Research Paper

Volume : 4 | Issue : 3 | March 2015 • ISSN No 2277 - 8179

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

Botany

KEYWORDS : Bengal grams, seed mycoflora, leaf extract, agar media

Dhole Anita C | Department of Botany, Azad College, Ausa, Dist. Latur, (MS)-413520

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 Azdirachta 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 friends 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 ^{0}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 (%).

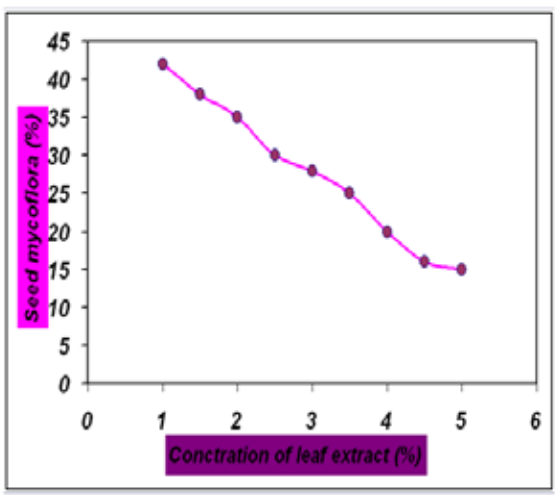

Fig. 1 Effect of Azadirachta indica A. Juss on seed mycoflora of Bengal Gram

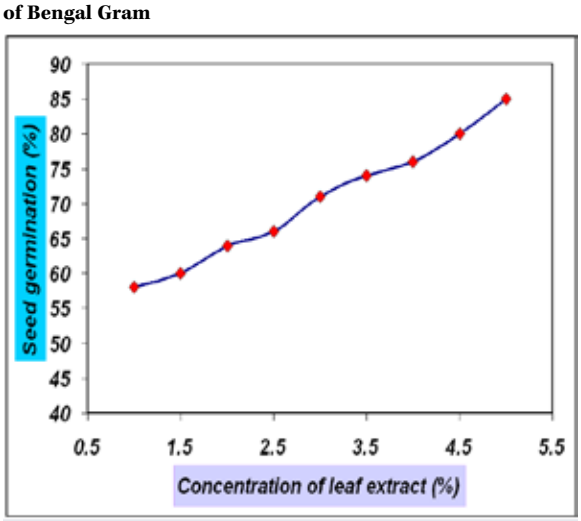

Fig. 2 Effect of Azadirachta indica A. Juss on seed germination of Bengal Gram

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 resent of seed was found to be 85% and vigor index index 2800 in control. On the contrary seed mycoflora was 81%, seed germination was 35% and vogor index was germination % was 35% and vigor index was 778

REFERENCE

[1] Baker, K. F. and Cook, K. J. (1974), Biological control of plant pathogens, S. Chand and Company. Pp. 433. | [2] bhikane, N. S. (1988), Studies on seed pathology of some legumes, Ph. D. thesis Dr. BAM university Aurangabad. | [3] Biswas Kausik Chattopadhaya Ihsita Banerjee, Ranjit, K. and Bandyopadhay, under Uday (2002). Biological activities and medicinal properties of neem (Azadirachta indica), Current Sciences 82, 1336. | [4] Gilman J. C. (1945) A manual of soil fungi, Ames Lowa USA, the lowa state college press. | [5] Mukadam D. S., M. S. Patil, Ashoka M. Chavan and Anjall R. Patil (2006). The illustration of fungi. Saraswati printing press, Aurangabad. | [6] Musket A. E. (1948). Techniques for examination of seeds for the presence of seed borne fungi-Trans, Britt, Mycol. SOC, (30), 74. | [7] Muley S. M. (1990) Seed health testing legumes, Ph. D. thesis , Dr. BAM university, Aurangabad. | [8] Wahegaonkar, Nilima and Madhuri Sahasrabuddhe (2000) Effect of some plant extracts on surface mycoflora of some seeds, seed technology, 90.