



Leaf Fungal Diseases Of Some Medicinal Plants From Jalna District Marathwada Region (Ms) India

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ABSTRACT

A survey was carried out in the region of tehsil Partur, Jalna to investigate the incidence of fungal disease of plants. Field survey was carried out. Diseased plant leaves were identified using disease symptoms. During the survey, 10 plants were found infected by 6 fungal pathogens causing the disease, viz *Cercospora achyranthes*, *C. balansae*, *C. gloriosae*, *C. jamaicensis*, *Colletotrichum capsici*, *C. fructicola*, *Marssonina poonensis*, *Pestalotiopsis carbonacea*, *Phyllachora euphorbiae* and *Phyllosticta rodendri*.

Key words: *Cercospora*, *Colletotrichum*, Fungi, Jalna.

Introduction

The outbreak of plant diseases has greatly influenced human civilization since ages. Sometimes the plant disease epidemics have resulted in famine. In the present era the losses due to outbreak of plant disease or injuries are tremendous and they affect human life and economics in various ways. The injuries to the plants due to stress factors or due to pathogenic infections are affecting growth of trees, its flowering, fruiting and wood quality *etc.* The diseases, which affect the aerial parts of the plants, cause localized or general damages, resulting in the killing of portions of leaves, or entire leaves or only in a general reduced functional activity. A large number of fungal species are known to cause the foliage diseases. The losses caused to the host may be negligible or severe, as in case of defoliation. A leaf spot is a limited, discolored, diseased area of a leaf that is caused by fungal, bacterial or viral plant diseases or by injuries from nematodes. Fungi are the most common parasites causing plant disease. Fungi usually produce spores which, when carried to a plant, can begin an infection. Leaf spots caused by fungi have been reported by various workers^{5,18,19}.

Materials and Methods

A survey of fungal diseases was undertaken during the years 2015 - 2016 in the region of tehsil Badnapur, Jalna. The plants infected leaves were examined carefully in the field and description was recorded, as suggested¹². PDA was prepared in the usual way³. Symptoms were recorded immediately and associated pathogens were identified in the laboratory by using the usual methods^{2,4,6,7}.

Results and Discussions

Amaranthus spinosa

Pathogen: -*Cercospora achyranthes*

Locality:-Satona.

A leaf spot disease of *Amaranthus spinosa* was observed during the post-rainy season. The symptoms were circular, reddish brown with dark margins and a grayish centre, measuring 1-5 mm in diameter. (Fig.1). Initially spots appear on upper side of leaves, which later spread downwards the petioles. In severe cases, infection caused complete defoliation leaving bare twigs. At this stage, further growth of the plant was arrested. Uprooted plants revealed a poorly developed root system compared to healthy plants. In few cases, even plant may die. The Disease was reported on same genus from Udaipur, India^{9,13} and noted the infection in post rainy season.

Chenopodium album

Pathogen: -*Colletotrichum capsici*

Locality:-Partur.

The consistent and diagnostic symptom of the disease is bending and crumpling of leaf. Initially chlorotic lesions develop on the leaf, which vary in shape, brown-black in color and measures as 4-6mm in diameter. The disease appears on young as well as on old leaves (Fig.2). In severe infection, the tissue around the spots becomes discolored, thin; spots increase in number and may coalesce to cover the whole leaf surface. In certain cases, leaves loose turgidity and show wilting, followed by defoliation. This disease was seen during monsoon season. Similar disease was recorded as leaf blight on *Amaranthus*¹⁴.

Tinospora cordifolia

Pathogen: -*Colletotrichum fruticicola*

Locality:-Mapegaon.

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Rubia cordifolia

Pathogen: *Marssonina poonensis*

Locality:-Rohina

The characteristic symptoms of the disease are visible on the surfaces of leaf. Young leaves are most susceptible than old ones. Firstly spots appear circular in shape, dark brown in color and measure 2-6 mm in diameter (Fig.3). As the disease advances, spots turn black-brown, which soon become surrounded by a concentric ring. With the enlargement of lesions, infected portion become white in centre and increase in number, scattered over the leaf. The infection is more pronounced in terminal portion of leaf. In some cases, leaf blighting, chlorosis and still leaves tend to remain hang. This infection was noted during rainy season. Similar disease was recorded from Maharashtra¹⁰.

Clerodendrum serratum

Pathogen: *Phyllosticta clerodendri*

Locality:-Partur city

The disease affects aerial parts of the host plant, especially leaves. The plants are attacked at any stage of the growth, but generally the disease becomes more damaging. Initial symptoms are small circular, dark spots on the surface of older leaves. As the spots enlarge, concentric rings develop within the lesions, which are often surrounded by a yellow halo, spots as small, tiny, regular to irregular, brown to yellow and measuring as 2-6 mm in diameter (Fig.4). Sometimes spots coalesce, which covers the entire leaf lamina. As the disease is severe, leading to defoliation. Old plants are more prone to the attack than young ones. This disease is severe during monsoon season. The disease was noted¹⁶.

Datura metel**Pathogen:** *Cercospora jamaicensis***Locality:** Partur city

The disease symptoms appear on the aerial parts of the plant. The fungus develops spots in the leaf tissues, which are limited by the veins. The necrotic spots were present on epiphyllous sides appearing as circular to oval arising from the leaf margin and gradually proceeds towards the leaf lamina (Fig.5). These spots coalesce and become dark brown in color. When the infection is severe, wilting of leaves starts and defoliation may occur. The infection proceeds towards the fruits or capsule, which become tough, reduced in size and hard. This disease was observed during monsoon, followed by winter season. Similar host found affected and was noted as a new record⁸.

