SHORT COMMUNICATION

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Studies on seed mycoflora of Chick Pea (*Cicer arietinum* L.)

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Untreated and treated seeds of Chick Pea (*Cicer arietinum*) were used to study the seed mycoflora . Agar plate method was followed. In case of untreated seeds , the percent incidence of *Aspergillus niger* (15.85%) was the highest followed by *A. flavus* (14.82%), *Chaetomium globosum* (14.75%), *Dresclera rostrata* (14.5%), where as all other fungi were within the range of (13.90 to 0.70%).In the treated seeds only six fungi were found. *Aspergillus flavus* was the highest (19.75%) whereas *Rhizopus arrhizus* was the lowest (0.35%).

Key words: Chick Pea ,seed mycoflora, agar plate method

In a world facing problem of malnutrition, protein rich crops assume special significance. Obtaining maximum production through all available avenues and protecting adequately what is produced would certainly alleviate the problem. In the Indian context, where Chick Pea a part of daily diet, maximizing production and enriching nutrition through Chick is a better and acceptable alternative. India stands first in production and area under Chick Pea in the world. Seeds are generally associated with certain saprophytic or parasitic micro-organisms which perpetuate in the seed lots on the advent of favorable conditions. Seeds are associated with pathogens like fungi, bacteria, nematodes etc. Pathogens present in almost any seed lot of economically important crop which may be disastrous if introduced into disease free areas. Therefore, seed must be substantially free from inoculum with high level of germination and purity before sowing.

Seed samples were collected from different localities of Uttar Pradesh. Seed borne fungi of Chick Pea were detected by Agar Plate method. Firstly Glucose Nitrate Agar (GNA) medium was prepared. Nine Petri plates for each sample of seeds were taken. Then GNA medium and Petri plates were made sterile in autoclave. After sterilization the medium was allowed to solidify for sometime. Then the seeds were treated with 0.1% of $HgCl_2$ for two minutes and washed with sterilized water for removal of excess of $HgCl_2$. Ten seeds were placed at equal distance in each Petri plates and the Petri plates were incubated for 6-8 days. The ultraviolet light was bombarded for 5-10 minutes each day and the plates were examined after 8 days and the characteristics of fungal colonies associated with each seed were noted. The slides were prepared and examined under microscope. The percentage ranges of infection of different fungi were recorded and the changes taking place in infection of seeds were observed.

Results indicated that the external total seed infection average 30.22% and internal 20.72% in different parts of Uttar Pradesh (Table 1). Fungi were isolated from untreated seeds were *Aspergillus candidus* (10.72%), *A. flavus* (14.82%), *A. niger* (15.85%), *Botrytis cinerea* (9.8%), *Chaetomium globosum* (14.75%), *Curvularia lunata* (8.5%), *Dresclera rostrata* (14.5%), *Fusarium oxysporum* (10.0%), *Mucor varians* (13.90%), and *Rhizopus arrhizus* (0.70%) were common in all samples (Table 2).

In order to study the total association of seed borne

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Table 1: Seed samples of different localities of Uttar Pradesh

Locality	No. of sample	Infected seed (%)	
		External	Internal
Kanpur	6	25.30	22.16
Kanpur dehat	6	28.15	18.15
Unnao	6	29.35	20.50
Hardoi	6	33.18	21.33
Orai	6	35.12	21.05
Average		30.22	20.72

Table 2: External and internal seed mycoflora percentage in untreated seed samples of different localities of Uttar Pradesh

Fungi associated	(%) infection Agar plate method	
	Range	Average
Aspergillus candidus	09.25-12.20	10.72
A. flavus	09.50-20.15	14.82
A. niger	13.50-18.20	15.85
Botrytis cinerea	06.30-13.30	09.80
Chaetomium globosum	09.50-20.00	14.75
Curvularia lunata	04.50-12.50	08.50
Dresclera rostrata	10.50-18.50	14.50
Fusarium oxysporum	08.50-11.50	10.00
Mucor varians	09.30-18.50	13.90
Rhizopus arrhizus	00.50-00.90	00.70

Table 3: Internal seed mycoflora percentage in treated seed samples of different localities of Uttar Pradesh

Fungi associated	(%) infection Agar plate method	
	Range	Average
Aspergillus candidus	02.30-05.80	04.50
A. flavus	13.30-24.20	19.75
A. niger	12.30-19.20	18.25
Botrytis cinerea	05.20-06.80	06.00
Chaetomium globosum	- - -	- - -
Curvularia lunata	04.20-08.20	06.20
Dresclera rostrata	- - -	- - -
Fusarium oxysporum	- - -	- - -
Mucor varians	- - -	- - -
Rhizopus arrhizus	0.20-0.50	00.35

fungi, different seed sample of Chick Pea were placed on agar plate. The seeds pre-treated with 0.1 % Mercuric chloride solutions were placed on agar plate for the isolation of internal mycoflora. It is clear from the obtained results that six fungi appeared on treated seeds namely *Aspergillus candidus*, *A. flavu,s A. niger, Botrytis cinerea*, *Curvularia lunata*, and *Rhizopus arrhizus*. In treated seeds of Chick Pea, only six fungi were found. *Aspergillus flavus* shows maximum percentage incidence (19.75%) followed by *Aspergillus niger* (18.25%) and *A. candidus, Botrytis cinerea*, *Curvularia lunata*, and *Rhizopus arrhizus* were found (0.35-6.20 %). (Table 3) Suhag (1973) and Deo and Gupta (1980) reported more or less similar result.

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