

**Short Communication (NS-I)****TAXONOMIC STUDY OF MANGO PEST IN  
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**ABSTRACT**

Study of mango pest was carried out in Cherupuzha from March to August 2018. 12 species were identified under 10 families and 6 orders. Order Hemiptera and Coleoptera are the most predominant group among the mango pest. During flowering season the population of insect increase rapidly. Host plant completely attacked by pest, but most species attack leaves. Major pests identified in this study are *Amritodus atkinsoni*, *Drosicha mangiferae*, *Batocera rufomaculata*, *Myllocerus discolor*, *Deporaus marginatus*, *Oecophylla smaragdina*, *Bactrocera zonata*, *Chloropulvinaria psidii*, *Orthaga exvinacea*, *Ceroplastes rubens*, *Dacus dorsalis*, termites., the present study involves the biology of these pests. Study concludes that seasonal changes affect a lot on population fluctuation of mango.

**Key Words :** *Mangifera indica*, Pest, Insect, Season, Host plant, Mango**INTRODUCTION**

Mango (*Mangifera indica*) belongs to the dicot family Anacardiaceae and is the most ancient among the tropical fruits. Insects in their attempt to secure food do considerable damage to almost every parts of the plant. Variation in nutritional quality of host plant causes different growth rate of herbivores<sup>6</sup>. Seasonal changes play an important role on population fluctuations on mango<sup>4</sup>. The population of hoppers has been recorded in mango orchards throughout the year; shade and high humidity conditions are favorable for multiplication<sup>5</sup>. Nearly 200 insects are on records as pests of mango<sup>2</sup>. Previous studies conducted by Ayyar<sup>2</sup>, Tadon & Lal<sup>7</sup>, Veeresh<sup>9</sup>, Varghese *et al.*<sup>1</sup> added information about insect pest in mango. Conventional methods of pest management have been investigated for different crops and used as input for development of integrated pest management packages<sup>3</sup>. The lack of full knowledge of mango insect pest and their ecology however, is the main obstacle in pest management strategy<sup>8</sup>. Present study is about insect pest complex in *Mangifera indica*. The area selected for study is located at Cherupuzha in Kannur district, Kerala.

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**AIMS AND OBJECTIVES**

*Mangifera indica* are subjected to insect attack throughout the period of its growth. Study of major pests, its habitat and time of emergence help us to reduce the damage caused to *Mangifera indica*.

**METHODOLOGY**

**Study Area:** The area selected for the study of mango pests is Cherupuzha Panchayath in Kannur district, Kerala. Three localities selected in Cherupuzha Panchayath are Thirumeni, Prapoyil(13.12-13.14N & 80.21-80.23E)and Pulingome (12.28-12.29N & 75.39-75.41E). All this localities are agriculture centered villages.

**Collection:** Collection was mainly done by hand and hand nets. The pests were searched where they are likely to occur including bark, leaves, fruits, shoots of *Mangifera indica*. The collections are made in regular field works for about 6 months from March to August 2018. The insects are picked up and placed in glass jar and covered with polythene sheet along with naphthalene balls which helped to collect them without causing much damage.

**Identification:** Collected samples were sorted and identified up to species level with the help of experts.

## RESULTS AND DISCUSSION

The study conducted during March to August in the year 2017 showed the susceptibility of the plant to insect pests. Damage is caused by the insects feeding on the different plant parts. The insects are present on the trees throughout all months though in small numbers. During certain seasons especially during the flowering season, the population of the pest is built rapidly.

*Amritodus atkinsoni* is prevalent during the flowering season. The damage is caused by both adult hoppers and their nymphs, which suck the sap of new shoots, buds and flowers resulting in drying of the entire inflorescence and even small fruits. They also secrete a gelatinous substance called honey dew which interferes with the respiratory process of the leaves. Attack starts from the end of March and continues till the end of June. The old trees are more intensively damaged than the newly planted ones.

*Drosicha mangiferae* Damage is caused by the nymph of both the sexes and the female adult which suck the sap from the twigs, fruits and flowers. After pupation adults migrate off of the ground where an ovisac is produced and egg are laid. As a result flowers dry up and only few fruits are set. *Drosicha mangiferae* secrete honey dew which attract fungus, due to which black spots may be seen on twigs and shoots are richly supplied with cell sap. The attack persists April & May and by that time the insect changes in to adult.

*Batocera rufomaculata* attack the main trunk and branches resulting in their complete drying. The grubs cause damage to the trees by boring in to the trunk and side branches reducing the vigor and yield. The branches and stem may also die and dry up. The attack may show itself as bore –holes with sap and frass coming out through them. The damage may also be indicated by the shedding of the leaves and drying of branches. The severe attack is observed in March, April months.

