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**PROCEEDINGS
OF THE
CARIBBEAN FOOD CROPS SOCIETY**



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CHLORONEB (1,4 Dichloro-2,5 dimethoxybenzene)
 AN INTERESTING FUNGICIDE
 FOR THE CONTROL OF SEEDLING BLIGHT
 IN VEGETABLES

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Rhizoctonia solani, Sclerotium rolfsii and several Pythium spp (e.g. P. aphanidermatum) are very often the cause of destructive seedling blights in tropical countries, either on seed beds (Tom toes, Cucurbits) or in the field (french beans). Especially with species which germinate with the cotyledons above soil level, the control of such seedling blights with classic organic fungicides (captan, TMTD) is not always satisfying, since very often the see coat follows the cotyledons, and the fungicide used for seed dress ing is no more effective.

Since a few years the pesticide industry has produced some syst mic fungicides, which may be very interesting to control these see ling-blight fungi.

We shall give here the results of some experiment realized eith in Avignon (in the Mediterranean South Eastern part of France) or in Guadeloupe.

R E S U L T S

Experiment No.1

French beans, cv. "Mistral", soil strongly inoculated with a M diterranean strain of Rh. solani. The severity of the disease wa noted from 0 to 4 on each seedling, the mean of these notes multi- plied by 25 to obtain a 0 to 100 notation.

Fungicide	Seed dressing g/kg of seeds	Disease severity
Check inoculated	-	100.0
Benlate 50%	2.5	60.0
	5	40.0
Carboxine 75%	2.5	1.6
	5	0
Oxycarboxine 75%	2.5	63.7
	5	100.0
PCNB 30%	2.5	32.6
	5	19.8
Chloroneb 65%	2.5	3.3
	5	0

Experiment No. 2French beans cv. "Mistral", soil inoculated by Sclerotium Rolfsii

Fungicide	Seed dressing g/kg of seeds	Disease severity
Check inoculated	-	73.8
Benlate 50%	$\frac{2.5}{5}$	$\frac{52.6}{34.1}$
Carboxine 75%	$\frac{2.5}{5}$	$\frac{0}{0}$
PCNB 30%	$\frac{2.5}{5}$	$\frac{50.9}{41.1}$
Chloroneb 65%	$\frac{2.5}{5}$	$\frac{0}{0}$

Experiment No. 3

French beans cv. "Mistral" soil spontaneously infested by *Pythium* spp. seedling blight after emergence. Notes from 0 to 100 (obtained in the same way as in experiment No. 1) were given for seedling vigor, *Pythium* attack and phytotoxicity on primary leaves.

Fungicides, used at 2g/kg seeds	Emergence %	Seedling vigor	<i>Pythium</i> disease severity	Phyto- toxicity	Mean seedling weight, gm.	<i>Pythium</i> positive isolation from hycopotyls (%)
Carboxine 75%	97.0	77.2	26.0	10.8	2.76	70.0
TMTD 80%	88.0	66.8	24.1	1.6	2.77	65.0
Carboxine + TMTD (2g + 2g)	94.0	83.8	15.6	27.0	2.73	68.2
Chloroneb 65%	97.0	97.3	0.8	0.9	3.53	25
Check	63.2	84.2	50.6	0	1.72	90

Experiment No.4

Muskmelon - cv. "Cantaloup charentais". Soil inoculated by a Pythium aphanidermatum strain isolated from Cucumber.

Fungicide	Seed dressing g/kg of seeds	Emergence %	Pythium disease severity
Check-sterilized soil	-	100.0	0
Check-inoculated soil	-	4.1	88.9
TMTD 80%	5	76.5	53.3
	10	84.3	17.3
Benlate 50%	5	14.1	93.3
	10	24.1	76.2
Chloroneb 65%	5	67.2	29.9
	10	92.2	0

DISCUSSION

From these experiments it appears that amongst the systemic fungicides we have tried, Benlate is not very effective against the seedling blight fungi. Oxicarboxine is effective only with Sclerotium Rolfsii. Carboxine shows an interesting efficiency towards the two basidiomycetes, Rhizoctonia solani and Sclerotium rolfsii, but is not very effective against Pythium. The mixture carboxine + TMTD is more polyvalent, but Chloroneb seems to be the most interesting fungicide, since it controls at the same time Rhizoctonia, Sclerotium rolfsii and Pythium.

This efficiency can probably be explained by the broad-spectrum fungicide activity of Chloroneb (HOCK & Sisler 1969) LITTRELL, GAY & WELLS 1969) and by its systemic activity (demonstrated in cotton - by DARRAG & SINCLAIR 1969). Chloroneb 65% can be used safely in seed dressing up to 5g/kg of seeds on french beans, up to 10 g with Cucurbits. With other vegetable plants phytotoxicity experiments must be done before use.

Having observed in another experiment with Rh. solani and mung - beans (Phaseolus aureus) that a soil application of 60g cubic meter was very effective, we have tried to control seedling blights at their beginning in seed beds on Tomatoes and muskmelons with drenches of Chloroneb 65% at 1,5 g/l, always with full success. Sclerotium rolfsii can also be controlled on adult plants by similar drenches.

This fungicide, which was used in USA for cotton seed dressing -

is therefore interesting also for the control of vegetable seedling blights and basal rots.

R E S U M E N

Los fungicidas clásicos (Captan, TMTD) usados en tratamiento de las semillas no son bastante eficaces para contener los daños de Rhizoctonia solani, Sclerotium rolfsii y Pythium spp. en plántulas de hortalizas.

La aparición de nuevos fungicidas sistémicos nos ha conducido a investigar si su eficacia no sería mejor.

Pruebas fueron realizadas en Francia (Avignon) y en Guadeloupe con Benlate, Carboxina, Oxicarboxina y Chloroneb. Estos fungicidas fueron aplicados en tratamiento de semillas en judías var. "Mistral" y melones var. "Cantaloup charentais".

LITERATURE CITED

- BEYRIES A. 1969 Efficacité de quelques fongicides systémiques contre Rhizoctonia solani "Kuhn" par traitements de semences de Haricot et de Radis. Phytiairie-Phytopharmacie.
- DARRAG I.E.M. and SINCLAIR J.B. 1969. Evidence for systemic protections against Rhizoctonia solani with Chloroneb in Cotton seedling. Phytopath. 59: 1102-1105.
- HOCK W.K. and SISLER M.D. 1969. Specificity and mechanism of action of Chloroneb. Phytopath. 59: 627-632.
- LITTRELL R.H., GAY J.D. and WELLS H.D. 1969. Chloroneb fungicide for control of Pythium aphanidermatum. P. Dis. Repr. 53: 913-915