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FUNGAL DISEASE OF VEGETABLE OF YOUR LOCALITY

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ABSTRACT

Aim of this paper was to give an overview of fungal diseases prevailing on the most common vegetables grown in Novi Sad area. For investigation, lettuce and spinach grown in a greenhouse and in open garden were chosen. In greenhouse, optimal conditions for growing lettuce and spinach were maintained, which at the same time favour the development of fungal diseases. The vegetables grown in a protected suburban open garden were more problematic considering fungal diseases. In this chapter, the prevention of fungal diseases was emphasized to avoid drastic chemical treatment or minimize its application. The adequate prevention in greenhouse is a good ecological measure. Lettuce, spinach, greenhouse, fungal disease, fungus, Vegetables are highly significant elements in human nutrition. Because of fungal assault, the nutritional content of healthy vegetables may be changed, and in certain cases, fungus can develop particular mycotoxins in them, rendering them unfit for human consumption and rendering them inedible. Crops of leafy vegetables are developed for their veggie as well as for potential therapeutic uses (Naik, 1998). Leafy vegetables offer the highest proportion of nutrients to calories of any dietary group. The vitamins A, B, C, E, and K that are found in substantial amounts in greens. Calcium,

magnesium, iron, and potassium are just few of the minerals that may be found in abundance in these foods.

Keywords: Fungal, Vegetable, Locality, Vitamins,

INTRODUCTION

Vegetables are highly significant elements in human nutrition. Because of fungal assault, the nutritional content of healthy vegetables may be changed, and in certain cases, fungus can develop particular mycotoxins in them, rendering them unfit for human consumption andrendering them inedible. Crops of leafy vegetables are developed for their veggie as well as for potential therapeutic uses (Naik, 1998). Leafy vegetables offer the highest proportion of nutrients to calories of any dietary group. The vitamins A, B, C, E, and K that are found in substantial amounts in greens. Calcium, magnesium, iron, and potassium are just few of the minerals that may be found in abundance in these foods. They are a fantastic source of protein, in addition to having a high concentration of fibre and a very low carbohydrate and fat content. In light of this, several important leafy vegetable crops, including Chuka (Rumex acetosa L.), Spinach (Spinacea oleracea L.), Fenugreek (Trigonella foenum-graecum L.), Sepu (Peucedonum graveolens Benth and Hook.), and Colocasia (Colocasia esculanta L.), were chosen and subjected to a variety of fungal diseases, As a result, the current inquiry was carried out with the purpose of controlling fungal infections by the use of agrochemicals and biopesticides.

THE PROBLEM OF SUBSTRATE

The area in the greenhouse that will host the substrate is made ready by either thermally sterilising the soil with water vapour or chemically treating the soil first. Following the completion of the disinfection, cultivation and fertilisation are performed. Fungicides and fertiliser are frequently mixed together, although this combination does not produce desirable effects.

The plants that are used for the nursery are grown in a separate chamber within the greenhouse. When infected plants are moved to a new location, the process of disinfecting the soil is immediately rendered useless. Within the scope of this study, "Previcur N" and a thermal treatment with water vapour were implemented as preventative measures for the plants at the

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nursery. For financial and logistical reasons, it is strongly suggested that low-cost trash be used as fuel.

Keeping the Conditions in the Greenhouse Appropriate for the Production of Vegetables

One of the most crucial conditions is ensuring that the greenhouse has the right kind of microclimate. In order to prevent water vapour from the surrounding air from condensing on the plants, this method necessitates the use of modern polyethylene (PE) sheets.

During the winter months, it is necessary to provide not only the sunshine required for photosynthesis but also the absorption of UV light with a wave length ranging from 300 to 340 nanometers. In Israel, much research was done on the technology behind PE sheets, and the country now produces sheets with varying levels of absorbance. Even if the advanced technology of these sheets increases the quality of vegetables in practise, it is not suitable for our current economic condition even though the effects are positive and the quality of the veggies is improved.

Fungal diseases

Tabulated here are 16 different fungal illnesses that can affect lettuce (Tab 1), and Tabulated here are 12 different fungal diseases that can affect spinach (Tab 2). (D a v I s, 1997). The diseases that have been discussed are the ones that are most prevalent and significant in this part of Europe. When water condenses on the leaves and improper cultivation practises are applied, soils that are chilly and acidic are ideal conditions for the proliferation of fungal infections that affect lettuce and spinach. When compared to outside fields, the success rate of preventing and controlling fungus in greenhouses is significantly higher.

