

Influence of Storage Systems on Incidence of Fungi

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Abstract: The spices stored in plastic bags and tin containers shows more incidence of fungi than the gunny bag, paper bag and wooden containers and *Alternaria alternata*, *Aspergillus flavus*, *A. ustus*, *A. niger*, *Curvularia lunata*, *Helminthosporium tetramera* and *Fusarium moniliforme* showed maximum incidence. It clearly indicates that the containers prepared by plant materials were beneficial for healthy storage of spices.

Key Words: Fungi, Storage system, Spices

I. INTRODUCTION

one third of fungal diversity of the globe exists in India. Out of 1.5 million of fungi, only 50% are characterized until now. Unfortunately, only around 5–10% of fungi can be cultured artificially [1]. Seeds play vital role in the transmission of pathogens either the pathogen may be externally and internally seed borne and the pathogenic effects takes place either in the field or in ill storage condition. However, Handling and packaging causes additional contamination during storage ([2],[3]). Spices are raw agricultural materials and if the moisture content is too high, toxigenic molds ([4],[5]) may grow offering the opportunity for aflatoxins production [6]. According to [7] spices have been dried materials from plant origin, they are heavily contaminated by storage moulds. Most of the microbial populations are probably the commensal residents on plant parts that survived or during storage.

II. MATERIALS AND METHODS

A) Collection of samples and Detection of seed mycoflora.

Random samples of seeds were collected from fields, store houses, market places and seed companies as per the methods described by [8]. A composite sample of each variety was prepared by mixing the individual samples together, preserved different containers in laboratory condition at room temperature during the studies.

The seed mycoflora was isolated by using standard agar plate method (APM) as recommended by ([9], [10], [11]).

III. EXPERIMENTAL RESULTS

The spices stored in different storage systems are responsible for incidence of fungi the results from table no. 1. Shows that the spices stored in plastic bags and tin containers shows more incidence of fungi than the gunny bag, paper bag and wooden containers. The mustard which is stored in plastic bags showed the maximum incidence of fungi. The Fenugreek seeds stored in the Plastic and tin containers showed the maximum incidence. The coriander seeds stored in the tin containers showed the maximum incidence. *Alternaria alternata*, *Aspergillus flavus*, *A. ustus*, *A. niger*, *Curvularia lunata*, *Helminthosporium tetramera* and *Fusarium moniliforme* showed maximum incidence. The seeds stored in the gunny bag, paper bag and wooden containers showed the least incidence of fungi. It clearly indicates that the containers prepared by plant materials were beneficial for healthy storage of spices. The results support to the findings of ([12], [13],[14],[15]).

Fungi	Mustard					Fenugreek					Coriander				
	Gunny Bag	Paper Bag	Plastic Bag	Tin cont ⁿ	Wooden Cont ⁿ	Gunny Bag	Paper Bag	Plastic Bag	Tin cont ⁿ	Wooden Cont ⁿ	Gunny Bag	Paper Bag	Plastic Bag	Tin cont ⁿ	Wooden Cont ⁿ
	% incidence														
<i>Alternaria alternata</i>	05	10	20	25	05	10	10	15	15	05	10	10	20	20	10
<i>Alternaria tetramera</i>	--	--	05	10	--	--	--	--	05	--	--	--	10	15	05
<i>Aspergillus flavus</i>	10	10	20	25	10	15	20	30	40	10	10	15	25	25	10
<i>Aspergillus glaucus</i>	05	10	25	30	10	--	05	10	15	10	10	10	20	30	05
<i>Aspergillus niger</i>	15	10	20	25	05	10	10	20	30	05	15	10	30	35	10
<i>Aspergillus rubrer</i>	--	-	10	10	--	--	--	20	15	--	--	--	--	20	05
<i>Aspergillus ustus</i>	--	--	10	--	--	05	05	25	30	--	15	20	30	10	--
<i>Botrytis cineria</i>	--	--	--	05	--	05	--	05	--	--	--	--	--	--	--
<i>Curvularia lunata</i>	--	10	10	05	--	10	10	20	30	10	05	05	10	30	10
<i>Curvularia tetramera</i>	05	--	10	10	--	--	--	10	20	--	--	10	05	20	05
<i>Fusarium dimerium</i>	--	--	10	--	--	--	05	10	10	--	10	10	20	20	--
<i>Fusarium moniliforme</i>	--	--	10	15	--	10	10	20	30	--	--	05	20	20	--
<i>Fusarium oxysporum</i>	05	05	20	20	05	--	--	10	10	--	05	05	25	30	--
<i>Fusarium roseum</i>	05	--	10	--	--	05	05	20	25	05	--	10	30	30	15
<i>Helmenthosporium tetramera</i>	10	15	30	40	10	15	20	30	30	10	15	10	20	40	10

--= No incidence

Table no. 1. Effect of storage systems on incidence of mycoflora.

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