

STUDIES ON EFFECT OF GERMINATION OF JUTE SEEDS
AGAINST *MACROPHOMINA PHASEOLINA* ATTACK
AFTER TREATING WITH AGROSAN GN,
BENLATTE AND VITAVAX

By

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The effect of different seed treating chemicals, namely, Agrosan, GN, an organo mercurial compound containing 1 per cent mercury, benlate—a binomyl compound and Vitavax, a carboxin compound on the germination of jute seeds (variety D 154) in soil containing the inoculum of *M. phaseolina* was studied.

INTRODUCTION

Damping off or seedling blight have been reported to be controlled by treatment of seeds, with seed treating fungicides, before sowing (Ishaque *et al.*, 1958; Mohboob *et al.*, 1967; Lewin *et al.*, 1971). In recent times, new systemic fungicides have come into the market. Accordingly an experiment was set up with two of such fungicides, namely Vitavax and Benlate and their efficacy was compared with that of Agrosan GN, a commonly used mercury fungicide.

MATERIALS AND METHODS

Before starting the study with seed treating chemicals, the infectivity of inoculum of *M. phaseolina* on jute seeds of variety D 154, JRC 212 and JRO 620 was determined. Glass jars containing sterile soil was inoculated with three isolates of *M. phaseolina*, namely S₁, S₂ and S₈. The glass jars were covered with brown paper and incubated at 30°C for 4 days. After four days of incubation, the untreated seeds of jute was sown in the glass jars. In each jar, one

hundred seeds were sown and three replications were used in each case. Number of seedlings died after four days of sowing was counted and total percentage of germination of seeds to seedlings were calculated.

To study the effect of Agrosan GN, Benlate and Vitavax as seed treating chemicals on jute seeds in *M. phaseolina* inoculated soil, the healthy seeds of variety D 154 was thoroughly washed with sterile distilled water and then after being treated with Agrosan GN (3 gm/kg), Benlate (50 g/20 kg) and Vitavax (80 g/20 kg), sown in Petri-plates containing *M. phaseolina* inoculated soil.

In each Petri-plates, hundred seeds were sown. Another two sets of experiments were conducted along with it taking untreated seeds sown in inoculated soil and in sterile water to compare the effectiveness of fungicides. In each case five replications were used. Number of seedlings that survived after seven days of sowing was counted.

RESULTS AND DISCUSSION

Table 1. Percentage of infected seedlings of different variety (D 154, JRC 212 and JRO 620) of Jute in freshly inoculated soil.

Variety of Jute	Isolate No. of <i>M. phaseolina</i>	Inoculated soil	Sterile soil
D 154	S ₁	81.34*	0.0
	S ₂	82.67	
	S	100.00	
JRC 212	S ₁	50.50	0.0
	S ₂	55.04	
	S ₃	78.77	
JRO 620	S ₁	11.84	0.0
	S ₂	38.20	
	S ₃	50.67	

* Data are the average of three replications.

From the data in Table 1, it is evident that *M. phaseolina* in the soil can cause extensive damage to jute seedlings.

Table 2. Effect of seed treatment with different fungicides on the germination of jute seeds (D 154) in inoculated soil.

Seed germinated (percent)	Treatment				Seeds in Sterile distilled water
	Treated with Agrosan GN	Benlate	Vitavax	Untreated seed	
	90*	64	64	30	93

* Data are the average of five replicates.

From the Table 2, it is suggested that though Vitavax has been recommended against *Rhizoctonia* disease of seedlings and benlate as also curative and systemic in action, yet it is found to be demonstrably less effective than Agrosan GN. All the chemicals appreciably reduced the seedlings blight due to soil borne infection and it was completely suppressed by treatment of seeds with Agrosan GN. The differential action may be due to the fact that action of Vitavax and Benlate are confined in the location inside the seeds only. Whereas in Agrosan GN treatment, the seeds are not only protected from internal infection but a small volume of soil surrounding the seeds is also sterilized.

Agrosan GN, showed best performance compared to the seeds treated with benlate or vitavax.

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