driven demand from agriculture. Identification of resistant sources against biotic stresses is very much essential to support crop improvement programmes. Thus evaluation of germplasm resources to identify suitable germplasm with target trait is essential for their utilization. A host is considered resistant when it has the ability to exclude, hinder or overcome the effects of a given pathogen. A plant may be resistant to one pathogen but not to others. The success of the identification of resistant germplasm will depend upon the through proof methodology, which has been adopted to screen such trait specific germplasm. During the period of 2011 to 2014 lots of germplasm of different crops were evaluated at ICAR – National Bureau of Plant Genetic Resources, New Delhi following international standard screening methodologies. These gave us ample opportunity to identify resistant germplasm vis-á-vis revealation of some pathogens which are characteristically different from the earlier same pathogen open our eyes to revaluate the germplasm against new target. Yellow mosaic disease (YMD) of black gram is an important production constraint in India. Black gram germplasm, consisting of 344 accessions, originally collected from different geographic regions of India and conserved in National Gene Bank at National Bureau of Plant Genetic Resources, India, were evaluated for their response against YMD. None of the accessions tested was found to be immune, but four accessions IC144901, IC001572, IC011613 and IC485638 were identified as resistant against Mungbean yellow mosaic virus (MYMV) but the virus is detected as new recombinant type of MYMV, prevalent mostly in southern India and Mungbean yellow mosaic india virus (MYMIV), prevalent mostly in nrthern India. Similarly, during evaluation of Brassica, emergence of a weed-infecting begomovirus–betasatellite complex in rapeseed-mustard germplasm in India were detected and this raises the concern on utilization of such susceptible germplasm in crop improvement programmes.

Key words: Blackgram, begomovirus, biotic stresses, brassica, CYVMV, disease, evaluation, germplasm, MYMV