Evaluation of a new locosystemic fungicide — bitertanol (Baycor, KWG 0599) — for controlling powder mildew disease of rubber in India

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INTRODUCTION

SULPHUR dusting is the conventional control measure against powdery mildew disease of rubber caused by **Oidium heaveae** Steinm. Recently thermal fogging of a systemic fungicide, Calixin (tridemorph) 3% incorporated in agricultural spray oil was found superior to sulphur dusting (Thomson **et al.**, 1984). During January-February, 1984 rainfall and humidity were higher than the previous years (Table-I), which delayed uniform wintering and refoliation and also caused the new leaves to remain limp and susceptible for a long period to **O. heveae.** Beeley (1934) also reported a similar observation. The plants dusted thrice with sulphur also had severe disease incidence and repeated leaf fall as the rains washed off sulphur dust from foliage. High rainfall during the refoliating period necessitated the use of systemic fungicides to control powdery mildew disease. Usage of Bitertanol, could control apple powdery mildew [(**Podophaera leucotricha**) Yoder, 1982)] Cucumber powdery mildew [(**Erysiphe cichoracearum**) (Kolbe, 1981)] and begonia powdery mildew [(**Oidium begoniae**) (Quinn and Powell, 1982)]. Hence, the bitertanol, which was reported to be a locosystemic fungicide by Scheinpflung and Van der T. Boom (1981) was tried against powdery mildew disease of rubber.

MATERIALS AND METHODS

Bitertanol 0.1% (1000 ppm) and 0.05% (500 ppm) in water was sprayed on young flushes formed after wintering upto run off stage. The trial was carried out on branches having more than 20 twigs of clone P1, (Malankara estate selection) and clonal PBIG and also on whole shoot of RRIM 701 budwood plants which were found to be highly susceptible to **Oidium.** The fungicide was sprayed twice on PBIG at 10 day's interval and thrice on P1, PBIG and RRIM 701 at 7 days' interval. Each treatment was replicated five times. On control plants three rounds of sulphur dusting were done. Sampling was done at random from plants by scoring the disease incidence on terminal five leaves from top whorl of 10 twigs. The mean score per treatment was calculated and expressed in percentage of disease incidence.

RESULT AND DISCUSSION

During January-February 1984, even the clones, considered tolerant also were severely infected by **Oidium heaveae** and had repeated leaf fall due to favourable climatic factors prevailing during the refoliating period.

Fig. 1. Bitertanol (KWG 0599) three rounds sprayed @ 0.1% (1000 ppm) and 0.05% (500 ppm).

TABLE I — METEOROLOGICAL DATA OF RRII EXPERIMENT STATION

Weather conditions	1982		1983		1984	
	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.
Relative humidity	59	66	62	68	71	71
Rainy days	1	1	00	00	9	10
Rainfall	2.2mm	7.1mm	00	00	52.3mm	184.9mm

TABLE II — PERCENTAGE OF DISEASE INCIDENCE

Clone/ clonal	Two rounds spraying		Three rounds spraying		Control-three rounds sulphur dusting
	0.1%	0.05%	0.1%	0.05%	
P 1	—	—	14.33	29.50	100.00
PBIG	22.22	33.00	13.50	31.00	100.000
RRIM 701	—	—	19.40	25.50	100.00

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Three rounds as well as two rounds bitertanol sprayed plants at the rate of 0.1% gave good control against powdery mildew disease (Fig. 1 and Table II).

As bitertanol is a locosystemic fungicide, it penetrates the cuticle and enters the tissue, but it is not translocated to other parts of the plant. The locosystemic activity enabled the bitertanol to remain undiluted giving maximum protective as well as curative properties against powdery mildew disease.

For controlling the disease of nursery seedlings and budwood plants, repeated spraying of newly formed leaves, is found to be necessary for obtained satisfactory control. Further investigations are necessary to find out the optimum dosage of fungicides per hectare, number of rounds of application and suitable method of application in the nursery and mainfield.

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