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ORIGINAL ARTICLE

Preliminary survey of Hymenopteran parasitoids associated with Mango Leafminer *Acrocercops syngremma* (Meyrick) [Lepidoptera: Gracillariidae] from India

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ABSTRACT

A preliminary survey of parasitoids of the mango leafminer Acrocercops syngremma *(M.) of India is carried out. Seven species of hymenopteran parasitoids were recognized in this study.* Microgastrinae *sp. (Hymenoptera: Braconidae) is recorded for the first time from A. syngremma from India.*

Key words: *Braconidae, Eulophidae, Microgastrinae, Leafminer*

INTRODUCTION

Mango (*Mangifera indica* L.) is national fruit of India and known as 'King of fruits' due to its wide adaptability, excellent taste, exotic flavor, exemplary nutritive value, richness in variety, attractive colour, appearance and popularity among the masses (Ananth, 2016). It occupies relatively the same position in the tropical region as is enjoyed by apple in temperate region. The fruit is utilized both in its immature and mature stages. Raw fruits are used for making chutney, pickles and juices. The ripe fruits also utilized for preparing several products like squashes, syrups, nectars, jams and jellies.

Nearly 250 insect and mite pests attack the tree in different stages. Amongthem, mango leafminer (*Acrocercops syngremma* M.), mango hoppers (*Amritodus atkinsoni* Leth, and *Idioscopus* sp.), leaf webber (*Orthaga exvinacea* Saund.), Stem borer (*Batocera rufomaculata* Deg.), mango stone weevil (*Sternochaetus mangiferae* Fab.), defoliator (*Penicillaria jocosatrix* Guenee), blossom webber (*Eublemma versicolor* Walk.), fruit fly (*Bactrocera dorsalis* Hendal), and leaf gall fly (*Procontarinia matteiana* Keiffer and Cocconi) cause considerable damage to mango tree (Shrivastva, 1997; Pena and Mohyuddin, 1997).

In the present work a preliminary survey was carried out to understand the hymenopteran parasitoids associated with mango leafminer *A. syngremma* from northern part of India. A list of all known parasitoids of mango leafminer is presented in table. 1.

MATERIAL AND METHOD

Present study was conducted in the vicinity of Western Uttar Pradesh (North India) in order to identify parasitoids of leaf miners in mango orchards. The parasitoids were reared in the laboratory in glass jars of 8"x 4" in size in the insectory at 25±2˚C with 70% relative humidity. The leaves with lepidopteran leaf miners were collected from the plants and transferred to the rearing jars. A complete data set such as the date of collection, locality, and name of host plant was maintained. The emerged parasitoids were preserved initially in 75% alcohol with a few drops of glycerol. These specimens were later mounted on cards. The reared parasitoids were separated based on morphological characters. Two braconid species was studied in the present experiment.

RESULTS AND DISCUSSION

Among all major insect pests, the mango leaf miner, *Acrocercops syngremma* (M.) Lepidoptera: Gracillariidae is a major pest of mango plant, it damage to newly emerged flushes of mango plants during the month of August to November. Kanhar (2016) and Vanitha *et al.,* (2015) reported that

the leaf miner damaged more mango plant leaves comparatively to cashew leaves. Moreover, Vijaya *et al.,* (2002) reported that the *A. syngramma* appeared in the month of October and November and remain active upto April and May on newly emerged plant leaves. Regarding the hymenopteran parasitoids associated with *A. syngramma* no comprehensive study existed; only a few scattered publications are available. Shujauddin and Varshney (1997) described *Ascogasters syngremma* (Hymenoptera: Braconidae) from northern part of India. Vanitha (2015) reported that an about 50% leaf miner population was decreased by three *Chelonus* sp. (Braconidae), *Cirrospilus* sp. and *Sympiesis* sp. (Eulophidae) larval parasitoids under field conditions. Kanhar et al., 2017 recorded *Chrysocharis nephereus* and *Sympiesis hyblaeae* (Eulophidae: Hymenoptera) of leaf miner *A. syngramma* in Pakistan.

In the present survey about 95% of larvae of *A. syngremma* were attacked during the months of July and September in the fields around Aligarh district of Uttar Pradesh, another unknown species of subfamily of Microgastrinae also recorded but its percentage was very low i.e. 4%.

Table 1: List of hymenopteran parasitoids of *Acrocercops syngremma* leaf miners

S.No.	Parasitoids	Family	References	Locality
1.	*Ascogaster acrocercophagus* Shujauddin & Varshney	Braconidae	Shujauddin & Varshney (1997), Present work	Northern India
2.	*Microgastrinae* sp.	Braconidae	Present work	Northern India
3.	Chrysocharis sp.	Eulophidae	Vanitha (2015)	West coast of India, Karnataka
4.	Closterocerus sp.	Eulophidae	Vanitha (2015)	West coast of India, Karnataka
5.	Aprostocetus sp.	Eulophidae	Vanitha (2015)	West coast of India, Karnataka
6.	*Chrysocharis nephereus*	Eulophidae	Kanhar *et al.,* (2017)	Pakistan
7.	*Sympiesis hyblaeae*	Eulophidae	Kanhar *et al.,* (2017)	Pakistan

REFERENCES

1. Ananth A.K. (2016): Studies on insect pests of mango with special reference to seasonal incidence and management of mango leaf hoppers. M.Sc. dissertation. Indira Gandhi Krishi Vishwavidyalaya, Raipur, Chatisgarh.
2. Kanhar K.A., Kanher F.M., Panhwar R., Tunio S.A., Manan S.A. and Riaz H.A.R. (2017): Parasitoids associated with mango leaf miner, *Acrocercops syngramma* (Meyrick) Lepidoptera: Gracillariidae in mango orchard. *J. Entomol. Zool. Stud.,* 5: 1582-1588.
3. Kanhar K.A., Sahito H.A., Kanher F.M, Tunio S.A. and Awan R.R.H. (2016): Damage percent and biological parameters of leaf miner *Acrocercops syngramma* (Meyrick) on different mango varieties. *J. Entomol. Zool. Stud.,* 4: 541-546.
4. Pena J.E., Mohyuddin A.I. and Wysoki M. (1998): A review of the pest management situation in mango agroecosystems. *Phytoparasitica* 26: 129-148.
5. Shujauddin and Varshney K. (1997): A new species of the genus *Ascogaster* Wesmeal (Hymenoptera: Braconidae) from India. *Shashpa*, 4: 95-97.
6. Srivastava R.P. (1997): Mango insect pest management. International Book Distributing Co., Lucknow, India, pp: 199.
7. Vanitha K., Bhat P.S., Raviprasad T.N. (2015): Pest status of leaf miner, *Acrocercops syngramma* M. on common varieties of cashew in Puttur region of Karnataka. *Pest Managem. Horticul. Ecosyst.*, 21: 55-59.
8. Vanitha K.A. (2015): Report on the occurrence of Eulophid parasitoids on the cashew leaf mine *Acrocercops syngramma* Meyrick (Insecta: Lepidoptera: Gracillariidae). *J Threatened Taxa*, 12: 7933-7936.
9. Vijaya N., Bhagwan A., Anitha V., Girwani A. (2002): Advances in mango research. (Eds. by Acharya N.G. Ranga). Agricultural University Fruit Research Station, Sangareddy Medak District, Andhra Pradesh.