

## Isolation of Foliar fungal Pathogen From (*Allium Cepa L.*) in Maharashtra.



Science

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Subhash B. Pawar

Dept. of Botany, Sant Ramdas Arts, Commerce and science College Ghansawangi. Dist. Jalna- 431209 (M.S)

Ashok M. Chavan

Seed Pathology and Fungal Biotechnology Laboratory, Department of Botany Dr. Babasaheb Ambedkar Marathwada University Aurangabad- 431004 (M.S).

### ABSTRACT

Present study was investigated of the isolation of fungal diseases in the field of onion. Onions infected from many fungal diseases, such as white rot, southern blight, purple blotch, stemphylium blight, White tip, downy mildew, *Botrytis Squamosa*, etc. leaf blotch and black stack of rotis the major fungal foliar diseases. A complete causes the number of onion fields every year by fungi. Diseases were collected from the different varieties likewise, Nasik red, Punafursingi, panchganga, China red and Bhima white and different localities of Maharashtra Latur, Osmanabad, Beed, Aurangabad, Jalna, Nasik and Pune districts. Fungi were isolated from the infected onion leaves different pathogen as like, *Cladosporium allii*, *Alternaria porri*, *stemphylium vasicarum*, *stemphylium botryosum* *Botrytis Squamosa* isolated fungi in Maharashtra during study.

### Introduction

Onion (*Allium cepa L.*) is the important commercial vegetable crops grown in worldwide. India is the second largest producer country of onion after the china, and leader in production. In India occupies an area of 1.05 million hectare with the production of 16.8 million tones. (D A & C H D. 2013). The major onion growing states in India is the Maharashtra, Orissa, Bihar, Andhra Pradesh, Karnataka, Tamil Nadu, Rajasthan, Haryana, and Madhya Pradesh. Maharashtra is the pioneer state in onion production contributing 25% of country's onion (Gadgee *et al* 2012). In Maharashtra the major onion producing districts are Ahmednagar, Pune, Satara, Dhulia, Solapur and Nasik. Nasik district contributes 35 to 40 % of the onion production. Onions are cultivated in three different seasons *kharij* and *Rabi*. In Maharashtra, the production of onion likewise season, *kharij*, (20%), late *kharij* (35-40%), and *rabi* (40-45%) respectively. (Data source: NHRDF, Nasik 2006).

Chemical composition of onion is anti-inflammatory, anti-cholesterol, anticancer and antioxidant properties such as quercetin (Slimestad *et al* 2007). The fungicidal and insecticidal properties of onion are also well identified. (R. K. Mishra 2014). The onion also losses due to the causes of same bacterial, Virus, Nematode, Mycoplasma and fungi is the major foliar fungal diseases of onions. These concept understanding, chosen the most important think is isolation of Leaves fungal diseases of different variety and different localities of the infected onion leaves for fungal pathogen Isolation.

### Materials and methods

#### Collection of samples

Infected sample was collected from the fields, in the polythine bags, bag was sterilised or aseptic in condition and brought in to the laboratory of Dr BAMU plant pathology laboratory for further experiments.

#### Isolation and Identification causal pathogen:

The infected onion leaves collected from the fields directly in polythine bags of different areas of Maharashtra. Likewise Latur, Nasik, Pune, Jalna, Osmanabad, Beed and Aurangabad districts. These collected samples were cleaned and washed by sterilized water then surface sterilized with 1% HGCL2 solution, the rinsed several times in sterilized water and dried, the surface sterilized sample were inoculated on to Potato Dextrose Agar (PDA) medium and incubated at 24°C. After 4-5 days incubation period, the developed fungal colonies were purified by hyphal tip and single spore isolation technique. Identification and the fungal isolation were carried out by using the morphological characteristic of mycelia and spore as described by (Kritzman,

G.1983).

### Results and Discussion

Present research work of fungal isolation the different variety of onions leaves. Likewise, Nasik red, Punafursingi, panchganga, China red and Bhima white varieties of onions were used, to infected plant material are collected and isolates of fungi from the infected leaves of onions. Results show in table.

