

Impacts of leaf extract of *Catharanthus roseus* (L.) on seed mycoflora of soybean

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Abstract

Present research communication deals with study impact of *Catharanthus roseus* (L.) leaf extract on seed borne fungi of soybean seeds.

Keywords: *Catharanthus roseus* (L.), Soybean, Seed-borne fungi

INTRODUCTION

Seeds being the source of plant play a important role in the total biological yield per unit time and per unit plant surface [1]. Seed is main source of propagation [2] and about 90 % of all the food crops grown on earth are propagated by seed [3].

Seeds have been shown to harbor number of fungi. Many of them are know to cause important diseases [4 and 5]. These fungi cause severe losses to seeds, seedlings & later stages of plant growth and finally affect quantity and quality of crops. Many fungi are associated with soybean seeds which cause deterioration of seeds. Hence attempts were made to control of seed borne fungi by biocontrol method.

MATERIALS AND METHODS

Fungi were isolated from soybean seeds on PDA (Potato Dextrose Agar) medium and pure culture was maintained. The leaves of *Catharanthus roseus* (L.) were separated and washed with sterile distilled water. 100 gram of leaves was crushed by using mortar and pestle, using 10% alcohol. The extract was filtered using muslin cloth. The plant extract is added in 100 ml of 10% ethyl alcohol. The different concentration of plant extracts prepared were 1.0, 2.0, 3.0, 4.0 and 5.0 %. The media was poured in sterilized petriplates. These plates were inoculated by 4 mm disc of *Aspergillus flavus*, *Fusarium oxysporum* and *Alternaria alternata*, respectively in the centre aseptically.

These plates were incubated at $28 \pm 10^\circ\text{C}$. The observations were recorded in the form of linear growth of fungal pathogen in millimeter (mm).

RESULTS

From the table 1, it is clear that as the concentration of *Catharanthus roseus* increases there was decrease in linear growth

of *A.flavus*. In control linear growth was 65 mm on 8th day of incubation. The linear growth decreases at higher concentration and incubation period. The linear growth at 1.0%, 2.0%, 3.0% and 4.0% concentration was 50 mm, 40 mm, 25 mm, and 11 mm respectively on 8th day of incubation. The maximum inhibition was at 4.0% concentration of *Catharanthus roseus*. At 5.0% concentration, there was complete inhibition of the growth of fungus.

Table 1. Effect of *Catharanthus roseus* (L.) G. Don. on growth of *Fusarium oxysporum* Schlecht

| Sr. No. | Leaf extract concentration (%) | Linear growth (mm) | | | | | | | |
|---------|--------------------------------|--------------------------|-------|-------|-------|-------|-------|-------|-------|
| | | Incubation period (Days) | | | | | | | |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1 | 1.0 | 11.00 | 13.00 | 15.00 | 17.00 | 29.00 | 44.00 | 48.00 | 61.00 |
| 2 | 2.0 | 10.00 | 11.00 | 12.50 | 16.00 | 24.00 | 36.00 | 42.00 | 56.00 |
| 3 | 3.0 | 00.00 | 00.00 | 12.00 | 14.00 | 22.00 | 25.00 | 34.00 | 41.00 |
| 4 | 4.0 | 00.00 | 00.00 | 00.00 | 05.00 | 06.00 | 07.00 | 09.00 | 20.00 |
| 5 | 5.0 | 00.00 | 00.00 | 00.00 | 00.00 | 00.00 | 00.00 | 00.00 | 00.00 |
| 6 | Control | 20.00 | 24.00 | 28.00 | 34.00 | 38.00 | 50.00 | 60.00 | 66.00 |
| 7 | S.E. \pm | 2.37 | 2.84 | 2.88 | 3.68 | 4.19 | 6.03 | 6.82 | 6.93 |
| | C.D at P= 0.01 | 9.55 | 11.48 | 11.61 | 14.83 | 16.89 | 24.33 | 27.49 | 27.94 |
| | C.D at P= 0.05 | 6.09 | 7.29 | 7.40 | 9.45 | 10.76 | 15.49 | 17.52 | 17.81 |

DISCUSSION

Wahegaonkar *et al.* (2000) [6] also observed the effect of plant extract on surface mycoflora of seeds. Leaf extract of three plants like *Ocimum sanctum*, *Azadirachta indica* and *Catharanthus roseus* were used to control the surface mycoflora of some seeds like wheat, gram, jowar etc. All such plants extracts were found to be effective.

CONCLUSION

Catharanthus roseus can be used as biocontrol agent against seed borne fungi of soybean

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