Lettuce-Related Illnesses

There are three major fungal diseases that can affect lettuce when it is produced in greenhouses. These diseases are sclerotinia drop (Subbaro, 1997), bottom rot, and downy mildew. Bottom rot thrives best in warm and humid conditions, while other types of rot thrive best in chilly and humid environments. All are encouraged by the presence of moisture, while bottom rot thrives

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best in warm and humid conditions (K e r n, 2006). Under wet conditions, all three promote the growth of fungi, which enables a distinction to be made between diseases (K o I k e, 1997).

Sclerotinia Drop

The fungus Sclerotia sclerotiorum and S. minor are responsible for the disease known as sclerotia drop. These fungi cause damage to lettuce as well as a large number of other plant species, including spinach.

The illness known as sclerotia drop is a serious one. It is now generally accepted that it can be found in greenhouses and other warm and humid environments. It may just take a few days for the entire plant to wilt and die if it is kept in a damp environment.

Symptoms that are characteristic: The first sign of the disease is when the leaves on the plant's surface begin to wilt. Before the leaves begin to wilt, a region that has been saturated in water will allow the fungus to grow, and it will appear on the stem close to the soil. Because the fungus will continue to spread from this point downward into the roots and upward through the remainder of the stem, it will also grow into each leaf, which will result in the base of the leaf rotting. This results in the leaves falling off and drying out, and the tips of the leaves eventually contact the soil or rest on the leaves below. Each leaf is progressively damaged as the fungus makes its way up the host plant. In most cases, the inner leaves will continue to retain enough moisture for the fungus to completely infiltrate them and transform them into a slimy mess. In damp environments, a mound of fungus that looks like snow will form over the entire skull. This web of fungal growth, which is typically found on the undersides of the leaves that are in contact with the soil, can give rise to dark structures that can be as little as a mustard seed or as large as a bean in size.

Downy Mildew

Downy mildew is brought on by the fungus Bremia lactucae Reg., which can be found on lettuce as well as many other types of vegetables.

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The leaves that are affected lose their original green colour and turn a yellowish colour as a symptom of the condition. A close inspection will reveal a downy web on the underside of the foliage, which will have the appearance of being wilted. Conidiophores, which are the fruiting bodies of the fungus, make up the downy web. These look like solitary branches but actually have several branches. A germ tube is utilised in the germination process of the conidia. The downy mildew illness is one that causes a lot of problems in Europe. The problem is more severe with lettuce grown in greenhouses as opposed to lettuce grown outdoors. Not just lettuce, but also chicory and a great many other Composites are susceptible to damage by downy mildew.

Control: Benomyl, a systemic fungicide, is used to successfully treat and manage this disease.

Spinach Illnesses Caused by Fungi

According to Summer (2006), the most common disease that affects spinach is called downy mildew, which is caused by fungi. On the upper surface of the leaves, it causes lesions that are chlorotic or somewhat yellow and have an uneven shape. On the lower surface, however, it creates purple sporulation. It can be avoided by spacing the plants far enough apart to allow for enough air circulation and by ensuring that the foliage of the plant is never allowed to become wet while it is being watered. Plantings should be rotated annually to reduce the risk of soil-borne diseases such as Rhizoctonia, Pythium, and Fusarium; in other words, spinach shouldn't be sown in the same row or bed year after year. This will help prevent the spread of these pathogens (d u T I o t, 2005).

Rouille Blanche

This particular fungal illness, which affects spinach more than any other, is brought on by the fungus known as Albugo occidentalis. When the disease has progressed to a more advanced stage, the lesions appear on the upper surface of the leaf.

Symptoms that are characteristic: Plants that have been infected with the white rust fungus are susceptible to rapid decomposition and death if the surrounding environment is favourable for the progression of the illness. The fungus in the soil goes dormant during the summer months, and its thick-walled oospores have the potential to spread throughout a field if they are carried by

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the wind. It is necessary for there to be free moisture available on the surface of the leaf in order for spores to germinate and develop. Germination works best at a temperature of 30 degrees Celsius. The disease spreads at an accelerated rate during temperatures of 40 degrees Celsius or higher, or during periods of cool, humid nights and somewhat warm daytime temperatures.

