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Diversity And Nature Of Mango Insect Pests From Murshidabad District, West Bengal

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Abstract

Mango (*Mangifera indica L.*) is one of the most important fruit crops cultivated in Murshidabad district of West Bengal. However, its production is severely affected by a wide range of insect pests that damage different plant parts such as leaves, inflorescence, shoots, and fruits. The present study focuses on the diversity and nature of mango insect pests in Murshidabad district. Field surveys and literature-based analysis reveal that major pests include mango hopper, mealy bug, fruit fly, shoot gall psylla, stem borer, leaf webber, and stone weevil. These pests cause significant yield loss and deterioration in fruit quality. The study highlights pest diversity, damage symptoms, and ecological patterns, providing a basis for effective pest management strategies.

Keywords

Mango, Insect pests, Diversity, Murshidabad, West Bengal, Damage symptoms, Pest ecology

Introduction

Mango (*Mangifera indica L.*), often referred to as the "king of fruits," is widely cultivated in tropical and subtropical regions. Murshidabad district of West Bengal is one of the major mango-producing areas, known for varieties such as Himsagar and Fazli. Mango cultivation plays a vital role in the socio-economic development of farmers in this region.

Despite its importance, mango is highly susceptible to insect pest infestation. Globally, more than 400 insect species have been reported to attack mango, with a significant number recorded in India . In West Bengal, especially in districts like Murshidabad and Malda, several pests have attained economic importance.

The pest complex varies with climatic conditions, orchard management practices, and host plant stages. Understanding the diversity and nature of damage caused by these pests is essential for developing sustainable management practices.

Materials and Methods

Study Area

The study was conducted in different mango orchards of Murshidabad district, West Bengal, characterized by a tropical climate with hot summers and moderate rainfall.

Survey Method

- Regular field surveys were carried out during flowering, fruiting, and post-harvest stages.
- Observations were made on pest incidence, population density, and plant parts affected.
- Insects were collected using hand picking, sweep nets, and light traps.

Identification of Pests

- Collected specimens were preserved and identified using standard taxonomic keys and available literature.
- Farmers' interviews were also conducted to assess pest occurrence and damage severity.

Data Collection

- Incidence of pests was recorded as percentage infestation.
- Nature of damage was documented based on symptoms on leaves, shoots, flowers, and fruits.

Results and Discussion

1. Diversity of Mango Insect Pests

The study revealed a rich diversity of insect pests affecting mango in Murshidabad. The major groups identified include:

a) Sucking Pests

- Mango hopper (*Idioscopus spp.*, *Amritodus atkinsoni*)
- Thrips (*Scirtothrips dorsalis*)
- Scale insects (*Aulacaspis tubercularis*)

These pests suck plant sap, leading to reduced vigor and flower drop.

b) Boring Pests

- Stem borer (*Batocera rufomaculata*)
- Fruit borer (*Deanolis albizonalis*)

Fruit borers have recently emerged as serious pests in West Bengal, causing up to 10–52% fruit damage .

c) Gall-forming Pests

- Shoot gall psylla (*Apsylla cistellata*)

This pest is particularly important in Murshidabad and Malda districts, where it induces gall formation on shoots, affecting growth .

d) Defoliators and Leaf Feeders

- Leaf webber (*Orthaga exvinacea*)
- Shoot borer (*Chlumetia transversa*)

These pests damage leaves and young shoots, reducing photosynthetic capacity.

e) Fruit Pests

- Fruit fly (*Bactrocera dorsalis, B. zonata*)
- Stone weevil (*Sternochetus mangiferae*)

These pests directly affect fruit quality and marketability.

2. Nature of Damage

Different pests attack specific plant parts:

- **Leaves:** Curling, drying, and webbing by leaf webbers
- **Inflorescence:** Hopper and thrips feeding cause flower drop
- **Shoots:** Gall psylla induces abnormal growth and deformation
- **Fruits:** Fruit flies and borers cause internal damage, leading to rotting

The damage is often organ-specific, but collectively leads to severe yield reduction

3. Seasonal Incidence

- Hopper infestation peaks during flowering (January–March)
- Gall psylla egg laying begins in March, with gall formation from September
- Fruit flies and borers are active during fruit development stages (April–June)

Seasonal variation is influenced by temperature, humidity, and rainfall patterns.

4. Economic Impact

Heavy infestation results in:

- Yield losses
- Poor fruit quality
- Reduced export value

Fruit flies and stone weevils are particularly important as quarantine pests affecting international trade

5. Discussion

The diversity of mango insect pests in Murshidabad reflects the ecological complexity of the region. The coexistence of multiple pest species leads to overlapping damage, making management challenging.

Comparison with studies from nearby Malda district shows similar pest complexes, indicating regional uniformity in pest distribution. Climatic conditions and traditional orchard practices contribute to pest persistence.

Integrated Pest Management (IPM), including cultural, biological, and chemical methods, is essential for sustainable mango production.

Conclusion

The present study highlights that mango orchards in Murshidabad district are affected by a diverse range of insect pests, each causing specific types of damage. Major pests include hopper, mealy bug, fruit fly, shoot gall psylla, and stem borer. Their combined impact significantly reduces yield and fruit quality. Understanding pest diversity and damage patterns is crucial for developing effective management strategies. Adoption of IPM practices and farmer awareness programs can help minimize losses and ensure sustainable mango production.

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