

Preliminary survey on diseases of Mango (*Mangifera indica*) under nursery conditions***Priya Lokare and Sumia Fatima¹**

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ABSTRACT

Mango saplings go through the many insect pests, fungal, bacterial diseases during nursery condition and these symptoms will persist till flowering and fruiting period and result in the huge economic losses. Majority mango saplings couldn't reach upto flowering and fruiting stage it dies in the nursery conditions. This is major threat to the nursery owners because mango saplings having great demand all over the year, therefore buyers refuse to purchase diseased saplings. In the recent years the disease becomes severe in nursery plants, on young leaves, symptoms appear as irregular black necrotic spots on both sides. Pathogen present on the infected leaves, twig and fallen leaves serves as the major source of infection and spreads by rain splashed conidia. Survey was carried out to know the prevalence of diseases in nursery conditions for that Sanket Nursery Wakadi, Taluka Rahta was selected. There were 4 varieties of mango found in Sanket Nursery that were, Keshar, Payari, Mallika and Ratna. During the survey various fungal and insect pest diseases were observed. Anthracnose symptoms caused by *Colletotrichum gloeosporioides*, little leaf notcher, coconut scale, mango gall midge, white mango scale, stem blight, powdery mildew, hairy caterpillar etc. were found in large scale.

Figure : 01

References : 06

Table : 01

KEY WORDS : *Colletotrichum gloeosporioides*, Coconut scale, Hairy caterpillar, *Mangifera indica*, Mango gall midge.

Introduction

Mango (*Mangifera indica*) commonly called as king of fruits, is the most important tropical and subtropical fruit crop⁵. It belongs to the flowering plant family Anacardiaceae. It is indigenous to India hence called as *Mangifera indica* which shows its Indian origin. Among, anthracnose caused by *Colletotrichum gloeosporioides*, is one of the most serious diseases in all mango growing regions of the world⁵. The disease was first identified in India in 1924. In the recent years the disease becomes severe in nursery plants, on young leaves, symptoms appear as irregular black necrotic spots on both sides. Pathogen present on the infected leaves, twig and fallen leaves serves as the major source of infection and spreads by rain splashed conidia.

Mango plants highly infected by disease caused by fungi, bacteria, insect pests, viruses etc. Very high amount of infection by various fungi and insect pests was found in Sanket Nursery Wakadi, Rahta tehsil, Dist. Ahmednagar (M.S.). The area of nursery was 7 acre. There were 4 varieties of mango grown in this nursery

viz. Keshar, Payari, Mallika, Ratna Hapus. All saplings were about 1, 2, 3 and 6 years old. All varieties were affected by anthracnose (*Colletotrichum* blight), insect pest, leaf eaters, white coloured growth of insect (wooly white patches), brown-black coloured sesame sized insects eggs observed on leaves, stem blight, little leaf notcher weevil (*Artipus floridanus*), shrinkage of leaves, wooly growth on leaves is caused by *Orugas peludas* commonly called as hairy caterpillar. Early stage larvae of hairy caterpillars have long whitish hairs growing from the flanks of the body, feed on the leaves of mango. The little leaf notcher is a species of broad nosed weevil in the beetle family Curculionidae as well as the coconut scale-*Aspidotus destructor* is also found on leaves. The insect feeds on plant sap from leaves stem and fruits causing yellowing tissue distortion and die back. Coconut scale is known to be dispersed by birds, bats and insects as well as wind. Other common names are bourbon scale, transparent scale⁴. The leaves infected by the insect pest *Procontarinia postula* is a major pest of mango and is found in all mango growing countries of the world.

Mango gall midges (*Procontarinia* spp.) are a range



Anthracnose attack



Stem Blight



White mango scale (*Aulacaspis tubercularis*)



***Temnostoma* fly**

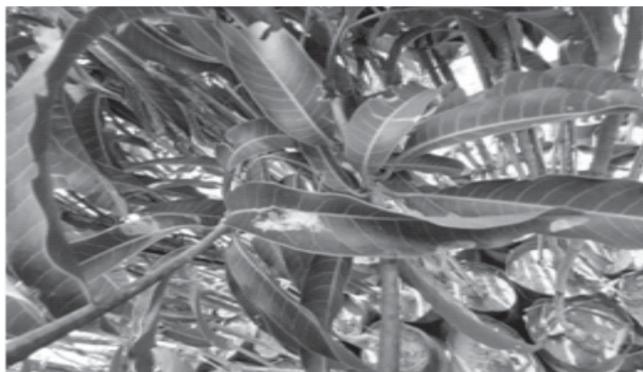


Unknown Insect pest



Hairy caterpillar (*Orugus peludas*)