Identifying white rust requires the following: According to Ol-sen and colleagues (1998), only the top surface will show signs of chlorosis.

OBJECTIVE

1. To Study On The Fungal Disease Of Vegetable Of Your Locality
2. To Study On The Conditions In The Greenhouse Appropriate For The Production Of Vegetables

REVIEW OF LITERATURE

Alternaria tenuissima is a global fungus that has previously been detected in India on a variety of hosts, including Ipomoea carnea, Colocasia esculenta (Solankure and Rao, 1972), and Cajanus cajan (Kannaiyan and Nene, 1977). (Reddy and Rao, 1975). On the other hand, Raja et al. (2005) in India were the first people to report that Alternaria tenuissima was responsible for leaf spot and fruit rot on Solanum melongena. In China, there have been instances of the pathogen Alternaria tenuissima causing illness on blueberry and pepper plants, but there have been no reports of the infection affecting sorrel plants in the past (Luan et al., 2007; Li et al., 2011) Following an inoculation period of two to three days, ash green colonies with white outer concentric rings will begin to develop. Alternaria tenuissima (Fries) Wiltshire was determined to be the species of the fungal isolate. (Simmons, 2007; Subramaniam, 1971).

Lakshmi and Valluvaparidasan were the ones who made the first discovery that Alternaria alternata was responsible for the leaf spot on Aloe barbadensis in India (2008). The Alternaria late blight is one of the most prevalent fungal diseases that may affect pistachio trees. It is caused by the Alternaria sp. species group, which includes the Alternaria alternata, Alternaria tenuissima, and Alternaria arborescens species groups. It is possible for the disease to produce

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significant premature defoliation, staining of the nutshells, and mould growth on the kernels, all of which lower the quality of the fruit. Large necrotic lesions, which ultimately combine and eat the whole leaf, are one of the defining characteristics of the disease when it appears on the plant's foliage (Pryor and Michailides, 2002).

According to Robiglio and López (1995), red delicious apples in Argentina are susceptible to a condition called mouldy heart disease, which is caused by Alternaria species. Although there have been previous reports of the Alternaria species Alternaria alternata and Alternaria chlamydospora being associated with the discoloration of amaranth seeds (Noelting et al., 2009a&b), this is the first documented report of Alternaria infectoria affecting the panicles and seeds of amaranth in Argentina. According to Perelló et al. (2007), the presence of Alternaria infectoria on wheat in Argentina has been documented. First report of Alternaria infectoria on mantegazzianus amaranth (Amaranthus caudatus) from Argentina (Noelting, 2012). Gerbera leaf spot affected for the first time by the fungus Alternaria infectoria (Mirkova and Konstantinova, 2003).

Eckert and Sommer, 1967,The value of fresh fruits and vegetables grows by a factor of five while they are in transit from the field to the customer, which means that any losses incurred as a result of post-harvest infections are far more than is often believed. As prevalent postharvest fungus, species of Alternaria, Fusarium, Penicillium, Aspergillus, and Geotrichum, in addition to Botrytis, have been documented (Splittstoesser, 1987; Adaskaveg et al., 2002). Leaf spot of aspm, also known as Alternaria species, are fungi that are extensively spread in the soil as typical components of its microbiota. These fungi are plant diseases and saprophytes simultaneously. They are common in areas that are both humid and semi-arid and have the ability to infect plants that are growing in the field. The plant diseases caused by Alternaria species may harm a wide variety of crops, including the leaves, stems, flowers, and fruits. The overall losses that have been incurred as a result of this genus are among the greatest of any plant pathogen (Agrios, 2005). During the storage process, the fungus Alternaria may potentially move from infected plant products to healthy ones that are close to them through secondary infections (Barkai-Golan, 2008).

