



## Screening Of Pathogen Associated With Some Spices.

Baig Mumtaz and Khan Farheen Kauser

Department of Botany, Dr Rafiq Zakaria College for Women Aurangabad

### Abstract:

The present investigation done association of pathogen on some spices. Spices are the most important agricultural commodities, commonly used to flavor the food preparations. For study two spices are selected for screening the mycoflora that is Coriander seed (*Coriander sativum*) & Black seed (*Nigella sativa*). The mycoflora were isolated by using Agar plate method, Blotting paper method and by seed washing method. A total of 08 species belonging to 5 genera of fungi were isolated from this spices. The isolated species belongs to Deuteromycotina, Zygomycotina, and Ascomycotina. Mycoflora were identified and characterized with the help of relevant literature and manuals of fungi. *Aspergillus flavus*, *Aspergillus niger*, *Alternaria alternata*, *Curvularia indica*, *Curvularia lunata*, *Fusarium oxysporum*, *Trichoderma viride*, and mucor species had been isolated on both the samples of seed by Agar Plate method, Blotter Paper method and seed washing method. These mycoflora which were isolated had maximum incidence on Agar plate as compare to Blotter paper and seed washing.

**Key Words:** Mycoflora, Deuteromycotina, Zygomycotina, Ascomycotina, agar plate method

### Introduction:

Spices are cultivated in different parts of the world, however, India is the largest spice producing country. About 63 plants that yield spice are cultivated in country among which most are traded nationally and internationally in India. The spices are cultivated in Tamil Nadu, Kerala, Andhra Pradesh, Uttar Pradesh, Karnataka Rajasthan, Gujarat, Madhya Pradesh, Punjab, Kashmir etc. based on different agro climatic conditions. The spices contaminated by fungi might cause the health hazards for humans. The spoilage of spice and mycotoxin production mainly influenced by type of fungi, food composition, and also handling and storage practices. Several other reports have been shown fungal contamination of different spices and other agricultural commodities. Literature on several research papers on seed mycoflora on different spices were revealed and observed by several workers. Baig Mumtaz (2020) studies on mycoflora of some spices from Aurangabad. She isolated and identified 30 species of fungi belongs to different genera. Sumanth G.T, Bhagwan M. Waghmare and Surendra R. Shinde from Osmanabad, Latur and Nanded respectively in September 2010, isolate and identified 23 different species belongs to different genera. Species. Khan Farheen 2021 studies on mycoflora of Fenugreek seeds identify 7 species of fungi

**Coriander seed (*Coriander sativum*):** It is cultivated as commercial spices crop and plays an important role in Indian economy. In India coriander is mostly grown in Andhra Pradesh, Maharashtra, Tamil Nadu, Rajasthan, Uttar Pradesh, Haryana, and Madhya Pradesh during Rabi season. Coriander was cultivated in 665190 hectares with 866800 tones of production at country level. Coriander seeds are commonly known as "Dhaniya" in Hindi. Coriander has been used in medicine for thousands of year. Also used externally to treat ulcers and rheumatism. The seeds also reduces skin inflammation, reduces cholesterol level, also prevents Anaemia, regulates blood pressure and also good for bones. Seed mycoflora of coriander was investigated and observed by several workers. Seed mycoflora such as *Alternaria alternata*, *Fusarium moniliforme*, *Phoma* species, *Fusarium equiseti* were founded, associated with coriander samples. Some other seed borne fungi such as *Aspergillus niger*, *Aspergillus flavus*, *Aspergillus ochraceus*,

Penicillium species , Rhizopus arrhizus , R .stolonifer and Syncephalastrum racemosum were recorded in Indian samples

Black seed (*Nigella sativa*) : It is a spice plant , a member of Ranunculaceae family , commonly known as "Kalonji" in Hindi. Native to Arab countries and many other parts of the Mediterranean region. *Nigella sativa* is an annual herb native to North Africa, Southern Europe, and Southeast Asia. In India it is cultivated commercially in Madhya Pradesh, Bihar, Punjab, and Assam. It is also cultivated in Uttar Pradesh, Rajasthan, Tamil Nadu, West Bengal, Himachal Pradesh, Gangetic Plains, and Maharashtra. Black seeds were prescribed by ancient Egyptian and Greek physicians to treat headache, Nasal congestion , toothache and intestinal worms. It has wide medicinal use in most of the diseases. Black seed has anti\_inflammatory , anti\_diabetic and anti\_cancer properties. It is also mentioned in Qura'an about medicinal uses of Black seed. There is a Hadis ( saying of Prophet Sallallahu Alaihi Wa Sallam ) that , " There is healing in Black seed for all disease except death." Black seed is remedy for high blood pressure, for cholesterol , for inflammation , food Asthama and for menstrual disorder. During the Corona Pandemic medical experts from all over Pakistan stressed the importance of Kalonji seed as a natural immunity booster. Seed mycoflora of Black seed were collected during pre harvest, post harvest and storage condition. *Aspergillus flavus*, *Aspergillus niger* , *Alternaria alternata* , *Curvularia lunata*, *Penicillium* species , *Mucor* species are the species which were isolated on the surface of black seeds. All these test or survey clear that lot of work have been done on isolation of seed spice mycoflora.