*Oecophylla smaragdina* cause damage to the mango trees indirectly ie, they render the new leaves useful for photosynthesis as they are molded together in the form of a nest by a silken substance excreted by the larvae. The

pest is present in a plant throughout the year but is prominent in March-May.

*Bactrocera zonata* cause dark punctures in the fruit for oviposition from June – August. Female lays eggs in to ripe fruits. Larvae bore into the fruits and complete larval instars. Later a brownish rotten patch makes its appearance on the surface of the attacked mango fruit with a characteristic oozing of the after maggots have eaten the pulp. The fruit eventually drops when the maggots come out and enter the soil for pupation. Attack occurs in June –August.

*Chloropulvinaria psidii* suck the sap of leaves and other tender part and reduce the vigor of the plants. Severe infestation completely coats the underside of leaves which become yellow and die. It also causes cracking of bark, flowers, spikes, and fruits may also be infested. They secrete honey dew which encourages the development of sooty moulds on leaves and other tender parts. This scale is usually attended by ants for the honey dew excreted. In case of severe infestations growth and fruit bearing capacity of the tree is affected adversely. Attack prominent in February, March month.

*Deporaus marginatus* lay eggs on leaves and cut down at its base. The grub hatching out of the egg mines the cut leaf feeding on its mesophyll. When full grown the grub comes out of its mine and pupate in soil in a small oval chamber. The damage is caused by the weevil, cutting down the tender leaves and by feeding holes on the standing leaves. Young plants often suffer much as all the tender leaves are cut down each time they appear in new flushes. Attack is prominent in February – March.

*Myloccerus discolor* is a leaf twisting weevil. The adult has the habit of cutting and twisting mango leaves into shapely timple like rolls which remain attached to parent leaves. Eggs are seen in these leaf rolls at the rate of one per role. The egg is first laid on the leaf and then the leaf cut and rolled so that ultimately the eggs comes to be located in the centre of the roll. The grub feeds on the leaf tissues within the rolls and pupates there. Attack is seen in April-August.

*Orthaga exvinacea* larvae web the leaves and terminal shoots in to clusters. A webbed cluster of leaves may harbor several larvae in the initial stage. The larvae are initially gregarious and

feed by scraping the leaf surface. As a consequence of severe feeding, clusters of webbed leaves become dry and brown in color. With severe infestation the shoots become dry and photosynthesis is severely hampered. Peak time of infestation is July- August.

*Ceroplastes rubens* is a wax scale found very often infesting the leaves of the mango. The nymphs and adult scales suck the sap of the leaves and other tender parts, and reduce the vigour of the plants. They also secrete honey dew which encourages the development of sooty mould on leaves and sticky appearance. In this case of severe infestation, growth and fruit bearing capacity of the tree is affected adversely.

*Dacus dorsalis* eggs are laid in small clusters, just beneath the skin of the ripening fruit. The

maggots grow feeding on the pulp and become fully grown in about a week. Damage to the fruit is caused by both adult and maggot. The adult makes oviposition punctures which serve as entry points for fermenting organisms. The maggots convert the pulp into a bad smelling semi fluid mass. Brown rotten patches appear on the attacked fruits, they drop ultimately.

**Termites** are not the primary agent responsible for any damage to the mango tree. The principal food of termite is fibrous material (cellulose). The worker termite feeds on roots, shoots and trunks of the mango tree. Which some time dries up if the roots are severely damaged. The pest is present throughout the year but is prominent in the trunk during March to April and remains under the soil during rainy season.

**Table 1 : Species and part of plants where insects attacked**

S/N	Species name	Family	Insect attacked region of host
1	<i>Amritodus atkinsoni</i>	Cicadellidae	Inflorescence
2	<i>Drosicha mangiferae</i>	Margarodidae	Twigs, fruit & Flower
3	<i>Batocera rufomaculata</i>	Cerambycidae	Trunk & Branches
4	<i>Oecophylla smaragdina</i>	Formicida	Leaves
5	<i>Bactrocera zonata</i>	Tephritidae	Fruit
6	<i>Chloropulvinaria psidii</i>	Diaspididae	Leaves
7	<i>Deporaus marginatus</i>	Curculionidae	Leaves
8	<i>Myllocerus discolor</i>	Curculionidae	Leaves
9	<i>Orthaga exvinacea</i>	Pyralidae	Leaves
10	<i>Ceroplastes rubens</i>	Coccidae	Leaves
11	<i>Dacus dorsalis</i>	Tephritidae	Fruit
12	Termite	Kalotermitidae	Root, Shoot & Trunk

### CONCLUSION

In this study 12 species were identified under 10 families and 6 orders. Order Hemiptera and Coleoptera are the most predominant group among the mango pest. Seasonal changes play an important role on population fluctuations of mango. During flowering season the population of insect increases rapidly. Most species complete their lifecycle in that particular host plant but some partially. Host plant completely attacked by pest, but most species attack on leaves.

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