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RESEARCH METHOLODOGY

The following green vegetables were chosen for this research: chuka (Rumex acetosa L.), spinach (Spinacea oleracea L.), fenugreek (Trigonella foenum-graecum L.), sepu (Peucedonum graveolens Benth and Hook.), and colocasia (Colocasia esculneta L.). The sick samples were gathered from a variety of locations across the Marathawada region in the state of Maharashtra. During the growth season, surveys were conducted beginning in June 2008 and continuing through July 2009. Delicious green vegetable crops are susceptible to a wide variety of fungal diseases, such as leaf spot, leaf blight, damping off, wilt, root rot, rot (after harvest), and powdery mildews. These diseases can be transmitted from plant to plant through the air. The following diseases were discovered throughout the course of the surveys:

DATA ANALYSIS

SURVEY OF FUNGAL DISEASES (PLATE-I)

The following green vegetables were chosen for this research: chuka (Rumex acetosa L.), spinach (Spinacea oleracea L.), fenugreek (Trigonella foenum-graecum L.), sepu (Peucedonum graveolens Benth and Hook.), and colocasia (Colocasia esculneta L.).

Chuka

Chuka (Rumex acetosa L.) (Rumex acetosa L.) It is usually affected by three diseases, namely damping off, which is produced by Pythium sp., wilt, which is caused by Fusarium proliferatum, and leaf spot, which is caused by Alternaria tenuissima.

Spinach

Spinach (Spinacea oleracea L.) (Spinacea oleracea L.) Leaf spot, which is caused by the fungus Alternaria spinaciae, and wilt, which is caused by the fungus Fusarium oxysporum f. sp. spinaciae, are both prevalent diseases that affect this plant.

Fenugreek

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Fenugreek (Trigonella foneum-graecum L.) (Trigonella foneum-graecum L.) Diseases such as leaf spot, which is caused by the fungus Alternaria alternata, wilt, which is caused by the fungus Fusarium oxysporum, and powdery mildew, which is caused by the fungus Erysiphae polygoni are widely encountered.

Shepu

It is usually discovered that wilt disease, which is caused by Fusarium oxysporum (1), and post harvest rot diseases are identified, and its pathogens were Aspergillus niger and Aspergillus flavus. Shepu (Peucedonum graveolens Benth and Hook) is a species of the genus Peucedonum.

Colocasia

Colocasia (It is a leaf blight disease that is caused by Phytophthora colocasiae that affects Colocasia (Colocasia esculanta L.). It is often seen.

Eleven different fungal infections were isolated from various green vegetable crops for the purpose of this investigation. Nine of these fungi were used further, with the exception of two species of Aspergillus: aspergillus Niger and aspergillus flavus.

ISOLATION AND PATHOGENICITY OF THE PATHOGENS

The features of the pathogenic fungi that were isolated are provided in table 1, along with their corresponding locations (Plate II, III, IV and V).

Chuka (Rumex acetosa L.) (Rumex acetosa L.) Chuka are prone to contracting three different diseases, the most prevalent of which are leaf spot, which is caused by Alternaria tenuissima, wilt, which is caused by Fusarium proliferatum, and damping off, which is caused by Pythium sp.

Wiltshire's Alternaria tenuissima, which was named by Fries.

Following an inoculation period of two to three days, ash green colonies with white outer concentric rings will begin to develop. Alternaria tenuissima was determined to be the species of the isolated fungus. The radial development of the fungus in culture was consistent, as judged by

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its cultural and morphological properties. The first observations made with a microscope showed that the conidiophores were either solitary or in groups, simple or branched, straight or flexuous, more or less cylindrical, septate pale or mid pale brown smooth with 1 or several scars up to 115 m long 4-6 m thick. All of these characteristics could be found in either a single conidiophore or multiple conidiophores. Conidia may be found alone or in chains. They are obclavate and straight, with an ellipsoidal shape that progressively tapers to a beak. Typically, there are 4–7 transverse septa and 0–6 longitudinal septa. The total length of the spores ranges from 22-95 (54) m, with a thickness of 8-19(13.8) m in the widest portion and a beak of 2-4 m.

Fusarium proliferate (Matsushima)

The profuse aerial mycelium was white when it first appeared but eventually became a purple violet colour. The colonies expanded at a rapid rate, and their hyphae were septate and hyaline. Conidiophores were short, uncomplicated, and branched throughout their length. Microconidia were numerous and generated on both monoand polyphialids. They were single celled and ranged in shape from oval to club and measured 7.0-22.5 3.5 m. Macroconidia ranged from having a small sickle form to being straight and sized between 43 and 65 3.3 and 5.0 micrometres in length. There was a lack of chlamydospores.

