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GOLDEN RESEARCH THOUGHTS

COLLECTION AND DETECTION OF MY COFLORA ASSOCIATED WITH PIGEONPEA SEEDS BY AGAR PLATE METHOD WITH PDA MEDIUM

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Abstract :

In the beginning of present research the survey and collection of different varieties of seed of chickpea Viz Prabhat, T-21, Pant A-3, NDA 91-2, T-7, T-17, Pusa-33, NDA 91-13, NDA 91-14, Bahar, and NDA 91-1 was done during the year 2013-14 from local mandi of Kanpur city and other village markets.

The seed sample were labeled at the time of collection by giving them collection number, harvesting time and place of collection collected seeds were cleaned by blowing and sieving. After cleaning seeds were further dried and stored in a cool and dry place.

The seed borne fungi associated with pigeonpea seeds were determined by the inspection of dry seeds, washing test, agar plate method and standard blotter methods.

Keywords: Pigeonpea seeds, Agar plate method with PDA.

INTRODUCTION

Pigeonpea (Cajanus cajan (L.) millsp.) is the second most important pulse-crop after chickpea in India. It is mostly referred as Arhar or tur in vernacular and red gram in English besides India. It is also grwon in South East Asia, Africa and America. It is a woody, short lived perennial shrub of subfamily papilionaceae of leguminaseae family.

Inspite the barring efforts made by different agencies to boost up its production the total production and productivity per unit area is very less among the various factors responsible for its low yield one of the major factors is the diseases caused by different pathogens and deficiencies disorders. More than fifty disease caused by fungi, bacteria, viruses, nematodes and mycoplasma like organisms have been reported causing substantial reductions in production of pigeonpea (Nene et al. 1996). Fungal disease are responsible for reduction in germination percentage which are mainly seed-borne in nature.

METHODOLOGY

The present investigation has been carried out in Botany Dept of Brahmanand P.G. College, Kanpur U.P. Lab. The details of materials used, experimental procedures followed and techniques adopted are described as below:

1.Collection of Seed Samples:

Seed samples of pigeonpea was collected from Farmer's field, seed companies and pulse section of C.S.A. University of Agricultural & Technology Kanpur, U.P. These samples has been stored in screw tight plastic bottles at room temperature (200C- 350C) for further studies.

2.Detection of mycoflora associated with collected seed samples:

ISTA (1985) method was followed for testing of the samples for the presence of mycoflora associated with pigeonpea seeds which includes techniques.

(i)Agar Plate method with potatodextrose agar medium.
2(i)Agar plat method: Four hundred seed per samples in four replications, each of one hundred seeds were pretreated with 1.0 percent chlorine as described in standard blotter method and has been plated on PDA at the rate of 5 seeds per petridish. The seeds were incubated at 28± 10C for 7 days under twelve hours, alternating cycles of light and darkness and has been examined macroscopically by naked eyes for the presence of fungal colonies on seeds their specific identification was made with the help of standard identification manuals under sterioscopic binoucular and compound microscope.

OBSERVATION

2(i)Agar plate method : Seeds of all the varieties of Pigeonpea were also tested by agar plate method with potato dextrose medium for observing the presence of mycoflora associated with them as described in "Methodology". The observations were recorded after 7 days of incubation under sterioscopic binocular and compound microscope as summarized in Table-1.

The results presented in Table-1 revealed that seven fungal species belonging in the genera were detected from pigeonpea seeds on PDA: Alternaria alternata, aspergillus flavus, A. niger and F.moniliforme were detected from six to eleven verities some fungal species i.e. A. fumigatus, C. lunata and R. Solani were not observed on seeds of most of the varieties. It indicated that either surface disinfection or the method is responsible for their elimination of the twenty varieties. Seeds of varieties Prabhat were found to yield maximum numbers of fungal species (Seven fungal species) followed by T-21, Pant A-3, NDA 91-13, NDA 91-2 and Pusa 33 which exhibited five and four fungal species.

Percent incidence of fungal species associated with chlorine pretreated seeds of different varieties of pigeonpea in agarplate method with PDA (No. of seeds tested : 400)

S. No.	Fungal Species	Varieties Harboured											No. of varieties har.	Range of incidence
		Prabhat	T 21	Pant A3	NDA 91-13	NDA 91-2	Pusa 33	NDA 91-14	T7	T17	Bahar	NDA 91-1		
1.	*Alternaria alternata*	17	10	8	8	4	8	3	7	8	7	6	11	4-17
2.	*Aspergillus flavus*	11	7	11	5	4	6	2	0	6	0	0	8	2-11
3.	*A. niger*	8	5	0	6	0	5	2	0	6	4	0	7	2-8
4.	*A. fumigatus*	3	0	0	0	1	0	0	0	0	0	0	2	1-3
5.	*Curvullaria lunata*	5	2	0	0	0	3	0	0	0	0	0	3	2-5
6.	*Fusarium moniliforme*	12	5	2	4	2	0	0	4	0	0	0	6	2-12
7.	*Rhizoctonia saloni*	8	0	3	0	0	0	0	0	0	0	0	2	3-8
Total No. of Fungal species		7	5	4	4	4	4	3	2	3	2	1	-	-

DISCUSSION:

The pigeonpea crop under study holds an important place among the pulses due to its major use vegetarian diet to meet the protein requirements of the people. So for its acreage production and nturitive values are concerned, much emphasis is being laid on increasing its production by use of good quality seeds. Seeds harbour various disease causing agents particularly mycoflora responsible for poor seed health resulting in lower germination and determination in storage. These seed mycoflora are carried over from year to year from one place to another with the seeds which serve as primary source of infrection for subsequent crops. During present study seed mycoflora detection from eleven pigeonpea varieties were studied with the methods followed by ISTA (1985).

During agar plate method seven fungal species such as alternaria alternata, aspergillus flavus, A. niger, A.fumigatus, curvularia lunata, Fusarium moniliforme and Rhizoctonia solani were isolated. Seeds of variety Prabhat were found to yield maximum number of fungal species.

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