From the five different varieties of onions sample was isolates fungal species *Alternaria porri*, *Cladosporium allii*, *Stemphylium botryosum*, *Botrytis Squamosa* and *Stemphylium vasicarum* found on the all most varieties of infected leaves of the onions. While *Pernospora destructor* are found on the particular varieties, but panchganga and China red varieties of onion leaves are fungi absent. *Alternaria porri*, *Botrytis Squamosa*, *Cladosporium allii* and *Stemphylium botryosum* are also the absent on the Bhima white varieties of onions leaves. While *Alternaria porri* and *Stemphylium vasicarum* are found moderate numbers of fungi are isolates from nasik red. Punafursingi and Panchganga varieties of onions Leaves are *stemphylium vasicarum* also isolate in both varieties of fungal species. Less amount of fungi are isolates from the China red and Bhima white varieties of the onion leaves.

It clear that district wise fungi are isolates from the infected onions leaves. Maximum amount of fungi are isolates from the Aurangabad and nasik districts, while the less amount of fungi isolates from remaining districts, likewise Latur, Osmanabad, Beed, Jalna and Pune districts. We're as the *Cladosporium allii* and *Pernospora destructor* are totally absent in the Latur, Beed, Jalna and Osmanabad districts. *Botrytis squamosa* fungal species present in Latur Aurangabad and Nasik, *Alternaria porri*, *Cladosporium* and *Stemphylium botryosum* are absent in pune district. Similarly same worker are reported by the fungi from onion infected leaves, Purple blotch caused by *Alternaria porri* reported by (Haward *et al* 2007 and Alves *et al* 1982), Onion Leaf blight caused by *Botrytis squamosa* (Abubarker and M. Siddiqui 2010 and Lorbeer 1983), Downey Mildew by *pernospora destructor* (Diana *et al*, 2009 and Gunita *et al*, 2009), Stemphylium leaf blight caused by *Stemphylium vasicarum* (Tommo and Shinji 2012, Hassan *et al* 2007 and Gupta *et al* 1986). This is the isolation of fungi from the infected leaves of onions.

#### Table No.1: Isolation of fungal pathogen from different varieties of Onions Leaves.

Name of Fungi	Nasik red	Punafur-sungi	Panch-ganga	Chai-na Red	Bhi-ma
<b>Alternariaporri</b>	++	+	+	+	-
<b>Botrytis Squemosa</b>	+	+	+	+	-
<b>Cladosporium-mallii</b>	+	+	+	+	-
<b>Pernospora destructor</b>	+	+	-	-	+
<b>Stemphyllium-botryosum</b>	+	+	+	+	-
<b>Stemphyllium-vesicarium</b>	++	++	++	+	+

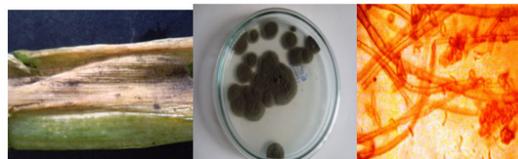
Stemphyllium-vesicarium	+	+	+	-	++	++	+
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(++)= moderate, (+)= Less, (-)= Absent.

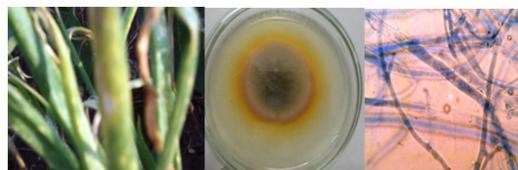
**Photo plates of isolated fungi from infected onion leaves.**



Purple Blotch Pure culture plate *Alternaria porri*



Leaf Blotch Pure culture plate *Cladosporium allii*



Stemphylium blight Pure culture plate *Stemphylium Vasiscarium*

**Table no.2: Isolation of fungal pathogen from Different Districts of Onions Leaves.**

Name of Fungi	La-tur	Os-	Beed	Jal-na	Au-rang-abad	Nasik
<b>Alternariaporri</b>	+	+	+	+	++	++
<b>Botrytis Squemosa</b>	+	-	-	-	+	+
<b>Cladosporium-mallii</b>	-	-	-	-	+	+
<b>Pernospora destructor</b>	-	-	-	-	+	+
<b>Stemphylium-botryosum</b>	+	+	+	+	+	++

**Conclusion**

The Isolation of fungal diseases of onions leaves different varieties and different districts of Maharashtra. Likewise, Purple blotch, *Botrytis* leaf blight, Black stock, Powdery mildew, Leaf blight, *Stemphyllium* leaf blight, these major diseases has spread to throughout the Maharashtra, these diseases in all onion growing region. The results from the research trial and indicate that effect of market value and yield onions. The isolates the fungal pathogens shown in above photograph and different species is occur during present studies.

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