PYTHIUM SP

Colonies were discovered to be dying off while cottony growth was occurring with aerial mycelium. When many oospores or hyphal swellings are present, mycelium might seem colourless or cottony white, coenocytic, and sometimes glossy. Occasionally, mycelium can appear somewhat yellowish. Terminal oogonia that are globose and smooth, ranging in diameter from 20 to 25 m (the average being 24 m). The majority of antheridia are intercalary. Sporangia are made up of terminal complexes of inflated hyphal branches that may range in length and can be up to 21 microns wide. Pythium sp.

Spinach

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Spinach (Spinacea oleracea L.) (Spinacea oleracea L.) Leaf spot, which is caused by the fungus Alternaria spinaciae, and wilt, which is caused by the fungus Fusarium oxysporum f. sp. spinaciae are two illnesses that are widely observed in spinach.

Alternaria Pinaceae Aletsch and Noack

After the inoculation, colonies of ash that are blackish white in colour and have whitish concentric rings on their periphery are created. Alternaria spinaciae was determined to be the species of the isolated fungus. The radial development of the fungus in culture was consistent, as judged by its cultural and morphological properties. Conidia are elongate, clavate, 6-10 septate, yellowish to olivaceous, 80-120 12-14 m in size, whilst the hyphae are short, septate, and olivaceous.

Fusarium oxysporum f. sp. spinaciae schl (Sherb)

It demonstrates that all of the leaves are going through the withering phase. The colonies that formed on the agar medium had a cottony, white, and soft consistency. When borne in sporodichia, conidia are normally wider toward the apex and typically sharply constricted at the apex. They are pedicellate and predominantly 3-septate, measuring 355-25(27-434.8-6.3) m; 1-septate 204.8(14-244.4-5.0) m; and 0 septate 83.2(6-113-4.8) m. When conidia are formed alone on mycelium of a little different kind, they are called solitary conidia. Chlamydospores are typically composed of three septa and are spherical and smooth. They range in size from 11(6-18) m in diameter and may be either 2-celled or commonly chained. In addition to being a significant spice, fenugreek, also known as Trigonella foenum-graecum, is an essential green food that should be consumed throughout the winter months. Powdery mildew, wilt, and leaf spot are the three most prevalent diseases that cause large losses in fenugreek crops. Leaf spot is produced by the fungus Alternaria alternata, wilt is caused by Fusarium oxysporum, and powdery mildew is caused by Erysiphae polygoni.

Alternaria alternata (Fr.) Keissler

Alternaria alternata manifests itself on leaves as a characteristic dark spot that may range in size from a pin point to up to one to two centimetres in diameter. Additionally, a dark ash-colored

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area with concentric rings may also be present. Alternaria alternata (Fr.) Keissler, Colonies are typically black, and their conidia are generated in long chains that are often branched. Their total length ranges from 20 to 63 microns, and they have a thickness of 9 to 18 microns at their widest point. The beaks are pale and range from 2 to 5 microns in thickness.

ERYSIPHAE POLYGONI

Powdery On both sides of the leaves, a powdery white mass development of mildew may be seen. (The use of this saprophytic fungus in management strategies was not investigated).

Fusarium oxysporum (Schl ex fr)

It demonstrates that all of the leaves are going through the withering phase due to the fungus Fusarium oxysporum. The colonies that were grown on (PDA) agar medium had a cottony, white appearance and a gentle consistency. When born in spordochia, conidia are normally more expanded toward the apex and typically abruptly constricted at the apex; they are also pendicellate and mostly 3-septate. 35x5.25 (27.43x4.8.6.3)□m, 1-sepatate 2020x4.8 (14.25 x4.4-5.0) □m, 0 septate When borne singly on mycelium of a slightly different variety, conidia measure 8 x 3.2 (6-11 x 3-4.8) micrometres in size. Chlamydospores are typically composed of three septa, are round and smooth, range in size from 11 to 618 micrometres in diameter, and often occur in chains.

Shepu (Peucedonum graveolens Benth and Hook) (Peucedonum graveolens Benth and Hook.) Both wilt disease, which is caused by Fusarium oxysporum (1), and post-harvest rot disease, which has Aspergillus niger and Aspergillus flavus as its pathogens, are found often. Wilt disease is more prevalent. For the purpose of isolating the pathogen, the identical process described above was followed.

