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Comparison & Correlation of Some Pulses Mycoflora in Different Storage Bags

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ABSTRACT

Among Various leguminous crops geern gram [*Vigna radiate*,(L)] and black gram[*Vigna mungo*,(L.)] are the important pulses crops cultivated in Marathwada region of Maharashtra. The crops have been reported to suffer from various types of disease and majority of them are known to be caused by fungi which are seed borne in nature. The term pulse mycoflora or seed borne fungi is used for both qualitative as well as quantitative analysis of fungi occurring on or in the seed.

In present investigation attempts have been made to study pulses mycoflora responsible for various pulses abnormalities and toxify its content in different storage containers like Paper bag, Polythen bag, Gunny bag, and Polythene Coated Gunny bag.

Key words:-Storage, Mycoflora, Pulses, bags.

I. INTRODUCTION

Proteins are the main important constituents of pulses. The degradation of proteins due to association of mycoflora is an important aspect about the value quality of the pulses proteins were highly degraded by seed mycoflora in various crops, which had resulted increase in the amount of amino acids. Significant decrease in protein content due to infestation of moulds has been observed in Pulses of black gram and green gram.

The legume like pea, chickpea, bean, gram, horse gram arhar, Greengram, and blackgram are cultivated as pulse crops in the region of Marathwada, in the state of Maharashtra. Among these, greengram or mung Bean [Vigna radiate (L.)Wilczek.], blackgram or urid bean [Vigna mungo (L.) Hepper.], Chickpea or gram or bengalgram (Cicer arietinum L.) and pea or Matar (Pisum sativum L.) are important dietary ingredients of the food for our Vegetarian population due to rich in essential amion acids. These are the major Pulse crops, which are cultivated mainly during Kharif, and Rabi seasons under rain fed conditions and also in a small portion under irrigated condition with assured water supply. These crops are cultivated either as sole crops or inter crops with jowar and bajra. Dev et al (1999).

The term pulses mycoflora or seed-borne fungi is used for both qualitative as well as quantitative analysis of fungi occurring on or in the seeds Among different leguminous crops, the seed mycoflora of gaur (Cymopsis tetragonoloba) was studied by Jain and Patel (2004) and reported significant association of species of Aspergillus,

Rhizopus, Cephalosporium , Fusarium Cochliobolus, Drechslera, Fusarium, Penicillium, Rhizoctonia and Rhizopus were the main components of seed mycoflora of cowpea while, Deo and Gupta (2003) reported about thirty four species of fungi belonging to the eighteen genera, as Alternaria, Penicillium, Aspergillus, Periconia, Aeremonium, Chaetomium, Cladosporium, Curvularia, Gliocladium, Monilia, Paceiliomycetes to be associated with the seeds of gram. & identified important seed-borne genera on pigeonpea as Aspergillus, Alternaria, Curvularia, Fusarium and Rhizopus, Trichoderma and Verticillium

II. MATERIALS AND METHODS

Stored Samples of Pulses of green gram and black gram were collected from field, farm, storehouse, Dal mills, Godowns and market places composite samples were prepared by mixing the individual samples together, preserved in cloth bags at room temperature during the studies. The stored pulses were plated on Czepeks Dox agar (CDA) with 5% Nacl wt/v.(Neergaard 1973).

The fungal growth on the plate was preliminarily identified on the basis of sporulation characters like sexual or asexual spores or the fruiting bodies further the identification was done using standard procedures the pure cultures were maintained on PDA slants.

Table 1. Isolation of Storage fungi from Green Gram and Black Gram (Salt Agar plate method)

Mycoflora	Green Gram	Black Gram
Absidia sp.	05	00
Alternaria alternata	15	30
Alternaria tenius	15	00
Aspergillus flavus	40	15
Aspergillus fumigates	10	00
Aspergillus niger	30	20
Botrytis sp.	15	00
Chaetomiumum globosum	10	00
Cladosporium herbarum	25	00
Curvularia lunata	35	70
Curvularia sp.	45	20
Cunninghamella sp.	15	10
Drechslera	30	00
Fusarium equiseti	25	65
Fusarium oxysporum	05	30
Fusarium moniliforme	35	30
Fusarium roseum	-	35
Fusarium semitectum	15	15
Macrophomina phaseolina	10	30
Mucor sp.	-	45
Penicillium sp	10	-
Phoma exigua	10	25

Phytophora sp.	15	20
Pythium sp.	05	-
Rhizoctina solani	65	80
Rhizopus stolonifer	70	75
Syncephalastrum sp.	60	-

Table 2. Effect of different Storege containers on incidence of mycoflora of green gram and black gram.

Pulses	Paper bag	Polythene bag	Gunny bag	Polythene Coated Gunny bag
	No. of fungi isolated	No. of fungi isolated	No. of fungi isolated	No. of fungi isolated
Green Gram	14	18	20	12
Black Gram	12	14	15	13

III. RESULT AND DISCUSSIONS

During storage pulses show biodeterioration due to qualitative and quantitative increase in storage mycoflora. Proteins are the main important constituent of pulses. The degradation of proteins due to association of mycoflora is an important aspect about the value qulity of pulses. Sinha and Prasad (1977) found that proteins were highly degraded by seed mycoflora in various crops, which had resulted decrease in the amount of amino acids. Significant decrease in protein content due to infestation of moulds has been observed in black gram and green gram. Bilgrami et.al.,(1978) In order to study this isolation were made from pulses of green gram and black gram which were stored under ordinary conditions in the market yard or godowns for 16-18 months by using salt agar method.

It is clear from the result summarised in Table 1. That there was qualitative and quantitative variation in storage mycoflora of green gram and black gram. Green gram and black gram gave highest amount of mycoflora .The species of Absidia ,Aspergillus, Botrytis, Cunninghamella,Mortierella, Penicillium, Syncephalastrum and Tricoderma appreared newly from that of filed fungi. Similarly Girisham and Reddy (1986) studied mycoflora of pearl millet in relation to storage period and found that the fungi colonizing the seeds, increased with progress of storage period.

At the same time pathogenic fungi like Fusarium oxysporium, Macrophomina phaseolina, Rhizoctonia solani and Alternaria alternate showed less. Incidence of Aspergillus fumigates, Cladosporium herbarum, Botrytis sp., and Penicillium sp., were reported only on green gram but not on black gram pulses.

It is clear from the results given in Table 2. Pulses of green gram and black gram gave maximum mycoflora when stored in gunny bags followed by pulses stored in polythene bags. Where as, pulses in paper bags showed less number of fungi.

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