

RESEARCH ARTICLE

Fungal Diversity in Vegetables

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ABSTRACT

The present work was carried out on vegetable to study fungal diversity. The vegetable were purchased and collected from Bhadrawati and Warora vegetable market and allow to grow fungus on them. The Total of 25 vegetable were collected and categorised them in Earth vegetables, Underground vegetables, Herbage vegetables and Fruit vegetable. Among these collected 25 vegetables those infected by fungus were identified as *Pythium* sp., *Alternaria* sp., *Phytophthora* sp., *Aspergillus* sp., *Aspergillus niger*, *Pythium* sp., *Helminthosporium* sp., *Rhizopus* sp., *Aspergillus* sp., *Aspergillus* sp., *Verticillium* sp., *Trichoderma* sp., *Rhizopus* sp., *Rhizopus* sp., *Fusarium* sp., *Alternaria* sp., *Trichoderma* sp., *Mucor* sp., *Fusarium* sp., *Mucor* sp., *Trichoderma* sp., *Colletotrichum* sp., *Cephalosporium* sp., *Erysiphe* sp., *Cladosporium* sp., respectively. This shows that there is a great fungal diversity in vegetables.

Keywords: Fungal diversity, Vegetables, Bhadrawati, Warora.

INTRODUCTION

Fungi is the plural of the word fungus which is derived from the Latin word FUNGOUR which means to flourish. The fungi may be defined as non-green, nucleated thallophytes. However, mycologists have defined fungi more scientifically. According to Alexopoulos (1962), the fungi include nucleated spore bearing achlorophyllous organisms that generally reproduce and whose filamentous branched somatic structures are typically surrounded by cell walls containing cellulose or chitin or both. A more technical definition of fungi was later given by Bessey (1968) which says that fungi are chlorophyll-less non-vascular plants whose reproductive or vegetative structures do not permit them to be assigned to positions among recognized groups of higher plants or algae. Fungi grow in diverse habitats. Majority of fungi prefer to grow in darkness and dimlight in most habitat (Vashishta and Sinha, 2002).

MATERIAL AND METHODS

The vegetable samples were purchased and collected from Bhadrawati and Warora vegetable market and the vegetables were allowed to grow fungi on them. For the identification of fungi, temporary slides were prepared by using cotton blue prepared in lactophenol is used as staining material for staining fungi. The temporary slides were prepared by scrapping small fragments of infected portion and sealed with paraffin wax and observed under light microscope. On the basis of morphological and reproductive

characters, fungi were identified. For this standard literature was used.

RESULTS AND DISCUSSION

The numerous earth vegetables, underground vegetables, herbage vegetables and fruit vegetables from Bhadrawati and Warora vegetable market were found to be infected by various fungi (Table 1). Large number of vegetables were infected by fungi. Earth vegetables were infected by *Pythium* and *Alternaria* sp., Underground vegetables were infected by *Phytophthora*, *Aspergillus* and *Pythium* sp., Herbage vegetables were infected by *Helminthosporium* sp., *Rhizopus* sp., and *Aspergillus* sp., Fruit vegetables were infected by, *Aspergillus Verticillium*, *Trichoderma*, *Rhizopus*, *Fusarium*, *Alternaria*, *Mucor*, *Colletotrichum*, *Cephalosporium*, *Erysiphe*, *Cladosporium* sp. *Aspergillus* sp, and *Rhizopus* sp., was found to be dominant on vegetables (Table 1).

Table 1: Fungal diversity in vegetables

SN	Name of the vegetable	Fungus identified
EARTH VEGETABLES		
1	<i>Beta vulgaris</i> L.,	<i>Pythium</i> sp.
2	<i>Daucuscarota</i> L.,	<i>Alternaria</i> sp.
UNDERGROUND VEGETABLES		
3	<i>Solanum tuberosum</i> L.	<i>Phytophthora</i> sp.
4	<i>Allium cepa</i> L.	<i>Aspergillus</i> sp.
5	<i>Allium sativum</i> L.	<i>Aspergillus niger</i>
6	<i>Zingiberofficinalis</i> L.	<i>Pythium</i> sp.
HERBAGE VEGETABLES		
7	<i>Brassica oleracea</i> var. <i>botrytis</i> L.	<i>Helminthosporium</i> sp.
8	<i>Brassica oleracea</i> var. <i>capitata</i> L.	<i>Rhizopus</i> sp.
9	<i>Spinacea oleracea</i> L.	<i>Aspergillus</i> sp.
FRUIT VEGETABLES		
10	<i>Lycopersicon esculentum</i> Mill.	<i>Aspergillus</i> sp.
11	<i>Cucumis sativus</i> L.	<i>Verticillium</i> sp.
12	<i>Lagenaria vulgaris</i> (Mol) Stdl.	<i>Trichoderma</i> sp.
13	<i>Cucurbita moschata</i> (Duchex. Lam)	<i>Rhizopus</i> sp.
14	<i>Mimordicacharantia</i> L.	<i>Rhizopus</i> sp.
15	<i>Solanum melongena</i> L.	<i>Fusarium</i> sp.
16	<i>Capsicum annum</i> L.	<i>Alternaria</i> sp.
17	<i>Abelmoschusesculentus</i> (L.)(Moench.)	<i>Trichoderma</i> sp.
18	<i>Artocarpusheterophyllus</i> Lamk	<i>Mucor</i> sp.
19	<i>Citrullus vulgaris</i> var. <i>fistulosa</i> (stocks) Duthie and Fuller	<i>Fusarium</i> sp.
20	<i>Cocciniacordifolia</i> (L.) Cogn.	<i>Mucor</i> sp.
21	<i>Cyamopsistetragonoloba</i> (L.) Taub	<i>Trichoderma</i> sp.
22	<i>Dolicuslallab</i> L.	<i>Colletotrichum</i> sp.
23	<i>Cajanuscajan</i> L.	<i>Cephalosporium</i> sp.
24	<i>Coriandrum sativum</i> L	<i>Erysiphe</i> sp.
25	<i>Pistum sativum</i> L.	<i>Cladosporium</i> sp.

Earlier studies indicate that some of these pathogens have been reported from different parts of India, either on the same or other host. Study on pathogenic fungi of fruits and vegetables were carried out by Dandge (1998). ShikhaAgblor and Doug Waterer (2001) reported post harvest diseases in cabbage, caused by *Botrytis* and *Sclerotinia*. Chatage and Bhale (2010) reported *Alternaria pluriseptata* and *Geotrichum candidus* on ivy gourd (*Coccinia indica*). Ghurdeetal. (2011) reported *Alternaria alternata*, *Phoma nebulosa*, *Curvularia lunata*, *Colletotrichum capsic*,*Curvulareasenegalensis*, *Fusarium equiseti* etc. on *Brassica oleracea* var. *capitata* L., *Spinacea oleracea* L.,*Abelmoschusesculentus* L., *Capsicum annum* L., *Dolicus lablab* L., and *Solanum tuberosum* L. respectively. Exposure and /or consumption of such infected vegetables may cause health hazards (Bauri, 2007). Hence, there is a need to explore possibilities of their control to prevent loss of product and injuries to human health.

CONCLUSION

It is concluded that ther is a great fungal diversity in vegetables.*Aspergillus*sp.,and*Rhizopus* sp., was found to be dominant on vegetables .Hence, there is a need to explore possibilities of their control to prevent loss of product and injuries to human health.

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