Fusarium oxysporum (Schl ex fr)

Fusarium oxysporum demonstrates that all of the leaves are going through the withering phase. Fusarium oxysoporum. The colonies that were grown on (PDA) agar medium had a cottony, white appearance and a gentle consistency. When borne singly on mycelium of a slightly

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different type, conidia are typically broader toward the apex and typically abruptly constricted at the apex. They are also pendicellate, mostly 3-septate 32x5.25(27.43x4.8.6.3)m, 1-sepatate 2515x4.8(10.20x4.4-5.0)m, and 0 septate 9x3.2(6-10x3-4.8)m. Conidia are Chlamydospores are typically composed of three septa, are round and smooth, range in size from 11 to 618 micrometres in diameter, and often occur in chains.

Aspergillus niger and A. flavus

Post-harvest Rot, often known as Rot. The colonies have a brilliant green colour and have black scierotia. Mycelium that is septate and hyaline might be called hyphae. The conidial heads may range from being loosely columnar to radiating and biseriate. Conidiophores have smooth walls, are long (500-3000 m), and brown, becoming darker at the apex. Vesicles are globose to subglobose (40-75 m in diameter), while conidia range in colour from brown to black and are globose with a maximum diameter of 67 m. Only the wilt disease, which is caused by F. oxysporum, is addressed, and integrated management approaches are attempted to combat it.

Colocasia (Colocasia esculanta L.) (Colocasia esculanta L.) The most feared disease that may affect colocasia is called colocasia blight, and it is caused by the Phytophthora colocasiae bacterium.

Phytophthora colocasiae Rac.

The blight disease manifests itself on leaves as a characteristic reddish yellow or brown as tiny, water-soaked lesions that eventually expand and combine into huge lesions with yellow exudates, which finally results in the defoliation of plants and their deaths. Taro leaf blight (TLB), which is caused by Phytophthora colocasiae, was a possibility based on the symptoms. Soil resident, may be a saprophyte or a facultative parasite, has branching and coenocytic mycelium, and produces sporangia on branched and indeterminately growing hyphal sporangiophores. Reniform and laterally biflagelated are the characteristics of the zoospores. The sporangia were oval in shape, hyaline in colour, papillate and caducous, measuring between 30 and 60 17 to 28 m, while the pedicels ranged in length from 3.5 to 10 m.

Table 4. 1 Isolation of pathogenic fungi.

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Sr. No.	Host	Disease	Symptoms	Causal organisms	Colony characters
1	Rumex acetosa L.	Leaf spot	It occurs typical reddish spot on leaves and dark ash colourspots with concentric rings	Alternaria tenuissima (Fries) Wiltshire.	Ash green colonies with whitish peripheral concentricrings are formed.
		Wilt	Total leaves exhibiting, stunting the growth & wiltingthe growth	Fusarium proliferatum (Matushima).	The abundant aerial mycelium initially was white and later became purple violet. Colonieswere fast growing, hyphae were septate and hyaline
		Damping off	Infected tissue appears softand water soaked, infected stem becomes killed at thebase	Pythium sp.	Colony of cottony whitish softtexture later became purple violet.
		Leaf spot	Small, circular to angular, necrotic spots on lower leaveswill turn gray	Alternaria spinaciae Allesch &Noack	Colonies blackish whitish peripheral concentric rings are formed. Hyphae

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2	Spinacea oleracea L.				short, septate, Olivaceous, conidia elongate, clavate,6-10 septate, 80-120×12-14µ.
		Wilt	yellowing of the lower leaves,total leaves exhibiting, stunting the growth and finally death of the plant	Fusarium oxysporum f.sp.spinaciae.schl (Sherb).	Colonies was cottony whitish,soft texture.
3	Trigonella foneum-graecum L.	Leaf spot	The leaf spot disease occurs as a typical blackish spot on leaves, leaf spot vary in size from pin point up to one to two cm in diameter and dark ash colored spot with concentric rings appeared.	Alternaria alternata(Fr.) Keissler	Colonies usually black conidia formed in long, often branched chain, overall length 20-63(37) □m, 9-18 (13) □m thick in the broadest part; beak pale, 2- 5□m thick.
		Wilt	It shows total leaves exhibiting wilting process	Fusarium oxysporum (Schl ex fr)	Colonies was cottony whitish, soft texture. .
		Powdery Mildew	Powdary white growth on both	Erysiphae polygoni	-