Euphorbia geniculata**Pathogen:** *Phyllachora euphorbiae***Locality:** Watur

This disease occurs chiefly on the older leaves of young plants. The disease symptoms appear on leaf lamina on upper side of the leaf. Lesions, at the beginning of the disease development, appears round, circular, oval with irregular border, pale brown in color surrounded by yellow halo, few in number and measure 4-6mm in diameter (Fig.6). In severe infection, leaves turn pale yellow and shed prematurely. Majority of the plants were found to be infected in field showing similar symptoms. This disease was noted¹⁵.

Solanum nigrum**Pathogen:** *Cercospora balansae***Locality:** Watur

The disease symptoms were observed on the foliage of host plant. Initially spots are less in number which appear as minute, circular-oval, yellow-brown in color and measure 3-7 mm in diameter (Fig.7). In severe cases, spots coalesce; necrotic tissue becomes thin with dark black color and may fall off. In many cases, progress of the disease is slow on old plants, but young plants are quickly infected. These plants show gradual wilting and defoliation. This disease was noted during monsoon season¹¹ from North India. Similar disease appears now in Maharashtra.

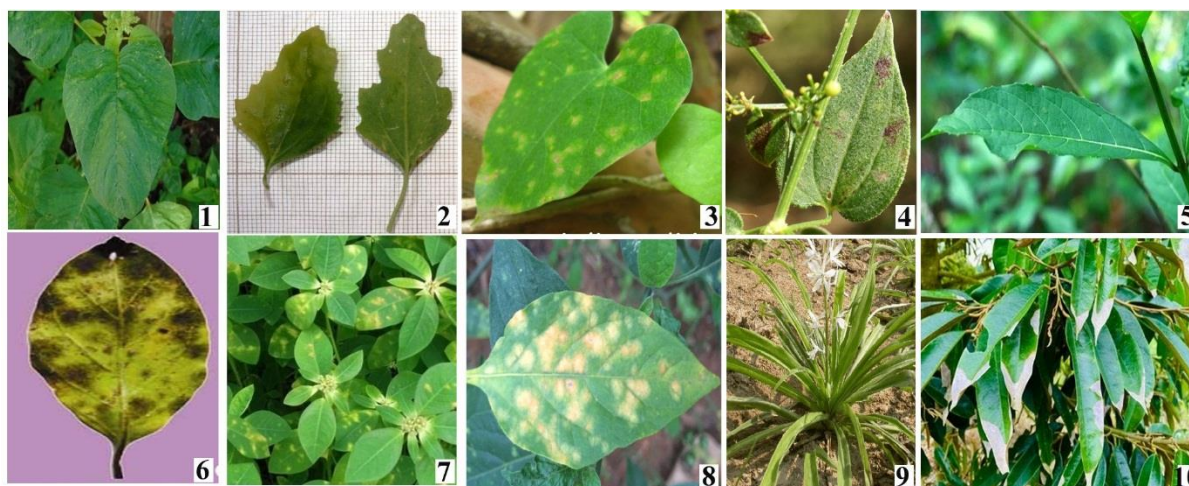
Chlorophytum borivillianum**Pathogen:** *Cercospora gloriosae***Locality:** LBS College Garden Partur.

The leaf spot disease of this plant was observed during June to September. Spots were noted on upper side of the leaves except leaf margin. Symptoms appeared as small, circular to oval, light brownish spots (10–20mm), scattered at the tip, margin and midrib of the leaves. The diseased portion of the leaf is shrunken and thinner than the healthy one (Fig.8). As the disease advances, some spots may coalesce and cover the entire leaf surface. In severe cases, leaf rolling, curling, and wilting takes place. Earlier the disease was reported¹⁷ but appears new to Maharashtra state.

Cryptostegia graniflora**Pathogen:** *Pestalotiopsis carbonacea***Locality:** Chincholi

The pathogen causes infection on both the sides of the leaves. Initially symptoms were minute, small, brown-yellowish, spots few in number and measure 4-6mm in diameter. The disease appears from the margins and progress towards the petiole of leaf (Fig.9). In severe infection, spots increase in number and coalesce to form large patches which gradually cover the entire leaf surface, showing wilting and blighting symptoms. When the infection density was high, maximum numbers of plants were found to be infected in study area. This disease was observed during monsoon season. Similar disease was reported from Jabalpur (M.P.)¹ India.

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Figs.1-9 : 1. *Cercospora achyranthes* on *Amaranthus spinosa* 2. *Colletotrichum capsici* on *Chenopodium album* 3. *Colletotrichum fructicola* on *Tinospora cordifolia* 4. *Marssonina poonensis* on *Rubia cordifolia* 5. *Phyllosticta clerodendri* on *Clerodendrum serratum* 6. *Cercospora jamaicensis* on *Datura metel* 7. *Phyllachora euphorbiae* on *Euphorbia geniculata* 8. *Cercospora abalansae* on *Solanum nigrum* 9. *Cercospora gloriosae* on *Chlorophytum borivilianum* 10. *Pestalotiopsis carbonacea* on *Cryptostegia grandiflora*

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