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## Research Article

### SURVEY OF FUNGAL DISEASES IN VEGETABLE CROPS IN NAMAKKAL DISTRICT

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#### ABSTRACT

Tamilnadu is one among the largest vegetable producing state in India. Off these namakkal District is found to be focused for our survey of vegetable crops where tomato, chillies, brinjal, greens, lady finger murraya, crucifers are cultivated more. These crops are not spared from destruction by fungal pathogens which infect root, stems, leaves, flower and fruits. This fungal spoilage leads to the significant loss in India's food supply. Fungal growth on these crops lead to deterioration in both quality and production of myco-toxin. These studies reported the presence of wilts, rots, rusts, spots, blisters, white spots, Downy mildew and powdery mildew caused by fungal partners like, albigo, alternaria, aspergillus, fusarium, phytophthora, colletotrichum, pythium, rhizoctonia and sclerotia etc.

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#### INTRODUCTION

Most vegetables diseases are caused by fungi. They damage plants by killing cells and/or causing plant stress. Fungi constitute the largest number of plant pathogens and are responsible for a range of serious plant diseases. Of course, it is not only fungi that cause plant disease. There are bacteria viruses, nematode worms, aphids and insects as well as fungi, serious plant diseases are caused by all these other pests, but fungi probably cause the most severe losses due to disease around the world (Sabogan,S. and B.L.Aliero,2004). One survey made several years ago in the American state of ohio came up with the estimate that the state had one thousand diseases of plants caused by fungi( M.Jayant, J. Rashmi *et al*) one thousand caused by viruses and fifty due to bacteria. Hence it is important to have an overview of the fungal diseases in vegetable crops.

##### Aim

This type of survey helps everyone to provide the detailed in information about identification, symptoms and management of fungal diseases to overcome loss of crop production.

##### Objectives

It important to have plant diagnostic laboratory.It helps to confirm the pathogen causing any diseases in the vegetable crops.

Having the knowledge about fungal pathogens and the related diseases caused in the crops helps to develop disease management protocol in an appropriate manner.

#### MATERIALS AND METHODS

The present study aims at having preliminary survey about the various types of fungal diseases and the casual pathogens in different vegetable crops in and around Namakkal district. Most of the studies concentrated around Bommakuttamedu, Puduchatram, Mudalipatti and Sellappampatti as a first stage of the research.

##### Importance of Survey

Fungi constitute the largest number of plant pathogens responsible for a range of serious plant diseases. Sources of fungal infections are infected seed, soil, crop debris, nearby crops and weeds. Fungi are spread by wind and water splash and through the movement of contaminated soil, animals, workers, machinery tools, seedlings and other plant material. They enter through natural openings such as stomata and through wounds caused by pruning, harvesting, insects and mechanical damage. So, to manage all this type of sources, it requires a good understanding of the fungi, the periods during which the crops susceptible and the influence of environmental conditions to control or managing the fungal diseases occur on a wide range of vegetables.(Mishra 2014)

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## Survey of Fungal Diseases in Vegetable Crops

### A General Overview

Some of the fungi responsible for foliar diseases are Downy mildews, powdery mildews and white blisters. Soil borne diseases are caused by Fusarium, pythium species (causes clubroot), Rhizoctonia and sclerotinia species causes sclerotia.



Other commonly occurring fungal diseases occur on a wide range of vegetables includes Botrytis rots. Do Anthracnose, rusts, Sclerotium rots etc. Some of the fungal diseases which is specific to a particular crop group is clubroot in brassicas, Leaf blight in carrots and tomato and redroot complex in beans. (Barkai-Golan and Paster, 2008).

### RESULTS AND DISCUSSION

Common fungal diseases of vegetable crops are observed and collected to study the fungal diseases that are affecting specific crop. And symptoms have also been observed along with the factors conducive to spread.

It was observed that Brassicas are affected by *Albugo Candida* with white blisters or white rust. Usually the symptoms are white blisters and swellings on leaves and beads with white dust like spores and its spreading only in mild temperature. It has been observed that the powdery mildews are affecting onions, peas, cucurbits and also found that individual species damage particular crop families. Usually yellowish leaf spots turn brown during high humidity and in mild temperatures. The fungal diseases powdery mildews in which some species are restricted to particular crops or crop families with small white powdery patches makes leaves yellow, brown and then papery to die. These are having the wide range of host viz, cucumber, melons, pumpkins, beetroot, potato, tomato etc, and affecting these crops moderate temperatures and in relatively dry conditions unlike downy mildews white rust. The clubroot diseases of *Plasmodiophora brassica* which is specific to brassicas affected during warm weather conditions when the soil becomes acidic. Tuber diseases is caused by various species of fungi in potato family have also been reported, by infecting their superficial skin. Likewise, cavity spot is caused

by *Pythium sulcatum* is specific to carrots, causing elliptical lesions in the field where there is successive cropping of carrots. Rusts are caused in various vegetable crops by *Puccinia sorghi* and *Uromyces appendiculatus* in beans respectively (Bashar *et al* 2012). During low rainfall and 100% relative humidity. Highly commercial valued vegetables like Lettuce, beans and cucurbits are affected by Black root rot. Usually different species affects different vegetable crops, by infecting during cool soil temperatures and high soil moisture. Domestically important crops like beans, potato, capsicum etc, are infected by anthracnose fungal diseases caused by *Colletotrichum* spp affecting vital leaves, stems and fruit portions in cool, wet conditions.

Other common fungal diseases of vegetable crops include Target spot by *Alternaria solani* in tomatoes, (Saude and Hausbeck, 1997) Aphanomyces root rot in beans by *Aphanomyces euteiches* pv *phaseolin*. *Alternaria* leaf spot in cucurbits by *A. alternata* and *A. cucumerina*, Ringspot in brassicas by *Mycosphaerella brassicicola* leaf spot in beets by *Cercospora* leaf spot Leaf blight in carrots by *Alternaria dauci*, etc.

### CONCLUSION

Agricultural survey statistics make it clear that crop losses directly attributable to fungi and very considerable. Offcourse it's changing all the time because, at least in part losses depend on the weather, but it appears that world agriculture sustains average losses but it appears that world agriculture sustains average losses in terms of monetary value of around 16% annually as a result of plant diseases. Having this in mind, the present survey also helps to develop sustainable management towards fungal pathogens by enhancing approach of Integrated Crop Protection (ICP). Because ICP considers the production systems as a whole, including all the pests and the importance of soil health. It requires a good understanding of the fungi, the periods during which the crops are susceptible and the influence of environmental conditions. The Irish potato famine in the mid of 19<sup>th</sup> century was caused by potato late blight by the fungi *Phytophthora infestans* giving an awareness that today at this moment, one in every eight crop plants, on average will fail to yield because of fungal diseases includes the urge to develop positive effect of crop protection measures.

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