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			surfaces		
4.	Peucedonum graveolens Benth and Hook	Wilt	Total leaves exhibiting, stunting and wilting the growth	Fusarium oxysporum(1) (Schl ex fr)	Colonies was cottony whitish, soft texture.
		Post-harvest Rot	Rotting	Aspergillus niger A. flavus	Colonies bright green with black scierotia.
5	Colocasia esculanta L.	Leaf blight	Dark brown spots with concentric rings, typical reddish yellow or brown on leaves as small, white sporulation on the lesions under wet conditions	Phytophthora colocasiae Rac.	Colonies whitish yellow concentric rings are formed and oil (gel) like secretion.

Molecular detection for fungus identification.

Internal transcribed spacer (ITS) of rDNA genes were employed in the proper diagnosis and correct identification of the infections, such as Alternaria tenuissima and Fusarium proliferatum. This allowed for a proper diagnosis and exact identification. The polymerase chain reaction (PCR)-based specificprime ITS1 (5'TCCGTAGGTGAACCTGC GG3') and ITS4 (5'TCCTCCGCTTATTGATATGC3') were used, and they yielded amplicons with lengths of 540 bp and 569 bp, respectively. These two pathogens caused an infection in Rumex acetosa, which was reported for the first time in India.

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In order to determine the genetic variety of the isolated pathogenic fungus, a molecular characterisation of the fungi was carried out. Isolation of fungal DNA, PCR amplification, and BLAST analysis were used to conduct the tests for the molecular characterisation.

The Basic Local Alignment Search Tool was used in order to conduct an analysis on the sequences of the PCR results in FASTA format (BLAST). The DDBJ DNA Data Bank of Japan database was used in order to carry out the nucleotide-nucleotide BLAST. DDBJ (http://blast. DDBJ.nig.ac.jp/top-e.html) DNA Data Bank of Japan Nucleotides sequenced: 540&569.

Table 4. 2 Phylogenetic neighbors of Alternaria strain

Sr. No.	Gene Accession No.	Phylogenetic neighbours	% Similarity
1	AY751455	Alternaria tenuissima strain EGS34-01518S rRNA	98
2	AB369450	Alternaria tenuissima genes for 18S rRNA	98
3	AB369436	Alternaria tenuissima genes for 18S rRNA	98
4	AB369462	Alternaria tenuissima genes for 18S rRNA	98
5	AB369458	Alternaria tenuissima genes for 18S rRNA	98
6	AB369494	Alternaria tenuissima genes for 18S rRNA	98
7	FJ949081	Alternaria tenuissima isolate dzdj3 ITS	98
8	AB369478	Alternaria tenuissima genes for 18S rRNA	98
9	AB369477	Alternaria tenuissima genes for 18S rRNA	98
10	GQ995482	Alternaria tenuissima Teb-s_1_HU 18S rRNA	98

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Internal transcribed spacer (ITS) region sequences were acquired and deposited to the NCBI Gene Bank. Additionally, a sequence was submitted to Gene Banke with were assigned by Gene Bank in order to identify the fungal strains of Alternaria tenuissima and Fusarium proliferatum. (Respectively referred to by the accession numbers JQ417902 and JQ322969).

CONCLUSION

For the purpose of this investigation, the leafy vegetables chuka (Rumex acetosa L.), spinach (Spinacea oleracea L.), fenugreek (Trigonella foenum-graecum L.), sepu (Peucedonum graveolens Benth and Hook.), and colocasia (Colocasia esculneta L.) were chosen. The infected samples were gathered from various parts of the Marathawada region in the state of Maharashtra. The diseased samples were analysed by scientists. An investigation that started in June 2008 and continued through the growing season in July 2009. Delicious green vegetable crops are susceptible to a wide variety of fungal diseases, such as leaf spot, leaf blight, damping off, wilt, root rot, rot (after harvest), and powdery mildews. These diseases can be transmitted from plant to plant through the air. Chuka (Rumex acetosa L.): This plant is susceptible to three different diseases, which include damping off, which is caused by Pythium sp., wilt, which is caused by Fusarium proliferatum, and leaf spot, which is caused by Alternaria tenuissima. Spinach (Spinacea oleracea L.):

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