



E-ISSN: 2320-7078

P-ISSN: 2349-6800

JEZS 2018; 6(3): 974-975

© 2018 JEZS

Received: 01-03-2018

Accepted: 03-04-2018

**Ajay Kumar Chauhan**

Department of Entomology N.D.  
Univ. of Agri. & Tech.,  
Kumarganj, Faizabad, Uttar  
Pradesh, India

**Umesh Chandra**

Department of Entomology N.D.  
Univ. of Agri. & Tech.,  
Kumarganj, Faizabad, Uttar  
Pradesh, India

**PK Gupta**

Department of Entomology N.D.  
Univ. of Agri. & Tech.,  
Kumarganj, Faizabad, Uttar  
Pradesh, India

**Correspondence****Ajay Kumar Chauhan**

Department of Entomology N.D.  
Univ. of Agri. & Tech.,  
Kumarganj, Faizabad, Uttar  
Pradesh, India

## Study of pollinator's diversity on mango (*Mangifera indica* L.) var. amrapali

**Ajay Kumar Chauhan, Umesh Chandra and P. K. Gupta**

### Abstract

The insects are the most dominant and important animals on the earth and affects the human life directly or indirectly. Mango tree are pollinated most predominantly insects like numerous insect of the order Hymenoptera, Diptera, Coleoptera and Lepidoptera. Pollen grains have been observed adhering to the bodies many species belongs to order Hymenoptera. Among Hymenopteran insects different species of honey bees are the most efficient flower visiting insects. Somme studies have suggested that insect of order Diptera is the dominant pollinators of mango.

**Keywords:** Taxonomy, pollinators, mango

### Introduction

Mango (*Mangifera indica* L.) is the national fruit of India. It belongs to family Anacardiaceae is rightly called the "King of Fruits" is grown all over the country. India is the major Mango growing country, contributing nearly 46.74 per cent of world's area (2.31 m ha), 40.48 per cent of world's production (15.03 million tons) and productivity 6 tone / ha respectively. India is the major Mango growing country, contributing nearly 46.74 per cent of world's area (2.31 m ha), 40.48 per cent of world's production (15.03 million tons) and productivity 6 tone / ha respectively. The production of mango in Uttar Pradesh was the highest in the country i.e. 0.36 m tone followed by Andhra Pradesh (0.33 m tone). The fruit of mango is the rich source of vitamin-A, vitamin-B<sub>6</sub>, vitamin-C, vitamin-E, Copper, Potassium, carotenoids, polyphenols and flavonoids like beta-carotene, alpha-carotene and beta-cryptoxanthin. The production of nectar for the attraction of insects also indicates that the mango is entomophilous. Mango flowers are visited by flies, wasps, bees, butterflies, moths, beetles, ants and various bugs sucking the nectar and some transfer the pollen but a certain amount of self-pollination also occur.

### Materials and Methods

The field experiment was carried out on cultivar "Amrapali" plants at MES Horticulture and Apiculture Laboratory, Department of Entomology Narendra Deva University of Agriculture and Technology Kumarganj, Faizabad (UP) India during 2014. The materials are required to be mango tree var. Amrapali insects sweep net, chloroform, cotton, killing bottle, stretching board, insect pin etc. The flowering period of mango is March to April. Flowers are grown in clusters. The visiting insects were collected throughout the blooming period from 1<sup>st</sup> March to 25<sup>th</sup> March at 7:00 am to 05:00 pm (data were recorded 6 days after anthesis up to 90% flowering was over). Insect were kept killing bottle after that insects are pinned and preserved properly. All the specimen were arranged systematically and identified by Dr. Umesh Chandra, Principal Investigator, AICRP on Honey Bee & Pollinators and comparing with maintain different correction.

### Result and Discussion

Studies on pollinators' diversity on mango flowers revealed that pollinators/visitors activity started at flower anthesis stage and continued till fruit setting stage. The Dipterans were the major floral visitors comprising of three families viz., Syrphidae (*Syrphus corolla* Fab., *Episyrphus balteatus*, *Eristalis tenax* L., *Melanostoma orientale* We. And *Eupeodes* Sp.), Muscidae viz. (*Musca domestica*), Calliphoridae viz. (*Callifora* sp.), followed by Hymenopteran comprising of only one family a.i. Apidae (*Apis dorsata* Fab, *A florea* Fab, A.