Fig. 1 : Mango saplings in Sanket Nursery infected by different insect pests and fungal diseases



White mango scale (*Aulacaspis tubercularis*)



Mango gall midge (*Procontarinia pustulata*)



Unknown Insect pest



Coconut scale (*Aspidiotus destructor*)



Brownish powdery mass



Little leaf notcher weevil



Powdery mildew

Fig. 1 : Mango saplings in Sanket Nursery infected by different insect pests and fungal diseases

of damaging fly species can attack leaves, which reduces photosynthesizing capacity, flowers affecting fruit set, shoot or fruit blemishing the fruit (Fact sheet- Plant Health Australia). In some species the eggs are laid into tender leaves, causing small reddish spots (oviposition marks). Heavy oviposition in leaves causes them to dry and curl up. Mango gall midge is spread by wind currents and long distance dispersal is through movement of infested plant material (Fact sheet- Plant Health Australia). Adult mango gall midges can fly and spread naturally in localised areas from mango plant to mango plant. Mango is attacked by many insect pests which reduce the quality and productivity of the crop. Among the insect pest attacking mango plant, white mango scale is the most devastating insect pest. The white mango scale (WMS) [*Aulacaspis tubercularis*] originated in Asia and was later distributed all over the world, is currently constraining the cultivation of mangos worldwide⁶. Weevils are small beetles that possess conspicuous snouts, often with a pear-shaped body. They compose a large, diverse and important group of insects. Most feed on plant material and many are considered to be economic pests. They belong to the Curculionidae family (snout weevil) which includes 60,000 beetles¹. In Sanket Nursery most of the mango varieties infected by the insect pests and anthracnose disease caused by *Colletotrichum gloeosporioides*. Among all varieties Keshar shows anthracnose symptoms as well as other insect pest attacked on it. There are 2000 varieties of Keshar, 200 of Payari, 100 varieties of Ratna Hapus. All varieties were kept in open condition.

Materials and Methods

Present investigation was undertaken at Sanket Nursery, Wakadi, Rahta tehsil, Dist. Ahmednagar (M.S.) during November, 2019, to find out the prevalence of diseases on mango saplings in nursery condition. The diagnosis of the diseases in the nursery was based on symptoms on the mango saplings. Four varieties of mango were found in Sanket Nursery viz. Keshar, Payari, Mallika and Ratna. During survey various diseases were observed and Percent Disease Index (PDI) was calculated as:

$$\text{PDI} = \frac{\text{Number of plants infected}}{\text{Number of plants observed} \times 100}$$

Results and Discussion

Observation Table

Sr. No.	Mango Variety	Percent Disease Index (PDI)
1	Keshar	66.3%
2	Payari	26.5%
3	Mallika	34%
4	Ratna Hapus	36%

Among the 4 varieties of mango surveyed, highest percent disease index was observed in Keshar variety (66.3%) whereas; least PDI was recorded in Payari variety (26.5%). The severity of insect pest diseases was found mostly on mango saplings. Mango saplings of 6 years ages have been seen more susceptible to the insect pest diseases while saplings ages between 1 to 3 years affected by anthracnose symptoms.

Sunken, dark coloured, necrotic lesions were found. Under humid conditions, necrotic lesions became covered with pinkish spore masses. As disease progresses, small, sunken lesions coalesced to form large, necrotic patches².

In survey, coconut scale also found on majority mango saplings. The insect (*Aspidiotus destructor*) feeds on plant sap from leaves, stems and fruits, causing yellowing, tissue distortion and die back⁴. Mango gall midge also found on the Keshar and other varieties also. *Procontarinia spp.* (Mango gall midge) is a range of damaging fly species. It attacks on mango leaves which reduces photosynthetic capacity of mango saplings. In some species the eggs are laid into tender leaves, causing small reddish spots (oviposition marks).

Tender leaves eaten by little leaf notcher (*Artipus floridanus*) is also found. This insect feeds on plant material and considers to be an economic pest. When immature, the legless, grub-like larvae feed on plants. All varieties were kept in open condition. There were two types of soil used that were, red soil (Ultisols) and black soil (Regur). After observation varieties grown in red soil were more prone to disease attack.

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