



Survey of Some Insect Pests of Sugarcane (*Saccharum officinarum*), from Kopargaon Tahasil of Ahmednagar District, Maharashtra, India

Raut D. K.^{a*}, Pathan T. S.^{b*} and Raut R. R.^{c*}

^a Department of Zoology, Milliya Arts, Science and Management Science College, Beed, affiliated to Dr. B.A.M. University, Chhatrapati Sambhajnagar (Aurangabad) (MS) India.

^b Department of Zoology, Kalikadevi Arts, Commerce & Science College, Shirur (Ka.), District Beed, affiliated to Dr. B.A.M. University, Chhatrapati Sambhajnagar (Aurangabad) (MS) India.

^c Department of Zoology, Yogeshwari Mahavidyalaya Ambajogai, District Beed, affiliated to Dr. B.A.M. University, Chhatrapati Sambhajnagar (Aurangabad) (MS) India.

Emails: drgauriraut@gmail.com, drtanvir7981@gmail.com, ranjitrraut@gmail.com

Doi: <https://doi.org/10.55248/gengpi.5.0624.1571>

ABSTRACT

Sugarcane is known as cash crop and soul of sugar industry. Maharashtra is one of the vital state in which Sugarcane production is main source of earning to the farmers. More than 200 species of insect and non-insect pests have been reported for causing damage to the sugarcane crop in India. This paper deals with study of Sugarcane pests diversity from Kopargaon Tahsil, Ahmednagar District, Maharashtra during August 2022 to February 2023. In this field survey we found 20 various insect pests which attacks on Sugarcane crop. Among these 12 pests were major while 8 were minor pests. Due to their infection the quality of cane and yield is reduced. In this investigation we studied the insect pests and their nature of damage.

Keywords: Sugarcane, cash crop, insect pest, damage, diversity

1. Introduction

India is one of the biodiversity hotspot. In our country various bio geographic regions are present, these zones consists of climatic variations and diversity in habitats, which includes various agro climatic zones (Sharma, 2020). In our country Sugarcane is popularly known as a cash crop (Hess et al., 2016). Various factors like variety of Sugarcane, climate, soil fertility, traditional farming practices, occurrence of diseases and pests affects the yield of this crop (Rai, 1997). As per the report of Food and Agricultural Organization of United Nations: Economic and Social Department: The Statistical Division (2015), India is on 2nd position in top ten sugarcane producing countries (FAO, 2015). Approximately dozens of significant insect pests have been reported from India and Pakistan (Srikanth, 2012; Chaudhry and Ansari, 1988; Shanthly et al., 2019; Paudel et al., 2021). Maharashtra State is coming in top ten Sugarcane producer States of India (Nrip and Gaikwad, 2017). In the midst of these factors, pests are identified for causing extensive loss in cane quality, yield and sugar content of the cane. Sugarcane crops takes ten to eighteen months for production therefore it comes under the long duration crops category (Kumar et al., 2019). Due to its long duration characteristic there is chance to numerous diseases and insect pests to attack on it (Usman et al., 2020). According to the reports and study estimate the production of sugarcane was declined by diseases and insects was 19% and 20% respectively (Shivashankara et al., 2018). From the various factors, occurrence of insect pests plays an important role in lowering sugar level and productivity (Kumarasinghe, 1999; Avasthy, 1977; Kumar and Pal, 2019).



Fig. 1 : Map of Study area showing Kopargaon Tahasil of Ahmednagar District

(Source :https://india.fandom.com/wiki/Maharashtra/Overview:People_and_place.)

2. Materials and Methods

Surveys were carried out on weekly basis in different sugarcane fields in certain villages coming under Kopargaon tahsil during the August 2022 to February 2023. In field survey we recorded the information of various insect pests including major and minor pests of sugarcane in the area (Fig. 1). The farmer's fields were selected in the adjoining areas distributed near to the S.S.G.M. College Kopargaon, District Ahmednagar. The data collected by doing regular field visit and recording of insect pests occurred on sugarcane. The insects were collected by hand picking and sweep netting and were preserved dry or in 70% ethanol. The collected insects were identified by using appropriate literature references available and classified as major and minor insect pests (Anonymous, 2001; Sathe, 2003; Srikanth, 2012; Kumar et al., 2019). Collected insects were pinned and mounted in collection box and preserved in the Department museum. The occurrence of insect pest was documented on the basis of nature of the damage produced by each pest and their symptoms.

