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Critical survey of fungal diseases on tomato plant in Marathwada region

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Abstract

In the present investigation an attempt has been made to study fungal diseases of *Lycopersicon esculentum* during Kharif and Rabi season in 2016-2017. It is revealed that crop is suffering from 2-5 fungal diseases caused by different pathogenic fungi of Tomato, the incidence of fungal diseases is more in rainy season as compare to winter. The early blight caused by *Alternaria solani* is dominant in both seasons. Incidence of *Fusarium* wilt, *Septoria* leaf spot and charcoal rot is more in rainy season.

Keywords: Fungal diseases, *Alternaria solani*, *Fusarium* wilt, charcoal rot, Kharif, Rabi

1. Introduction

Tomato (*Lycopersicon esculentum* Mill) is the second most popular and widely grown vegetable in the world after potato (Panthee and Chen 2010) [5]. A trend is set up for commercial cultivation of tomato (Chadhab 2008) [2]. Tomato is nutritionally very important and has several medicinal uses. Tomato is low in fat and hence used for all diabetic preparations and incorporated in weight reduction plans. It is also rich in amino acids and it acts as a source of many minerals. It is unique in having lycopene pigment along with vitamin A, C and E.

China is the largest producer of tomato followed by America. India ranks third in production of tomato which is followed by Turkey and Egypt. The crop tomato is cultivated on large scale in the region of Maharashtra and also some parts of Marathwada. Tomato is a vegetable crop very prominently cultivated on irrigated land both in kharif and rabi season. The major constraints in the production of tomato is out breaks of diseases. The early blight caused by *Alternaria solani*, *Fusarium* wilt caused by *Fusarium oxysporum*, *Septoria* leaf spot caused *Septoria lycopersici* and charcoal rot caused by *Macrophomina phaseolina* are very important pathogens of Tomato causing serious damages to the crop. Taking these point in consideration present investigation is carried out on survey of fungal diseases on tomato plant in Marathwada region.

2. Material and Method

2.1 Collection and isolation

In order to study fungal diseases of Tomato infected samples were collected from different localities of Marathwada in air tight pre sterilized polythene bags. The infected parts like leaf, stem and fruit were brought to the laboratory for isolation of Fungi. The samples were washed in running tap water and surface sterilized by mercuric chloride and wash twice with de ionized water. Small pieces were made and inoculated on Petri plate amended with PDA (Potato Dextrose Agar). Plates were incubated at 25 + 2° for 5-6 days. Fungal growth were observed on Petri plate fungi were sub cultured and pure culture were made with singal sopre suspension technique and fungi were identified by following standards manual morphological and microscopic observation (Mukadum *et al.* 2006) [4].

3. Result and Discussion

In the Present study critical survey of fungal diseases on tomato plant in Marathwada region is carried out it is observed that tomato plant is suffering from different diseases like early blight caused by *Alternaria solani*, *Fusarium* wilt caused by *Fusarium oxysporum*, *Septoria* leaf spot caused by *Septoria lycopersici* Charcoal rot caused by *Macrophomina phaseolina*.

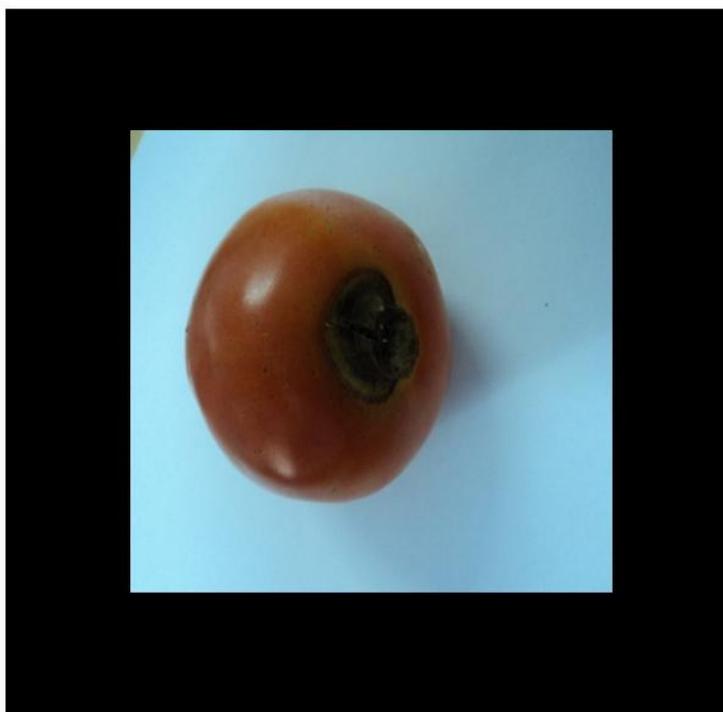
It revealed from table no.1 the dominant fungi observed causing diseases are *Alternaria solani*, *Fusarium oxysporum*, *Macrophomina phaseolina*, *septoria lycopersici* and *Macrophomina phaseolina*. The early blight caused by *Alternaria solani* is dominant in both seasons. Incidence of *Fusarium* wilt, *Septoria* leaf spot and charcoal rot is more in

rainy season. These finding were compared with other workers, Kamble (2006) [3] reported early blight on tomato. Agrios (2005) [1] reported that *Fusarium* wilt of tomato caused by *Fusarium oxysporum* f. sp. *lycopersici* is a disease that causes serious economic loss.

Table 1: Fungal diseases of Tomato in Kharif and Rabi season.

Name of diseases	Causing agent	Kharif season	Rabi season
Fusarium wilt	<i>Fusarium oxysporum</i>	+++	++
Septoria leaf spot	<i>Septoria lycopersici</i>	++	+
Early blight	<i>Alternaria solani</i>	++++	++++
Charcoal rot	<i>Macrophomina phaseolina</i>	++	+

4. Infected Fruit of Tomato Plant





Infected Tomato Plant

5. References

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