## MATERIALS AND METHODS

Collection of samples and detection of seed mycoflora In collection of seed samples, the method described by Neergaard (1973) has been adopted. Accordingly, random samples of different varieties of seeds were collected from fields, store houses market places and seed companies. A composite sample of each variety was prepared by mixing the individual samples together and the seed mycoflora was isolated by using standard moist blotter method (SMB) and agar plate method (APM) as recommended by ISTA (1966) and Neergaard (1973 and 1977). The identification of seed mycoflora was done as per the method of Bessey (1950), Tempe (1970), Agarwal (1976), Dube (1990), Mukadam (1997) and Mukadam et al. (2006)

### Observation Table: - *Coriander Sativum*

Sr. No	Species name	Standard Blotter Paper	Agar Plate	Seed Washing
1	<i>Aspergillus flavus</i>	-	+	-
2	<i>Aspergillus niger</i>	+	+	-
3	<i>Curvularia indica</i>	+	+	+
4	<i>Trichoderma viride</i>	-	+	-
5	<i>Mucor spp.</i>	+	+	-
6	<i>Alternaria alternata</i>	-	+	-
7	<i>Curvularia lunata</i>	-	+	-
8	<i>Penicillium spp</i>	-	+	-
9	<i>Fusarium oxysporum</i>	+	+	-

***Nigella Sativa:-***

Sr.No	Species name	Standard Blotter Paper	Agar Plate	Seed Washing
1	<i>Aspergillus flavus</i>	-	+	-
2	<i>Aspergillus niger</i>	+	+	-
3	<i>Curvularia indica</i>	+	+	+
4	<i>Trichoderma viride</i>	-	+	-
5	<i>Mucar spp.</i>	+	+	-
6	<i>Alternaria alternata</i>	-	+	-
7	<i>Curvularia lunata</i>	-	+	-
8	<i>Fusarium oxysporum</i>	-	+	-

**Present (-)****Absent (+)**

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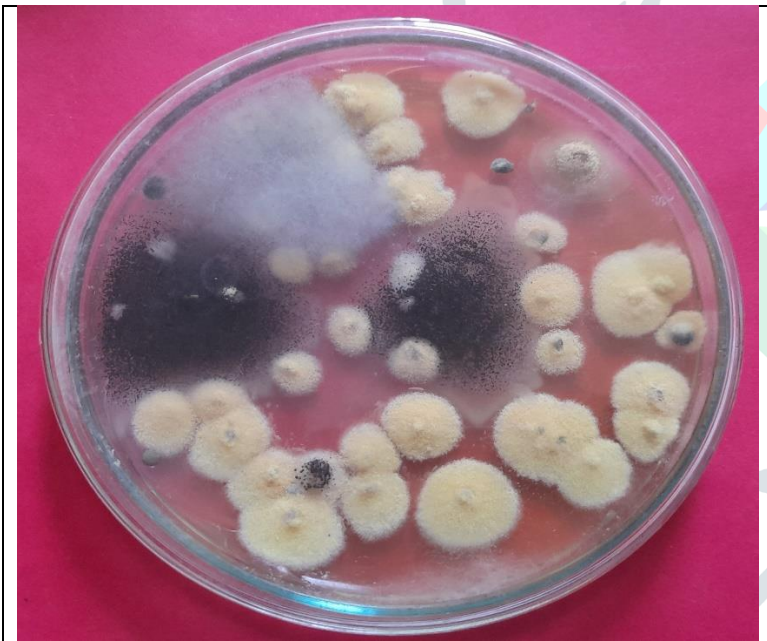


Plate01 : Showing pathogen on kalonji seeds

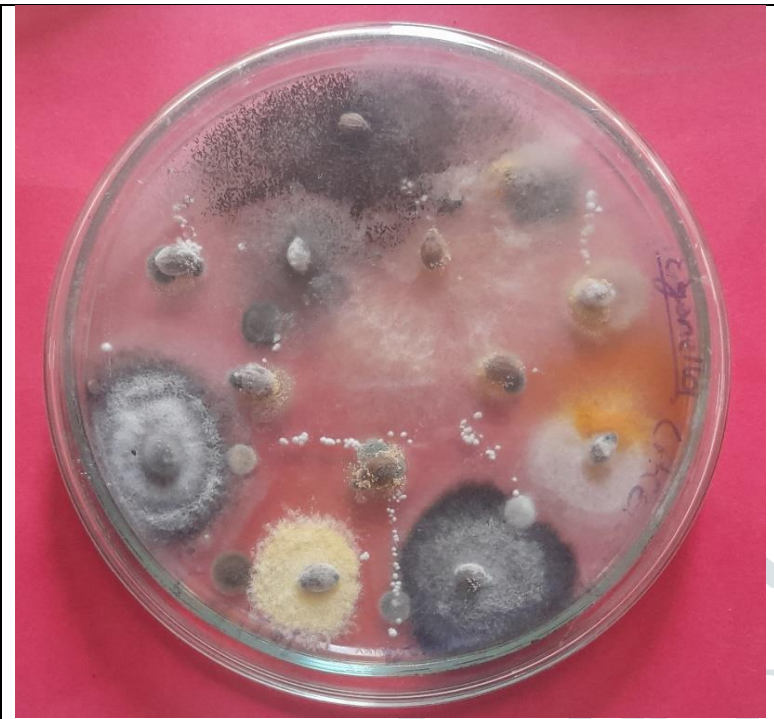


Plate 02 : Showing Pathogen on coriander seeds

## Conclusion and Discussion:-

In present investigation concluded that in the isolation and identification 8 species of fungi belongs to different genera. The species are *Aspergillus flavus*, *Aspergillus niger*, *Alternaria alternata*, *Curvularia indica*, *Curvularia lunata*, *Trichoderma viride* and *Mucor* species were isolated by using three methods the isolate fungi *Aspergillus*, *Penicillium* and *Fusarium* was dominant. *Trichoderma* were found occasionally Agar plate shows maximum mycoflora as compare to seed washing and blotter paper in both the samples. The spices contaminated by fungi might cause the health hazards for humans. The spoilage of spice and mycotoxin production mainly influenced by type of fungi, food composition, and also handling and storage practices.

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