



## Screening of mung bean varieties for resistant against *Macrophomina phaseolina* causing dry root rot

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**Abstract:** Mung bean suffers from several fungal, bacterial and viral diseases. Dry root rot caused by *Macrophomina phaseolina* [(Tassi.) Goid. = *Rhizoctonia bataticola* (Taub.) Butler] is considered as the most devastating disease in almost all the mung bean growing areas of Rajasthan and India. The disease is quite wide spread across the state due to congenial weather conditions, and causes considerable yield losses (Philip *et al.*, 1969 and Grewal, 1988).

### MATERIALS AND METHODS

In varietal screening against *Macrophomina phaseolina* in mung bean 19 genotypes of mung bean *viz.*, GP-1, G-4, MUM-2, ISGP-3, IPMO2-3, RMG-102, RMG-268, RMG-288, RMG-344, RMG-492, RMG-1010, RMG-1016, RMG-1051, RMG-976060, RMG-62, RMG-1014, RMG-1029, RMG-1030 and RMG-975 were collected from mung bean Breeder, Rajasthan Agriculture Research Institute (RARI), Durgapura, Jaipur. were sown in *kharif* 2011 and 2012. The sand maize meal inoculum of *M. phaseolina* was applied to field in sufficient quantity prior to sowing of mung bean genotypes. Each genotype was sown in three rows of 5 m row length keeping 10

cm plant to plant distance. The disease incidence was recorded using 0-9 rating scale (Nene *et al.*, 1981). The recommended packages of practices were followed to raise the crop.

Rating scale	Disease incidence (%)	Category
0	0-10	Highly resistant (HR)
1	10.1-30	Resistant (R)
3	30.1-50	Moderately resistant (MR)
5	50.1-70	Moderately susceptible (MS)
7	70.1-90	Susceptible (S)
9	>90	Highly susceptible (HS)

**Table 1**  
**Screening of mung bean genotypes against *Macrophomina* dry root rot during *kharif* 2011 and 2012**

<i>Genotypes</i>	<i>Disease incidence (%)</i>			<i>Disease reaction</i>
	<i>2011</i>	<i>2012</i>	<i>Pooled</i>	
GP-1	14.91 (22.71)	13.40 (21.47)	14.16 (22.09)	R
G-4	13.83 (21.83)	12.33 (20.56)	13.08 (21.20)	R
MUM-2	18.23 (25.28)	17.43 (24.68)	17.83 (24.98)	R
ISGP-3	11.60 (19.91)	9.20 (17.66)	10.40 (18.79)	R
IPMO-2-3	12.33 (20.56)	10.37 (18.79)	11.35 (19.68)	R
RMG -62	60.67 (51.16)	56.23 (48.58)	58.45 (49.87)	MS
RMG -102	37.20 (37.58)	32.27 (34.62)	34.77 (36.10)	MR
RMG -268	45.22 (42.26)	43.30 (41.15)	44.26 (41.71)	MR
RMG -288	45.93 (42.67)	41.27 (39.97)	43.60 (41.32)	MR
RMG -344	40.33 (39.42)	38.30 (38.23)	39.32 (38.83)	MR
RMG -492	42.50 (40.69)	40.53 (39.54)	41.52 (40.12)	MR
RMG -975	71.30 (57.61)	69.70 (56.6)	70.50 (57.11)	S
RMG -1010	39.13 (38.72)	38.40 (38.29)	38.77 (38.51)	MR
RMG -1014	67.33 (55.14)	57.50 (49.31)	62.42 (52.23)	MS
RMG -1016	44.27 (41.71)	42.43 (40.65)	43.35 (41.18)	MR
RMG -1029	52.37 (46.36)	48.40 (44.08)	50.39 (45.22)	MS
RMG -1030	54.13 (47.37)	51.43 (45.82)	52.78 (46.60)	MS
RMG -1051	43.13 (41.05)	39.40 (38.88)	41.27 (39.97)	MR
RMG -976060	36.27 (37.03)	33.40 (35.30)	34.84 (36.17)	MR
S.Em $\pm$	1.21	1.27	0.87	
C.D. (P=0.05)	3.46	3.64	2.46	
CV (%)	5.44	6.01	5.71	

R= Resistant MR = Moderately resistant MS = Moderately susceptible

## RESULTS AND DISCUSSION

Nineteen mung bean genotypes were screened against *M. phaseolina* under artificial inoculation condition in field. Disease reaction was recorded following standard rating scale. None of the genotypes was highly resistant (HR). While, five genotypes viz., GP-1, G-4, MUM-2, ISGP-3 and IPMO2-3 were categorized as resistant (R). Another nine genotypes viz., RMG-102, RMG-268, RMG-288, RMG-344, RMG-492, RMG-1010, RMG-1016, RMG-1051 and RMG-976060 were moderately resistant, four genotypes were moderately susceptible viz., RMG-62, RMG-1014, RMG-1029 and RMG-1030 and rest one genotype i.e. RMG-975 was Susceptible. Choudhary *et al.* (2011) screened twenty five mung bean genotypes to identify source of resistant to *Macrophomina* dry root rot under field conditions. Three genotypes namely MSJ-118, KM 4-44 and KM 4-59 were resistant to dry root rot. Similarly, Haseeb *et al.* (2013) tested twenty seven mung bean varieties against *M. phaseolina* in field under artificial inoculation conditions. None was found immune to charcoal rot disease. The mung bean varieties i.e. Azri 2006, NM 2006 and AUM 9 were resistant. The resistant genotypes may be used in crop improvement programme after further verification using more number of virulent *M. phaseolina* strains

## CONCLUSION

Nineteen germplasm / varieties of mung bean against *Macrophomina phaseolina* revealed that five genotypes were categorized as resistant (R). Another nine genotypes were moderately resistant, four genotypes were moderately susceptible and rest one genotype was Susceptible.

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