3. Results

In this survey 20 pests were recorded on sugarcane. Out of which 12 species of insect pests were major while remaining 8 were minor pests (Table No.1).

Table No.1: List of Pests observed during study period

Sr. No.	Common name of pest	Scientific name	Nature of damage
1.	Sugarcane top borer	<i>Scirpophaga nivella</i>	Kills the central shoot causes "dead hearts"
2.	Sugarcane shoot borer	<i>Chilo infuscatellus</i>	Causes "dead hearts"
3.	Sugarcane Stalk borer	<i>Chilo auriculus</i>	Ratoon crop and "water shoots"
4.	Sugarcane root borer	<i>Emmalocera depressella</i> (Swin)	Cane weight and Suagar content is reduced
5.	Sugarcane Internode borer	<i>Chilo (saccharaphagus) indicus</i> (Kapur)	Cane tissue becomes red and juice quality affected
6.	Army worm	<i>Mythima separate</i> (Walk)	Skeletonize the leaves
7.	Greasy cutworm	<i>Agrotis ipsilon</i> (Rott)	Damage the epidermis of cane
8.	Slug caterpillar	<i>Parasa lepida</i> (Camer)	Defoliation of leaves
9.	Bihar hairy caterpillar	<i>Spilosoma obliqua</i> (Walk)	Eat the leaves and soft portion of stem, denuded leaves
10.	Sugarcane Mealy bug	<i>Saccharicoccus sacchari</i> (Cockerella)	Causes "sooty moulds"
11.	Pyrilla	<i>Pyrilla perpusilla</i>	Suck the cell sap, leaves become pale yellow and curl up, cane dry up and die
12.	Sugarcane scale insect	<i>Aulacaspis tegalensis</i> (Zhnt.)	Suck the cell sap, leaves become pale yellow and curl up, cane dry up and die
13.	Sugarcane wooly Aphid	<i>Ceratovacuna lanigera</i>	On leaves black sooty moulds, retardation of crop growth
14.	Sugarcane Black Bug	<i>Cavelerius excavates</i> (Distant)	Suck the cell sap
15.	Sugarcane White fly	<i>Aleurolobus barodensis</i> (Maskell)	Sucking the cell sap from cane
16.	Sugarcane spotted fly	<i>Neomaskellia bergii</i> (Sign.)	Stunning of cane and drying of leaves
17.	White grub beetle	<i>Holotrichia consanguinea</i>	Cut away the nodule and root, kill the plant
18.	Paddy Grasshopper	<i>Hieroglyphics banian</i>	Feeds on leaves
19.	Grey weevil	<i>Myllocerus cendecimpustulatus</i>	Grub destroy seedlings, adults feed on leaves
20.	Sugarcane termite	<i>Odontotermes obesus</i>	Feeds on cellulose

4. Discussion

The most destructive pests includes white grub beetle, mealy bug, woolly aphid, pyrilla, shoot borer, root borer, top borer, stalk borer, internode borer, scale insects, termites and grasshoppers. Results obtained by (Patil et al; 2004) supports the current findings. Major pests affect the sugarcane yield and sugar level of cane compared to the minor pests. Therefore there is a necessity to implement the appropriate effective control measures for control of these destructive insect pests.

5. Conclusion

Sugarcane is a cash crop of our country and state several varieties are practiced. In spite of conducive environment and agronomy, expected yield of crop is not achieved significantly due to the insect pest's damage to the sugarcane crop. Therefore the present study will add great relevance in adopting integrated pest management practices. The ecofriendly control measure is the need of the day and should be practiced in sugarcane agroecosystems. As per the suggestion by (Patil et al; 2004) the biocontrol agents such as lady bird beetles, *Trichogramma spp.*, Lace wings and other Hymenopterans parasitoids plays vital role in future IPM strategies.

Acknowledgements

The authors wish to express their sincere thanks to the Principal and Head, Department of Zoology, Kalikadevi Arts, Commerce & Science College, Shirur (Ka.), District Beed Maharashtra, India, for their continuous encouragement and providing necessary laboratory facilities required for this study. The authors declare that there is no conflict of interest.

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