

Research Article

Control of seed mycoflora and improvement in seed germination of sonamukhi by application of fungicides

■ M.S. KHANDARE¹ AND B.M. KAREPPA^{2*}

¹Department of Botany, D.S.M. College, Jintur, PARBHANI (M.S.) INDIA

²Department of Biotechnology, D.S.M. College, PARBHANI (M.S.) INDIA

ARTICLE INFO

Article Chronicle :

Received : 03.09.2011

Revised : 25.10.2011

Accepted : 27.02.2012

Key words :

Seed mycoflora,

Fungicides, Seed germination,

Sonamukhi

*Corresponding author: kareppabm@gmail.com

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 0.0per cent seeds mycoflora and 80 per cent seeds germination at 3.5 per cent concentration.

How to view point the article : Khandare, M.S. and Kareppa, B.M. (2012). Control of seed mycoflora and improvement in seed germination of sonamukhi by application of fungicides. *Internat. J. Plant Protec.*, 5(1) : 108-110.

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, decoction. It is also used against skin diseases and pimples. It is also used as anthelminthic for intestinal worms and as liver stimulant (Mohibbe *et al.*, 2003).

Sonamukhi crop is grown in Rajasthan, Gujrat 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 dresser, on seeds mycoflora and seed germination of sonamukhi because seeds mycoflora reduced germination percentage, so it causes heavy loss of yield. The blotter paper method was used for present investigation.

MATERIALS AND METHODS

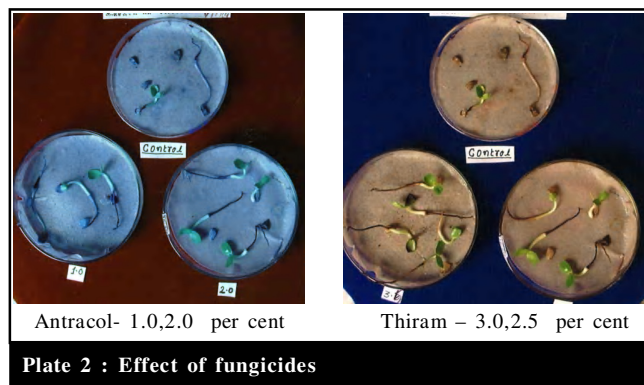
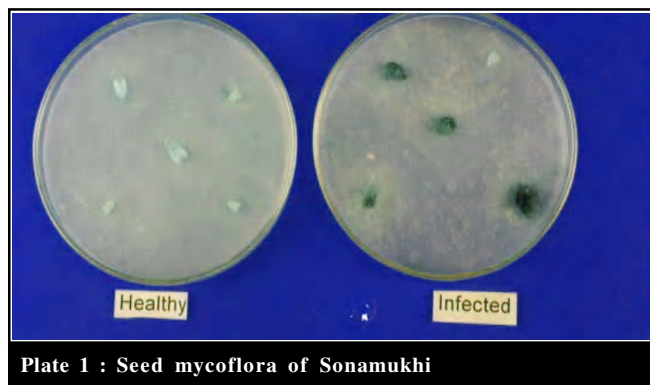
The experiment was conducted in Laboratory of Research center of Botany in D.S.M. College Parbhani, to find

out the best fungicidal 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.A.U.) (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 sample of *Cassia angustifolia* Vahl. The seed samples were stored in cloth bag at room temperature in Laboratory. Seed germination, percent seed mycoflora, Seeding vigour was calculated by using blotter paper method. (Plate I and II).

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 (Solanke, *et al.*, 1997). Seeds were surface sterilized by 0.1 per cent HgCl₂ solution and dried in sunlight. The seeds were divided into 10 fractions for treatment of different concentration of fungicides and one set was kept as untreated for control. The seeds were dipped in different concentration 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

The petriplates were incubated at 28 ± 1°C and exposed for 10 days to dark and light cycle. Observations were



| Table 1: Effect of different concentration of Antracol and Thiram on percent seeds mycoflora germination and vigour index | | | | | | | |
|--|----------------|------------------|--------------|----------------|------------------|--------------|--|
| Conc % | Antracol | | | Thiram | | | |
| | Seed mycoflora | 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.+ | 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 | |

recorded upto 10 days for seed mycoflora, germination and root length & 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 as follow in Table 1.

Seed mycoflora :

The result presented in Table 1 shows that the seed mycoflora are 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 shows 79 per cent germination at 3.0 concentration, while Antracol shows 75 per cent seed germination. Same findings were also recorded by Nene (1971).

Conclusion:

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

REFERENCES

- Bhattacharjee, S.K. (2000).** Hand book of medicinal Plants, pointer publisher, Jaipur-302003 (India).
- Chowdhury, A.K. (2000).** Interaction of resistance in chickpea plant against fusarium wilt infection by seed treatment with non conventional chemical. *J. Mycol. Pl. Pathol.*, **30** (1) : 53-56.
- Das, S.R., Pani, B.K. and Panda, S.N. (1997).** Control of stem Rot diseases of Tuberose with fungicides. *Pl. Dis. Res.*, **12**(2) : 143-144.

Gupta, Meenu and Garg, R.C. (2000). Chemical control ripe fruit rot of chilli caused by *Collectotrichum capsici*. *J. Mycol. Pl. Pathol.*, **30** (2) : 253.

Mohibbe, M. Azam, Sharma, A.K. and Amtul waries (2003). Variation in sennoside content and dry matter yield of senna (*Cassia angustifolia*) grown under arid conditions or Rajasthan. *J. Medicinal & Aromatic Plant Sci.*, **25** (3) : 651-655.

Nene, Y.L. (1971). Fungicides in plant diseases control, oxford and IBH, Publishing Company, NEW DELHI, INDIA.

Pandey, K.K. and Upadhyay, J.P. (1999). Comparative study of chemical, Biological and Integrated approach for management of *Fussarium* wilt of *Pigeon pea*. *J. Mycol. Pl. Pathol.*, **29** (2) : 214-216.

Rasheeduz, Zafer (1994). *Medicinal plant of India* CBS publisher and Distributors. Jain Bhavan, Bhola Nath Nagar Shahadara Delhi.
