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Biological Control of Stem Rot (*Sclerotium rolfsii*) of Groundnut*

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Stem, peg and pod rot of groundnut (*Arachis hypogaea* L.) caused by *Sclerotium rolfsii* is the major problem for groundnut production. Around five lakh hectare of land growing groundnut are infested with *S. rolfsii* Mehan *(et al.,* 1995). Mayee and Datar (1988) reported 25 per cent yield losses in groundnut pod due to this pathogen. In Gujarat, around 40,000 ha of area is estimated to be infested by *S. rolfsii* and account for economical losses of Rs. 20 crores.

The disease occurs regularly due to its seed and soil borne nature. It causes damage to the crop up to harvesting. Chemical control of this disease is not feasible. It is necessary to protect the plants during season using effective antagonistic micro organism. The attempt has been made to find out practical and feasible method of management of disease using biocontrol agent *Trichoderma harzianum* under field conditon. *T. harzianum* was isolated from native soil and found effective against *S. rolfsii* under *in vitro*.

A field trial was conducted during *kharif*, from 1993-94 and 1994-95 at Agriculture College Farm, Junagadh. The cultivar GG-2 was used. The trial was laid out in RBD and each treatment replicated four times. The plot size was kept as 5.0 x 2.7 m and spacing 45 x 10 cm. The crop was grown adopting all recommended improved agricultural practices. Every year plots were inoculated with *S. rolfsii* multiplied on wheat grain (500 seeds/meter row). The 200 ml spore suspention of *T. harizianum* (1.38 CFU/ml) was incorporated in 500 g of different carrier viz., wheat husk, wheat coarse meal, Jowar coarse meal and maize coarse meal. These were applied in furrows separately before sowing the seeds. The proper check without application of *T. harzianum* was also maintained. The observations on stem rot incidence were recorded starting right from germination and continued up to harvesting. The data were statistically analysed using arcsine transformation.

The analysis of two year pooled data presented in Table 1 revealed that the suspension of *T. harzianum* (1.38 CFU/ml) with different carrier was found effective for the control of stem rot disease of groundnut. *T. harzianum* mixed with wheat husk (200 ml spore suspension in 500 g of carrier/13.5 sq.m.) and added in furrow before sowing consistantly reduced the disease i.e. 28.48%

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TABLE 1

Effect of *T. harzianum* on stem rot and pod yield of groundnut.

Treatment	*Disease incidence (%)*		*Pooled mean*	*Disease control*	*Pod yield kg/ha*		*Pooled yield*	*Yield increase*
	1993-94	*1994-95*		*(%)*	*1993-94*	*1994-95*	*kg/ha*	*(%))*
Wheat husk 500 g + *T. harzianum* (1.38 x 10 CFU/ml) 200 ml/plot	19.70 (26.36)	16.40 (23.89)	18.05 (25.13)	24.98	1574	1417	1495	39.79
Wheat coarse meal 500 g + *T. harzianum*	20.19 (26.70)	21.41 (27.57)	20.80 (27.13)	22.79	1370	1296	1333	32.48
Maize coarse meal 50 g + *T. harzianum*	25.41 (30.38)	26.00 (30.66)	25.78 (30.52)	13.14	1111	1190	1150	21.73
Jowar coarse meal 500 g + *T. harzianum*	28.50 (32.27)	25.85 (30.56)	27.17 (31.42)	10.58	907	1204	1055	14.69
Check only *S. rolfsii*	34.30 (35.85)	31.92 (34.41)	33.12 (35.14)	—	796	1005	900	—
C. D. at 5%	(2.10)	(1.46)	(1.66)	—	210	231	209	—

(Figures given in parenthesis are angular transformed value).

followed by wheat coarse meal i.e. 22.79% as compared to check. The yield of pod was also higher in treatment of wheat husk (1495 kg/ha) followed by wheat coarse meal (1333 kg/ha). Maiti and Sen (1985) have reported good control of stem blight of groundnut with *T. harzianum* in wheat bran. The 30 to 75% control of stem rot and 17 to 47% more yield of groundnut was reported with *T. harzianum* by Asghari and Mayee (1991).

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