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RESEARCH ARTICLE

Effect of fungicides on seed mycoflora and seed germination of sonamukhi

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ABSTRACT

In vitro experiment was conducted to study the effect of seed dressers *i.e.* Antracol and Thiram on seed mycoflora and germination. It was found that both the seed dressing chemical reduced the seed mycoflora and increased the germination percentage. Among these two fungicides, Thiram was found best to give maximum germination (79 %) and 0.0 per cent seeds mycoflora at 3.0 per cent concentration. Antracol showed 0.0 per cent seeds mycoflora and 80 per cent seeds germination at 3.5 per cent concentration.

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INTRODUCTION

Cassia angustifolia Vahl is known as Indian senna or sonamukhi. It is very important medicinal plant which belongs to family Caselpinaceae (Rasheeduz Zafer, 1994). The leaves and pods produce crude drug senna (Bhattacharijee, 2000). sonamukhi contains glucoside, kamperol, anthroquinone, sennoside A and B, essential oil, calcium oxalate, flavanols etc.

Sonamukhi leaves are a sure and safe purgative for children and weak elderly persons. They are used as infusion and decoction. It is also used against skin diseases and pimples. It is also used as anthelminitic for intestinal worms and as liver stimulant .

Sonamukhi crop is grown in Rajasthan, Gujarat and Maharashtra especially. The seeds of sonamukhi are reported to be attacked by fungi. Hence, the present investigation has been undertaken to study the effect of seed dressers, on seeds mycoflora and seed germination of sonamukhi because seed mycoflora reduce germination percentage, so it causes heavy loss of yield. Blotter paper method was used for present investigation.

MATERIALS AND METHODS

The experiment was conducted in Laboratory of Research Centre of Botany in D.S.M. College, Parbhani, to find out the efficaceous fungicides for seed treatment to control seed mycoflora and to increase seed germination of sonamukhi.

The healthy and infected seeds of *Cassia angustifolia* Vahl were collected from Marathwada Agricultural University, Parbhani (M.S.) and Central Institute of Medicinal and Aromatic plants (CIMAP), Lucknow (U.P.). For isolation of external and internal seed mycoflora *viz.,* associated with healthy and unhealthy seed samples of *Cassia angustifolia* Vahl. The seed samples were stored in cloth bag at room temperature in laboratory. Seed germination, per cent seed mycoflora, seedling vigour were calculated by using Blotter paper method (Fig. A, B and C)

For determination of effect of Antracol and Thiram *i.e.*, used to study seed mycoflora, germination and vigour index by using lethal doses was form 0.1 to 3.5 per cent. Seeds were surface sterilized by 0.1 % $Hgcl_2$ solution and dried in sunlight. The seeds were divided into 10 fractions for treatment of different concentrations of fungicides and one set was kept

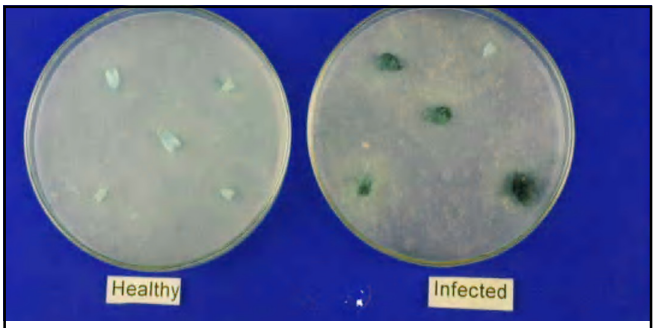

Fig. A: Seed mycoflora of sonamukhi

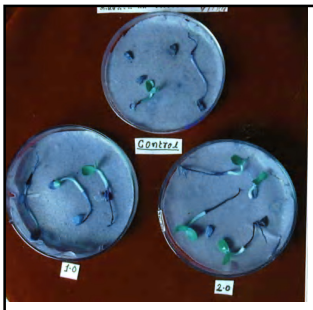

Fig. B: Antracol-1.0,2.0%

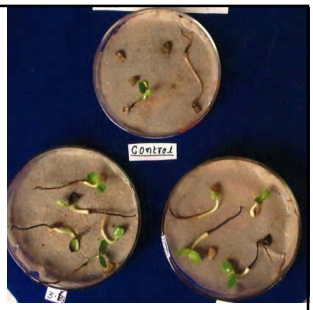

Fig.C: Thiram-3.0.2.5%

Fig. B and C : Effect of fungicides

as untreated for control. The seeds were dipped in different concentrations of fungicides for 3 minutes.The treated seeds were plated on moist Blotter paper Petriplates. Five seeds were kept in a circle in each Petriplate and each treatment was replicated four times. Sterile distilled water was added from time to time for moistening.

Petriplates were incubated at 28 $\pm$ 1^{0}C and exposed for 10 days to dark and light cycle. Observations were recorded upto 10 days for seed mycoflora, germination and root length and shoot length to calculate vigour index (Gupta and Garg, 2000, Chowdhury, 2000 and Pandey and Upadhyay, 1999).

RESULTS AND DISCUSSION

The results obtained from the present investigation are presented in Table 1.

Seed mycoflora :

The results presented in Table 1 shows that the seed mycoflora were significantly controlled by Antracol and Thiram in comparison to that of control. The best results were obtained with the treatment of Thiram *i.e.*, 100 per cent seed mycoflora at 3.0 per cent, while Antracol also controlled 100 per cent seed mycoflora at 3.5 per cent. These findings of present investigation are similar to Das *et al.* (1997).

Seed germination :

The result presented in Table 1 reveals that the germination percentage of seed treated with Antracol and Thiram was significantly superior to that of control.

There was no more difference in the germination of seed between Antracol and Thiram but Thiram showed 79 per cent germination at 3.0 concentration, while Antracol showed 75 per cent seed germination.

Conclusion :

On the basis of the above results it may be concluded that seed treatment by Antracol and Thiram controlled the seed mycoflora and increased the seed germination percentage. So, seed treatment by Thiram (3.0%) and Antrocal (3.5%) may be recommended for control of seed mycoflora and to increase seed germination percentage of sonamukhi.

Table 1 : Effect of different concentrations of Antracol and Thiram on per cent seeds mycoflora germination and vigour index

Conc %	Antracol			Thiram		
	Seed mycofora	Seed germination	Vigour index	Seed mycoflora	Seed germination	Vigour index
Control	30	35	2100	30	35	2100
0.5	28	37	2405	28	37	2405
1.0	24	40	2800	21	42	2982
1.5	20	45	3375	15	50	3900
2.0	15	60	4800	10	60	4920
2.5	09	70	5750	05	70	5810
3.0	06	75	6450	00	79	6715
3.5	00	80	6960	--	--	--
S.E.$\pm$	3.14	6.46	4.314	3.57	6.41	26.37
C.D.P = 0.05	10.53	21.65	14.46	11.97	21.48	88.38

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