

Effect of Medicinal Plant *Azadirachta Indica* on Seed Mycoflora, Seed Germination and Vigour Index of Bengal Gram



Botany

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ABSTRACT

Bengal gram is major pulse crop grown in Marathwada region. The seeds of Bengal gram are associated with many fungi like Aspergillus flavus, fusarium moniliformae, penicillium species, Rhizopus species etc. the leaf extract of Azadirachta indica is most effective shows more fungitoxic property. As concentration of Azadirachta increases, decreases the seed mycoflora, germination percentage increases, vigour index increases as compared to control.

1. Introduction

Bengal gram is one of the most important pulse crop in India. Pulse seeds are reported to carry many moulds both in fields and during storage [1]. The association of fungi adversely affects quality, seed germination, seed vigour and health of seeds.

The term seed mycoflora or seed borne fungi is used for both qualitative as well as quantitative analysis of fungi occurring on or in the seeds [2]. In the seed biodeterioration the moulds have been found to cause qualitative and quantitative changes in chemical composition of seeds, poisoning food and making them unsuitable for human and animal consumption.

Hence an attempt has been made to increase the seed germination and vigour. The seeds are treated with the leaf extract of *Azadirachta indica* which is most effective.

2. Materials and methods

1. Isolation of seed mycoflora

The Bengal gram seed mycoflora was isolated by using Agar plate method. 20 ml sterilized media was poured in presterilized corning glass Petri plates of 10 cm diameter. On cooling the medium 10 seeds per Petri plates were equispaced aseptically. The plates were incubated at 28 °C. On seventh day of incubation the seed were examined under stereoscopic microscope.

Detail examination of fungal characters was done under compound microscope and their identification was confirmed with the standard manual author by Gilman and Mukadam et. al. [3]

2. Seed treatment with medicinal plant

During the present study *Azadirachta indica* A. Juss was selected as biological controlling agent. The identification of plant was confirmed using the flora of Marathwada [4]. These plants were sterilized with 1% $HgCl_2$ washed repeatedly with sterile distilled water for three times. The different concentration prepared for seed treatment was from 1 to 5 %.

The effect of plant extract on dominant seed born fungi, seed germination and vigor index was recorded. The vigor index was determined by multiplying the present germination with the sum of the root and shoot length.

Vigor index = root length + shoot + germination (%).

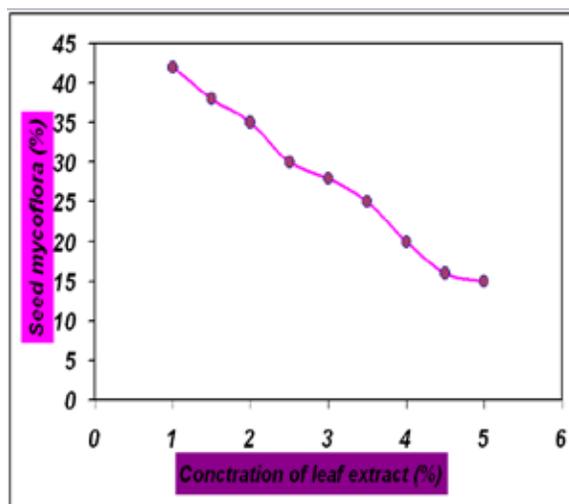


Fig. 1 Effect of *Azadirachta indica* A. Juss on seed mycoflora of Bengal Gram

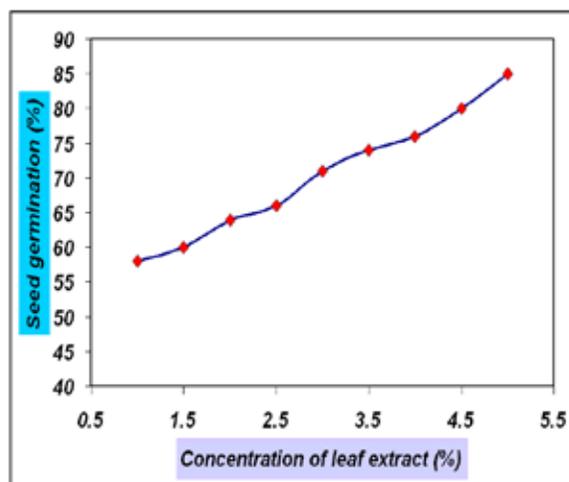


Fig. 2 Effect of *Azadirachta indica* A. Juss on seed germination of Bengal Gram

3. Result and Discussion

The following observation table No. 1 shows the effect of *Azadirachta indica* A. Juss on seed mycoflora, germination, and vigor index of Bengal gram.

Effect of *Azadirachta* in Juss on seed germination and vigor index of Bengal from the table 1.

Leaf extract concentration %	Seed Mycoflora %	Seed germination %	Vigor Index %
1.0	42	58	900
1.5	38	60	1158
2.0	35	64	1378
2.5	30	66	1540
3.0	28	71	1839
3.5	25	74	2330
4.0	20	76	2524
4.5	16	80	2700
5.0	15	85	2800
control	81.00	35.00	778
SE	5.74	4.24	226.62
C.D. at 5%	12.97	9.58	512.16

4. Conclusions

It can be concluded that *Azadirachta indica*. A juss at 5% concentration decreases the seed mycoflora up to 15%. At the same concentration germination percent of seed was found to be 85% and vigor index 2800 in control. On the contrary seed mycoflora was 81%, seed germination was 35% and vigor index was 778

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