Short Communication

CARAS

Research Journal of Agricultural Sciences
Volume 15; Issue 02 (Mar–Apr 2024); pp 325–326

ISSN: 0976-1675 (P)
ISSN: 2249-4538 (E)

# Effect of Captafol Seed Treatment on Seed Mycoflora, Seed Germination, and Vigour Index of Groundnut (Cv. TLG-45)

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Received: 13 Dec 2023; Revised accepted: 15 Feb 2024; Published online: 05 Mar 2024

***Key words*:** Captafol, Seed mycoflora, Seed germination, Vigour index, Groundnut (Cv. TLG-45)

Seeds, being a fundamental means of spread, may contain a wide variety of microorganisms. When favorable conditions arise, these microorganisms can become active, leading to significant harm to the seeds themselves and the subsequent crops they give rise to. The effects of fungicide seed treatments on soybean stand establishment, seedling disease, and yield were investigated in a study by [2]. A study was conducted by [3] to investigate the possibility of commercial seed-treating applicators being exposed to carboxin thiram pesticides. Seed propagation is the primary method used for cultivating food crops, and unfortunately, these crops are often plagued by various seed-borne diseases [7]. [8] studied the seed treatment of soybean cultivars. [10] found that fungicides applied to seeds improved seed health, plant stand, and crop output in addition to efficiently managing illnesses carried by seeds. Fungi have the potential to cause significant harm to agriculture, leading to substantial reductions in crop productivity, overall quality, and financial gains. Seed is often treated with fungicides to safeguard against disease. Farmers can potentially come into contact with fungicides through personal application and the use of treated seeds.

The seed sample of groundnuts was collected from the Oil Research Center, Latur, field places, and market places of Panvel. Different fungicides were metalaxylthiram, carbendazim, mancozeb, copper oxychloride, captan, and captafol. Different concentrations of fungicides were made, from 0.1% to 0.5%, and applied to the seeds of groundnut Cv. TLG-45. There was evidence of an impact on seed mycoflora, germination, and vigor index. [11] demonstrated that the vigor index may be calculated by multiplying the germination percentage by the root and shoot lengths sum.

Vigour Index = Percent germination of seed × (Root length + Shoot length)

Table 1 Effect of captafol seed treatment on seed mycoflora, seed germination, and vigour index of legume (Cv. Groundnut TLG-45)

| Conc. (%) | Seed mycoflora (%) | Seed germination (%) | Vigour index |
|---|---|---|---|
| 0.00 (Control) | 70 | 55 | 150 |
| 0.1 | 70 | 40 | 155 |
| 0.15 | 70 | 45 | 160 |
| 0.2 | 65 | 60 | 180 |
| 0.25 | 55 | 68 | 190 |
| 0.3 | 40 | 70 | 200 |
| 0.35 | 25 | 75 | 350 |
| 0.4 | 18 | 79 | 400 |
| 0.45 | 12 | 80 | 500 |
| 0.5 | 00 | 82 | 540 |
| S.E ± | 8.11 | 4.46 | 47.85 |
| C.D. at 5% | 19.32 | 10.07 | 108.14 |

The effect of captafol on seed mycoflora, seed germination, and vigour index of groundnut cultivar TLG-45 was observed and shown in (Table 1, Fig 1). It is clear from the result that seed mycoflora of groundnut TLG-45 was least at the concentration of 0.5% which was found to be 0%. At this concentration, the percentage of seed germination and vigour index were found to increase, which were 80.00% and 500 respectively. On the contrary, in control, seed mycoflora, seed germination, and vigour index were 70%, 55%, 150, respectively.

Neergard [7] revealed that the concepts of disease and injury may overlap: 'cold', encountered in thermophilic plants by low temperatures, for instance in orchids, would be regarded as a physiogenic disease, frost damage usually as an injury.

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**Citation:** Rathod L, Baviskar R. 2024. Effect of captafol seed treatment on seed mycoflora, seed germination, and vigour index of groundnut (Cv. TLG-45). *Res. Jr. Agril. Sci*. 15(2): 325-326.

