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DETECTION OF SEED BORNE MYCOFLORA FROM DIFFERENT CATEGORIES OF CHICKPEA (*Cicer arietinum*) L.

Padmaja M. Chougule*, Yogesh S. Andoji [1], Shivaji S. Kamble [2]

1.Department of Botany, Shivaji University, Kolhapur 416 004 Maharashtra, India

2.Department of Botany, K.W.College, Sangli.416304, Maharashtra, India

ABSTRACT: During present investigation Seed borne mycoflora of chickpea was studied by using blotter and agar plate methods as recommended by ISTA. Total 15 fungi were recorded from different categories of seeds. Among all categories of seeds, injured seeds of chickpea showed maximum seed mycoflora.

KEY WORDS: Chickpea, seed mycoflora, injured seeds.

***Corresponding Author: Dr. Padmaja M. chougule** Ph.D.
Department of Botany, K. W. College, Sangli.416304

1.INTRODUCTION

Chickpea (*Cicer arietinum*) L. is important pulse food crop in India. It belongs to Fabaceae. It is native of Turkey. Nutritionally, it contains 17.21% proteins, 62% carbohydrates, fats. It has rich source of calcium, iron and vitamin C (Green stage) and vitamin B. Leaves contains malic acid and citric acid important for stomach ailments and important for blood purification. India ranks first in the world in terms of the acreage cultivate with this crop (7.49 mha) and the annual yield of about 6.33 mnts (Anon.,2007). The crop is affected by many fungal and bacterial pathogens but black root rot of chickpea caused by *Fusarium solani* is very serious fungal disease in India which causes 70 to 80 percent yield loss in field (Nene and Reddy 1987). Various seed borne fungi affect chickpea causes loss in quality and quantity of the seeds. Entire shape, colour and texture of seed

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indicate quality of the seed. Injured, discolored and bold seeds are main source of seed borne mycoflora. So during present investigation different categories of chickpea *viz.*Injure, discolored and over bold seeds were used to detect mycoflora.

2. MATERIALS AND METHODS

To make composite sample chickpea seeds were collected from various sources as method described by Paul and Neergard (1977). The collected seeds were categorized in to injured, disco lored and over bold. For fungal isolation such seeds were placed on moist blotter and agar plates for fungal isolation.

Moist blotter plate method

A set of 2 blotter papers of 9 centimeter was soaked in sterile distilled water and placed on sterilized borosil petri dishes of 90 mm diameter. 15 seeds were placed aseptically on the moist blotter paper with equidistance from each other. The plates were incubated for 10 days at room temperature. On twelth day the seeds were observed under microscope for associated seed mycoflora.

Agar plate method

20 ml of sterilized Czapek dox agar medium of pH 6 was poured in sterilized borosil petridishes of 90 mm diameter. 15 seeds of chickpea were placed aseptically on agar plate equidistance from each other under sterilized conditions. After 12 days of incubation period the seeds were observed under microscope for associated seed mycoflora.

Isolation and detection of seed borne mycoflora from various categories of chickpea seeds.

The isolated seed borne mycoflora were detected on the basis of sporulation, texture,colour, mycelium and colony characters with naked eye and microscopically. Final identification were done with the help of standard mannuals (Ellis,1960), (Ellis,1963), (Ellis,1976), (Subramanian,1971). The pure mycelial culture of the identified fungi were maintained on CDA (Czapek dox agar) slants.

3. RESULTS AND DISCUSSION

The data given in table 1 reveal that from all categories of chickpea seeds total 15 different fungal species were isolated. Impact of seed mycoflora was observed maximum on injured seeds. The predominant fungi were Aspergillus niger (83%), Fusarium solani (79%), Aspergillus flavus (75%), Alternaria alternata (60%) and Aspergillus nidulans (57%). Minimum seed borne fungi was reported by Rhizopus stolonifer, Fusarium oxysporum. Fungi like Cladosporium sp., Colletotrichum truncatum did not occur on bold seeds. Rest of the fungal species showed their

presence on all seed categories. Agar plate method showed more mycoflora as compared to blotter paper method.

Table 1- Incidence of seed borne mycoflora of chickpea (*Cicer arietinum* L.) seeds of different categories by Blotter paper (Bp) and Agar plate (Ap) methods .(After 12 days of incubation period)

Sr. No.	Seed borne mycoflora	Seed mycoflora %					
		Bold seeds		Discolored seeds		Injured seeds	
		Bp	Ap	Bp	Ap	Bp	Ap
1	*Aspergillus niger*	45	50	43	49	55	58
2	*Aspergillus flavus*	38	43	35	42	46	50
3	*Aspergillus nidulans*	30	32	28	31	31	38
4	*Mucor mucedo*	10	12	08	14	17	22
5	*Penicillium sp.*	05	09	07	10	11	13
6	*Rhizopus stolonifer*	03	07	05	08	06	11
7	*Fusarium solani*	41	46	38	43	49	53
8	*Fusarium oxysporum*	03	07	08	11	09	13
9	*Alternaria alternata*	34	39	31	38	41	48
10	*Colletotrichum truncatum*	00	00	10	08	11	09
11	*Curvularia lunata*	03	04	06	09	13	15
12	*Cladosporium sp.*	05	07	06	08	11	13
13	*Rhizopus nigricans*	06	09	11	12	13	14
14	*Mucor racemosus*	03	05	04	05	08	09
15	*Drechslera sp.*	05	06	06	08	09	11

4. CONCLUSION

Different chickpea seed categories contains different quantity of mycoflora. The enjured seeds showed maximum incidence of seed borne fungi, so they are act as main vector to transmit diseases.

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