

Screening of Mungbean [*Vigna radiata* (L.) Wilczek] Germplasm Against Natural Infection of Plant Viruses

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SUMMARY

Eighty four mungbean germplasm/cultivars/varieties accessions were screened against yellow mosaic disease under epiphytotic conditions. Only 10 germplasm/cultivars/varieties, viz., GM-13, GM-21, GM-125, GM-138, M-125, GM-164, GM-850, GM-899, M-126 and PLM-214 showed resistant, while twenty germplasm/cultivars/varieties, viz., T₄-30, T₄-6, GM-7272, T₄-3, GM-587, PLM-588, GM-128, GM-137, GM-18, GM-129, GM-733, PLM-401, GM-719, T₄-71, PLM-99, PDM-202, GM-180, GM-186, PLM-390 and PLM-311 showed moderately resistant reaction to yellow mosaic disease of mungbean. Rest showed various degrees of susceptibility against viral infection in the field. These germplasm lines may be utilized in breeding programme for developing high yielding varieties with disease resistance against yellow mosaic disease of mungbean.

Key words :

Mungbean,

MYMV,

Resistance.

Mungbean [*Vigna radiata* (L.) Wilczek] is one of the important pulse crops grown under rainfed condition during *kharif* season. The yellow mosaic of mungbean plays a major role in reducing its yield (Nene, 1972, Singh, 1980). The mungbean yellow causal virus (MYMV) is one of the major constraints in the cultivation of mungbean in different states of India. This disease may occur in various plant parts like leaves, petioles and pods (Nariani, 1960). The pods are deformed with lesser number of seeds. Growing resistant varieties is the only economical and eco-friendly method to combat this disease. Very few sources having combined resistance to this disease are available in mungbean. Therefore, efforts were made to identify new sources of resistance for use in breeding for disease resistant varieties.

MATERIALS AND METHODS

The materials comprised of eighty four stocks of mungbean collected from Department of Genetics and Plant Breeding of N.D. University Kumarganj, Faizabad and C.S.A. University of Kanpur (U.P.). The stocks were grown during *kharif* July 2006-07 and 2007-08. Each test entry was sown in a single three meters long row with row to row distance of 30 cm and plant to plant distance of 10 cm. The mungbean variety T-44 was also sown as an infector row after each five entries. Each entry/variety was replicated twice. All the

recommended agronomical practices were adopted to grow a good crop. Final observations were recorded 55 days after sowing using 1-9 scale (Singh *et al.*, 2004).

RESULTS AND DISCUSSION

Among 84 germplasm/ cultivars/ varieties, only 10 germplasm/ cultivars/ varieties, viz., GM-13, GM-21, GM-125, GM-138, M-125, GM-164, GM-850, GM-899, M-126 and PLM-214 did not show evidence of infection and gave resistant reaction against yellow mosaic disease. Other twenty accessions, viz., T₄-30, T₄-6, GM-7272, T₄-3, GM-587, PLM-588, GM-128, GM-137, GM-18, GM-129, GM-733, PLM-401, GM-719, T₄-71, PLM-99, POM-202, GM-180, GM-186, PLM-390 and PLM-311 were found moderately resistant against yellow mosaic disease. Eight germplasm lines showed moderately susceptible, forty susceptible and six highly susceptible reaction to yellow mosaic disease of mungbean (Table 1). Some reports for identification of resistant sources of yellow mosaic disease of mungbean are available in literature. Shukla *et al.* (1978) evaluated mungbean and found Tarai local as resistant and L-80 as moderately resistant. Choudhary *et al.* (1981) screened 289 lines of mungbean under field conditions and found 19 resistant to mungbean yellow mosaic virus. Saxena *et al.* (2002) evaluated 59 lines of mungbean and only 26 lines were found resistant against

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Table 1: Performance of mungbean germplasm/cultivars/varieties against yellow mosaic of mungbean during kharif, 2006-07 and 2007-08

Sr.No.	Category/total number of varieties	Scale	Germplasm line
1.	Resistant (10)	1 and 2	GM-13, GM-21, GM-125, GM-138, GM-164, GM-899, GM-850, M-125, PLM-214, M-126
2.	Moderately resistant (20)	3 and 4	T ₄ -30, T ₄ -6, GM-7272, T ₄ -3, GM583, PLM588, GM130, GM137, GM-18, GM-129, GM-733, PLM-401, GM-719, PLM-390, T ₄ -71, PLM-99, PDM-202, GM-180, GM-186, PLM-311
3.	Moderately susceptible (8)	5	GM-727-3, T ₄ -12, GM-114, GM-131, GM-127-2, GM-106, T ₄ -25, GM-187
4.	Susceptible (40)	6-7	GM-427, T ₄ -19, GM-776, GM-136, GM-106, GM-207, GM-158, GM-129, GM-748, GM-690, T ₄ -51, GM-733, GM-727-1, GM-733, GM-134, GM-121, GM-198, PLM-216, GM-7618, GM-749, T ₄ -480, T ₄ -5-138, T ₄ -17-125, T ₄ -91, GM-181, PLM-392, GM-241, GM-275, T ₄ -20, GM-117, GM-122, GM-11665, GM-99, GM-170, GM-22, GM-119, GM-24, GM-629, GM-755, GM-215
5.	Highly susceptible (6)	8-9	GM-109, GM-170, PLM-418, PLM-744, PLM-164, GM-136

mungbean yellow mosaic virus.

Kooner and Cheema (2007) screened 17 genotypes of mungbean under field conditions and only three genotypes, ML 1260, ML 1256 and ML-191 were resistant to mungbean yellow mosaic virus.

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