Tanweer [10] studied the effect of a new fungicide on the viability of rice and sorghum seeds. Grey *et al.* [3] observed the potential exposure of commercial seed-treating applicators to carboxinthiram and lindane pesticides. Bateman *et al.* [1] studied fungicidal treatment of cereal seeds. Halloin [4] studied the treatment of cotton seeds. Varadarajan and Rao [11] observed an ethereal effect on seed germination and seedling growth of different black gram genotypes. Jakhar *et al.* [6] studied the effect of fungicide treatment and container on pearl millet. Bradley [2] studied the effect of fungicide seed treatments on stand establishment, seedling disease, and soybean yield. Sitansu Pan *et al.* [9] studied the impact of some fungicides on seed mycoflora, germination, viability, and persistence in treated seeds. Rathod and Pawar [8] screened *in vitro* seed treatment of fungicides for the control of seed borne fungi of soybean variety Durga.

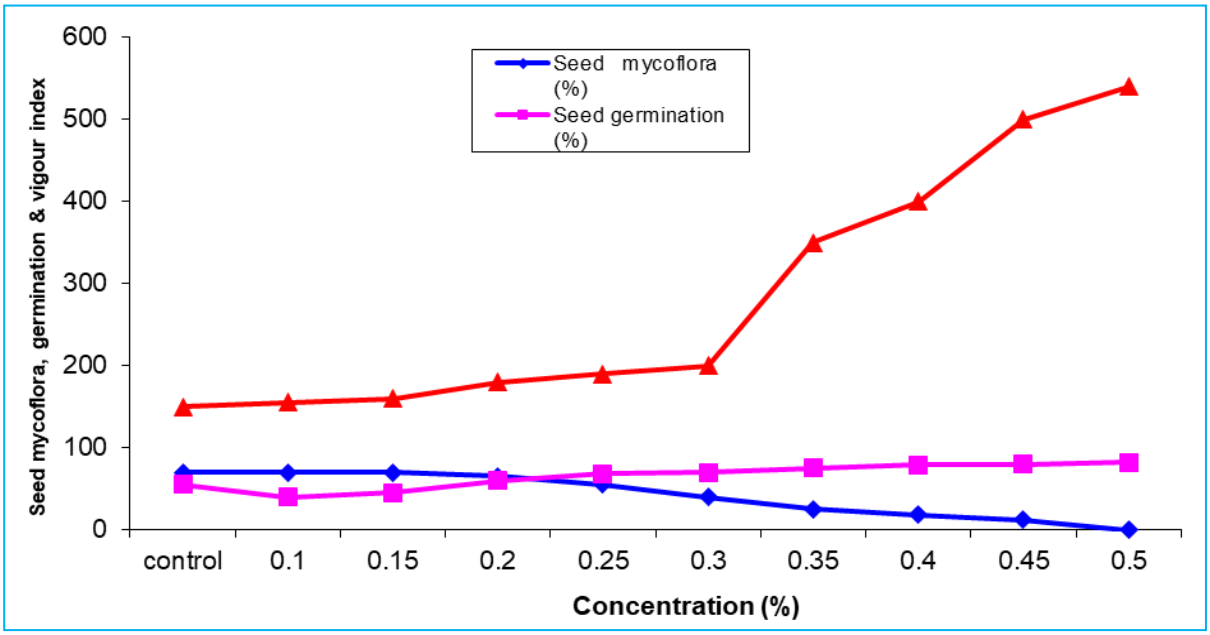


Fig 1 Effect of captafol seed treatment on seed mycoflora, seed germination and vigour index of groundnut (Cv. TLG-45)

## SUMMARY

A study was conducted to examine the impact of certain fungicides on the mycoflora of seeds and their effect on germination, vigour index, and persistence in treated groundnut seeds. *In vitro* seed treatment using chemicals was found to be a safe, cost-effective and highly efficient method for controlling seed-borne pathogens. In light of this, the current research aimed to assess the effectiveness of six seed dressing fungicides in terms of their impact on seed mycoflora and seed germination and vigour index of groundnut. Cv. TLG-45 shows the response to the captafol treatment concerning its seed mycoflora, seed germination and vigour index. Through careful analysis, it was observed that higher concentrations of carbendazim led to a reduction in seed mycoflora while simultaneously promoting increased seed germination and vigour index. The effect of captafol fungicides was observed on seed mycoflora, seed germination, and vigour index of Groundnut. The fungicide used for seed treatment was captafol, ranging from 0.1-0.5% concentrations. The captafol was found to be inhibitory to significantly reducing the percent seed mycoflora and increasing percent seed germination and vigour index.

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