

Varietal screening of groundnut against stem and pod rot (*Sclerotium rolfsii*)

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SUMMARY

Varietal screened of groundnut against stem and pod rot was conducted during *Kharif* 2006 and 2007 in field conditions. Fourteen groundnut cultivars viz., J-11, GG-2, GG-4, GG-5, GG-6, GG-7, JL-24, TAG-24, TG-26, GG-20, GG-13, GG-11, BAU-13 and ICGV-86564 were screened for their resistance against *S. rolfsii*. Spreading type groundnut GG-11 and GG-13 were moderately resistant, while eight varieties viz., J-11, GG-4, GG-6, JL-24, TG-26, TAG-24, BAU-13 and ICGV-86564 were susceptible. Four varieties viz., GG-2, GG-5, GG-7 and GG-20 were highly susceptible to *S. rolfsii*.

Key words :

Groundnut, Resistance, Stem and pod rot, *Sclerotium rolfsii*

Groundnut is an economic important crop of Saurashtra region of Gujarat. Farmers economy mostly depends on groundnut productivity. Pod yield losses was reported 27 %, but can reach over 80% in heavily infested fields (Mehan and McDonald, 1990). The disease is more severe in Maharashtra, Gujarat, Madhya Pradesh, Andhra Pradesh, Orissa and Tamil Nadu (Krishnakanth *et al.*, 1999). Persistence of the pathogen in soil and wide host plants often limit the effective control of stem and pod rot disease (Csions, 1984). However, cultural practices coupled with resistant cultivars can increase the efficiency of the disease management. *Sclerotium rolfsii* is very difficult to control by any single method because the pathogen has more than 500 host plants (Aycock, 1966), long survival ability of sclerotia and non-availability economic effective fungicides for the management of this disease. Therefore, evaluation of available accessions was undertaken to identify the potential resistance source.

Fourteen groundnut cultivars viz., J-11, GG-2, GG-4, GG-5, GG-6, GG-7, JL-24, TAG-24, GG-20, GG-13, GG-11, BAU-13 and ICGV-86564 belonging to bunch, semi-spreading and spreading were screened for their resistance against *S. rolfsii* by artificial inoculation in field during *Kharif* 2006 and 2007. Required seeds of each cultivar were treated with Thiram 3.0 gm/kg seed. The field

experiment was conducted in Randomized Block Design with three replications. Cultivars were sown keeping 60cm x 10cm and 45cm x 10cm spacing between rows and plants for spreading/semi-spreading and bunch varieties, respectively. All the agronomical practices were followed as per the recommendations. Number of healthy and infected plants of different varieties were recorded at the time of harvesting and grouped according to pathological reactions.

Data present in Table 1 reveal that none of the varieties was found resistant against stem and pod rot during *Kharif* 2006 and 2007. Spreading type groundnut GG-11 and GG-13 were moderately resistant, while eight varieties viz. J-11, GG-4, GG-6, JL-24, TG-26, TAG-24, BAU-13 and ICGV-86564 were found susceptible. Four varieties viz., GG-2, GG-5, GG-7 and GG-20 were highly susceptible to *S. rolfsii*. Similar results was obtained in the groundnut cultivars JL-24 and DH-8 which were observed to be susceptible and partially resistant, respectively to *S. rolfsii* (Kanth *et al.*, 2000 and Makne *et al.*, 2004). While conducting screening trial, Krishnakanth *et al.* (1999) reported that the groundnut cultivars TMV-2, JL-24, DH-40, KRG-1, R-8808 and germplasm lines ICG-5125 and ICG-5247 were found susceptible against stem rot disease.

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Table 1 : Screening of groundnut varieties against stem and pod rot of groundnut

Sr. No.	Variety	Per cent disease incidence #			Reaction
		2006	2007	Pooled mean	
1.	J-11	30.85(26.30)*	39.50(40.46)*	35.17 (33.18) *	Susceptible
2.	GG-2	53.30 (64.28)	51.30 (60.91)	52.30 (62.60)	HS
3.	GG-4	31.10 (26.68)	33.24 (30.05)	32.17 (28.35)	Susceptible
4.	GG-5	60.46 (75.69)	53.79 (65.10)	57.13 (70.54)	HS
5.	GG-6	36.44 (35.28)	33.38 (30.27)	34.90 (32.75)	susceptible
6.	GG-7	51.23 (60.70)	52.25 (62.52)	51.74 (61.66)	HS
7.	JL-24	39.06 (39.71)	49.16 (57.24)	44.11 (48.45)	Susceptible
8.	TG-26	32.02 (28.11)	43.56 (47.49)	37.79 (37.55)	Susceptible
9.	TAG-24	44.24 (48.67)	39.81 (40.99)	42.03 (44.83)	Susceptible
10.	GG-20	51.97 (62.05)	52.27 (62.55)	52.12 (62.30)	HS
11.	GG-13	29.87 (24.80)	27.44 (21.24)	28.65 (22.99)	MR
12.	GG-11	26.77 (20.29)	22.60 (14.77)	24.68 (17.43)	MR
13.	BAU-13	44.34 (48.85)	45.96 (51.68)	45.15 (50.26)	Susceptible
14.	ICGV -86564	53.90 (65.28)	49.82 (58.37)	51.86 (61.86)	HS
	S.E.±	2.72	2.84	2.88	
	C.D. (P=0.05)	7.90	8.26	8.79	
	C.V. %	11.25	11.60	11.43	

* Data given in parenthesis are retransformed values

Mean of three replications; HS=Highly susceptible; MR=Moderately resistant

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REFERENCES

Aycock, R. (1966). Stem rot and other diseases caused by *Sclerotium rolfsii*, *N. C. Agric. Exp. Stn. Tech. Bull.*, **174**: 202.

Csions, A.S. (1984). Evaluation of insecticide chlorpyrifos for activity against southern stem rot of peanut. *Peanut Sci.*, **11**:98-102.

Kanth, A. K., Gowda, M. V. C. and Lingaraju, S. (2000). Role of partial resistance in integrated management of stem and pod rots in groundnut. *Karnataka J. agric. Sci.*, **13**(3): 726-728.

Krishnakanth, A., Gowda, M. V. C. and Motagi, B. N. (1999). Response of spanish groundnuts to stem and pod rots caused by *Sclerotium rolfsii* Sacc. *Internat. Arachis Newsletter*, **19**: 27-28.

Makney, V. G., Shirshikar, S. P., Toprope, V. N. and Jangwad, N. P. (2004). Identification of sources of resistance to stem rot diseases (*Sclerotium rolfsii*) of groundnut. Current trends of research on groundnut in India, National Symposium on "Enhancing productivity of groundnut for sustaining food and nutritional security Oct. 11-13, 2004. pp 45-46.

Mehan, V. K. and MC Donald, D. (1990). Some important diseases of groundnut-sources of resistance and their utilization in crop improvement. Paper presented in training course on legumes production, 9-17 july, 1990, Sri Lanka.