*mellifera* L. and *T. irridipennis*), Neuroptera contains only one species a.i. *Chrysoperla carnea* (family: Chrysopidae) and Coleoptera also contains one species a.i. *Coccinella*

*septempunctata* (family: Coccinellidae). Among these insects, *Episyrphus balteatus*, *Syrphus corollae* Fab. and *A. mellifera* were the most frequent visitors.

**Table 1:** Diversity of various insect pollinators/visitors on mango flowers at MES Horticulture Kumarganj, Faizabad, during, 2014

S. No	Common name	Scientific name	Order	Family
1	Italian bee	<i>Apis mellifera</i> L.	Hymenoptera	Apidae
2	Rock bee	<i>Apis dorsata</i> Fab.	Hymenoptera	Apidae
3	Little bee	<i>Apis florea</i> fab.	Hymenoptera	Apidae
4	Dammer bee	<i>Trigona iridipennis</i>	Hymenoptera	Apidae
5	Wasp	<i>Vespula orientalis</i>	Hymenoptera	Vaspidae
6	Hover fly	<i>Episyrphus balteatus</i>	Diptera	Syrphidae
7	Syrphid fly	<i>Syrphus corollae</i> Fab.	Diptera	Syrphidae
8	Syrphid fly	<i>Eristalis tenax</i> L.	Diptera	Syrphidae
9	Syrphid fly	<i>Melanostoma orientale</i> We.	Diptera	Syrphidae
10	Syrphid fly	<i>Eupeodes</i> sp.	Diptera	Syrphidae
11	Housefly	<i>Musca domestica</i>	Diptera	Muscidae
12	Blue bottle fly	<i>Callifora</i> sp.	Diptera	Calliphoridae
13	Lady bird beetles	<i>Coccinella septempunctata</i>	Coleoptera	Coccinellide
14	Green lace wings	<i>Chrysoperla carnea</i>	Neuroptera	Chrysopidae

### Acknowledgment

Authors are thankful to the Narendra Deva University of Agriculture and Technology, Kumarganj, Faizabad, providing necessities facilities for conducting them investigation and valuable suggestion during the course of investigation.

### References

- Bhatia, R Gupta, D Chandel JS, Sharma NK. Relative abundance of insect visitors on flowers of major subtropical fruits in Himachal Pradesh and their effect on fruit set. Indian J of Agril. Sci. 1995; 65(12):907-912.
- Dag A, Gazit S. Mango pollination in Israel. *Alon-Hanotea* (Israel). 1996; 50(9):458-465.
- Dag A, Gazit S. Mango pollinators in Israel. Journal of Applied Hort. (Lucknow) publ. 2000; 2(1):39-43.
- Degani C, Yulko O, Batsri RE, Gazit S. Out crossing rate in adjacent Maya and Tommy Atkins mango blocks Abstracts 5<sup>th</sup> International mango Symposium. Tel Avi. Israel. 1996; 37:1-6.
- Eardley CD, Mansell MW. Report on the natural occurrence of insect pollinators in a mango orchard. Yearbook South African Mango Growers' Association. 1994; 14:65-66.
- Fajardo AC, Medina JR, Opina OS, Cervancia CR. Insect pollinators and floral visitors of mango (*Mangifera indica* L. cv. Carabao). Philippine Agril. Scientist. 2008; 91(4):372-382.
- Heard TA. The role of stingless bees in crop pollination. Annual Review of Entomology. 1999; 44:183-206.
- Jiron LS, Hedstorm T. Pollination ecology of mango. Turnalba. 1985; 35(3):269-277.
- Patnaik HP, Satapathy CR, Panda NN. Prevalence, species richness and diversity of flower visiting insects at Bhubaneswar (Odisha). Journal of Plant Prot. and Environ. 2012; 9(1):1-10.
- Popenoe W. The pollination of the mango. US. Department of Agriculture, Bulletin No. 1917, 542, 20.
- Singh G, Lavi V, Degani C, Gazit S, Lahav E, Pesisau Prusky *et al.* Pollination, pollinators and fruit setting in mango. Proceeding 5<sup>th</sup> Internat. Symposium on mango, Tel. Aviv, Israel, 1997, 16-23.
- Singh KP. Evaluation of the pollination efficiency of different insects on mango (*Mangifera indica*). Indian Forester. 1999; 125(3):333-335.
- Singh KP, Singh G. Insect visitors of mango

- inflorescence. Indian Forester. 2003; 129(10):1289-1292.
- Usha, Usha, Srivastava, Poonam, Vimla Goswami. Diversity of floral insect visitors of mango during blooming period at Pantnagar. Indian Journal of Agricultural Sciences. 2014; 84(3):363-364.