

A survey of plant bacterial diseases of nanded district

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Abstract

During the survey of bacterial diseases of trees of Nanded district, 9 diseases were observed. Majority of them were observed on fruit trees. The diseases observed were Leaf spot of *Butea monosperma*, *Ficus benghalensis* and *Termenalia catappa*; Angular leaf spot of *Ficus religiosa*, black spot of *Mangifera indica* and *Punica granatum*; leaf necrosis of *Annona squamosa* and *Psidium guajava*; and Citrus canker of *Citrus aurantifolia*. A brief report of this investigation is presented in this paper.

Keywords: Plant bacterial diseases, *Xanthomonas*

INTRODUCTION

The infections caused by bacteria are reported on cereal, pulses, legumes, vegetables, fruit, ornamental and commercial plants etc. They affect the leaves, twigs, stems and fruits. The symptoms produced include local lesions, cankers, wilts, soft rot, galls etc. Some of the diseases caused by bacteria are known to cause serious damage in the field as well as in storage. However, the bacterial diseases of trees have not been paid much attention in comparison with fungal diseases. In the present investigation the bacterial diseases observed in Nanded district are studied and are reported here. In all nine bacterial diseases were observed and they are described with respect to the causal organism and symptoms.

MATERIAL AND METHODS

A survey of bacterial diseases of trees of Nanded District was carried out. Observations were made in the field on such aspects whether the diseases occur on young or old trees, young or old leaves and other plant parts, on the parts near the ground level or away from it. The trees were examined carefully in the field and description was recorded, as suggested by Rangaswami and Mahadevan (2005) [1]. The disease specimens collected in the field were sorted out and preserved under the blotters in the laboratory. The diseases and pathogens were identified by using the relevant literature. These diseases are described with respect to their host plant, causal organism and its locality.

RESULTS AND DISCUSSION

1) *Annona squamosa* L.

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Vernacular name- Custard apple

Disease –Leaf necrosis

Pathogen; *Xanthomoxos annonae* Papdiwal and Deshpande

Locality- Penoor, Nanded, Loha, Kandhar

Firstly the infection was observed on the leaf margin near the tip. It then spread from the margin inwards and downwards. In some cases the apex was completely affected. The lesions were irregular, spreading, dark brown in colour with yellow margin and raised on dorsal surface. The disease was observed during winter season.

2) *Butea monosperma* Lam.

Vernacular name- Flame of the forest, Palas

Disease- Leaf spot

Pathogen; *Xanthomonas buteae* Bhatt, Patel

Locality- Penoor, Loha, Haldav, Pardi, Kiroda

The disease was observed on the leaves of the trees in the study area. Brownish leaf spots developed on the leaves due to infection by the bacterium. Initially these spots formed as profuse, small water soaked lesions, having brownish center with a surrounding yellow halo. In extreme cases, the entire leaf surface is covered with the spots causing premature defoliation. The disease is observed in winter season.

3) *Citrus aurantifolia* (Christm) Sw.

Vernacular name- Limbu

Disease- Citrus canker

Pathogen; *Xanthomonas axonopodis* pv. *citri* (Hase) Vautain, Hoste Kerters and Swings

Locality- Loha, Kandhar, Kiroda, Biloli

The symptoms of the diseases are observed on leaves. The lesions appear as small white specks at the very early stage. Later on these lesions develop into brown necrotic spots. The lesions further enlarge and become brownish which give a rough corky appearance. The lesions are surrounded by yellow halo.

The symptoms were also seen on twigs, branches, petioles and fruits. The lesions on fruits were almost similar to those present on leaves. The fruit lesions were quite rough raised, brown to dark brown in colour, but without yellow halo. Only the rind of the fruit was affected, while the contents were normal.

4) *Ficus bengalensis* Linn.**Vernacular name-** Banyan**Disease-** Leaf spot**Pathogen** ; *Xanthomonas fiae* Papdiwal and Deshpande**Locality-** Loha, Kandhar , Nanded , Kinwat.

The disease is characterised by the appearance of one to several minute irregular dark spots on leaves in initial stages. Later, the spots coalesced to form irregular patches, some remain isolated. Each spot had a greyish center, surrounded by a dark coloured border. As the disease advanced, the affected leaves drop down. Young leaves were more diseased than the old ones.

5) *Ficus religiosa* Linn.**Vernacular name-** Peepal**Disease-** Angular leaf spot**Pathogen** ; *Xanthomonas campestris* pv. *fici* (Cavara) Dye**Locality-** Loha, Kandhar , Nanded , Kinwat.

The disease is characterised by appearance of one to several minute irregular dark brown spots on leaves. The spots are irregular in size and slightly raised from the leaf lamina. In advanced stages, the spots coalesced and formed large patches.

6) *Mangifera indica* Linn.**Vernacular name-** Mango, Aamba**Disease-** Bacterial black spot**Pathogen** ; *Xanthomonas campestris* pv. *mangiferaeindicae* (Patel et al.) Robbs, Ribeiro and Kimura**Locality-** Bhokar , Mukhed , Kinwat.

Symptoms appear on all above ground plant parts . On the leaves , the disease first appears as regular to angular , small water soaked lesions, measuring about 1-5 mm diameter , usually crowded at the apex, which increase in size and turn brown to black in colour. These lesions are surrounded by yellow halo. Sometimes these lesions grouped to form large necrotic patches. On branches, twigs and stems, raised dark brown spots develop. Sometimes longitudinal fissures occur on the branches, through which gum oozes out. On young fruits, black to brown spots develop.

7) *Punica granatum* Linn**Vernacular name-** Pomegranate, Dalimb**Disease-** Bacterial black spot**Pathogen** ; *Xanthomonas axonopodis* pv. *punicae* (Hingorani & Singh) Veuterin, Hoste, Kersters & Swings.**Locality-** Loha, Kandhar, Bhokar, Biloli

The disease is characterised by the appearance of one to

several minute dark coloured irregular spots. Because of the development of spots, the leaves are often distorted and malformed. In severe infection, the leaves drop off prematurely. The normal growth of the plant is affected, resulting in stunted and sticky appearance. The pathogen also infects the fruit and caused dark brown irregular slightly raised spots on the skin of the fruits.

8) *Psidium guajava* L.**Vernacular name-** Guava**Disease-** Leaf necrosis**Pathogen** : *Xanthomonas psidaeae*, Papdiwal & Deshpande**Locality-** Penoor, Pangri, Loha, Kandhar

The apex of the leaf was attacked first. The infection then spread to both the sides of leaf margin. Affected portion turned dark brown in the beginning, and later it became whitish crust. The disease occurs on host plants during winter season.

9) *Terminalia catappa* L.**Vernacular name-** Bengal almond, Jangali badam**Disease-** Leaf spot**Pathogen** : *Xanthomonas arboricola* pv. *pruni* (E.F. Smith) Vauterin et al.,**Locality-** Loha, Kandhar, Nanded, Penoor

The disease was observed on leaves of the trees. The leaves showed numerous, round to angular, small, reddish spots turning brown . The affected tissue dried and fell off causing shot holes. In some cases spots developed together and gave burnt, blight red appearance. In severe infection defoliation was observed. The disease was observed in winter season.

The diseases caused by bacteria on trees of Nanded district were comparatively less severe than the fungal diseases. All the diseases observed were caused by different species of *Xanthomonas*. The diseases observed are reported for the first time from the district. These diseases have been reported to occur in Aurangabad district by Papdiwal and Deshpande (1978) [2] .

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