IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

DIVERSITY OF INSECT FAUNA ON SUGARCANE (*Saccharum officirum*) IN INDIA

[1]Preeti Gautam1[st],[2] Nootan Singh 2[nd], [3]Veena P. Swami 3[rd]

[1]M.Sc. Student 1[st],[2] Research Scholar 2[nd],[3] Professor 3[rd]

[1]PG Department of Zoology, BSNV PG College, Lucknow

[1]University of Lucknow, India

Abstract

Sugarcane (*Saccharum officinarum L.*) is one of the most important cash-cum-industrial crops and is the second crop producing of the world. Pests of sugarcane crop in India are classified on the basis of their nature like borers sucking pests, subterranean pests and non-insect pests are well as geographical distribution i.e., tropical and subtropical appearance. More than 200 Species of insect and non-insect pests are reported in sugarcane crop in different parts pf India which are economically important. Borers and sucking pests are the major aerial pests, whereas termites and white grubs are mainly found in the subterranean region. Shoot borers are found throughout the country. In order of non-insect pests category, rats are largely found in drip irrigated farm. Drought in extreme summer is favourable for the growth of shoot borer, termites. black bug and mite. The sugarcane crop gets affected by pests in two distinct stages in crop age,one is up to 4 months , pet like early shoot top, root and stalk borers attack the crop during this stage.The second stage is after 4 months *Pyrilla*,woolly aphid, sugarcane aphid whitefly , scale insect , mealybug , white grub and mite attacks during this stage of the crop in this chapter focus has been given on insect pest of sugarcane.

***Index Terms*-sugarcane; insect pest species; diversity; attacking intensity; India.**

I. INTRODUCTION:

Sugarcane (*Sacchrum officinarium L.*) one of the most important sources of cane sugar in the world which is cultivated in India. India is the original land of origin of *Saccharum species*. Uttar Pradesh is the top producer of ethanol in India. It has 53 ethanol producing distilleries and has an annual installed capacity of 158.44 crore litres. The world largest producer of sugarcane is Brazil followed by India. Sugarcane is cultivated in an area is 26.2 million ha, 1877.10 MT with the production in the world coupled with the productivity of 70.77 tonnes/ha. Whereas Indian scenario in quiet different i.e., sugarcane is cultivated in an area of 5.42 million ha, with a production of 4.11 million tonnes (Anonymous, 2018). The productivity of important zones for sugarcane cultivation in India are Tropical and Subtropical regions which are grouped into five agro-climatic zones mainly for varietal development. Agriculture is the backbone of Indian economy , because 75% of India's population on agriculture or agro-industries for livelihood (Bedi,2008).They are North Western Zone, North Central Zone, Peninsular Zone and Coastal Zone. Among the insects, ants are diversely, abundantly easily found and can be reliably sampled and monitored (Majer,1983., Andersen ,1986., Delabia *et al* .2006). In India sugarcane is known to be attacked by about 228 variety of species of insects and non-insects (David and Nandagopal,1986). Additionally, insect pests alone cause damage ranging from 20% to 60%. Among various factors of yield reducing insect pests inflict considerable losses ranging from 20% in cane yield and 15% in sugar recovery yield respectively (Avasthy P. N ,1977).The plant is also grown for biofuel, especially in Brazil, as the canes can be used directly to produce ethyl alcohol (ethanol) (Talukdar et al.2017).the by products from sugarcane processing , namely the straw and bagasse(cane fibres), can be used to produce cellulosic ethanol , a second-generation biofuel. Other sugarcane products include molasses, rum and cachaca (Brazilian alcohol).

Sugarcane is a long duration of crop with luxuriant vegetative growth and is damaged by a number of insects during its crop growth. Among the insect pests shoot borers (ESB), *Chilo infuscatellus* (*Crambidae ;Lepidoptera*) is a serious pest in peninsular regions of India and more vital in early stages of crop growth causing economic loss (Avasthy and Tiwari ,1986).Sugarcane is attacked by a variety of insect from a broad spectrum of orders such as Lepidoptera , Hemiptera , Odonata ,Diptera ,Coleoptera, Homoptera, Orthroptera and Isopteran (Pemberton and Williams , 1969.,Colong , 1994., Carnegie and Conlong,1994., Leslie 2004) . Farmers deals with the major and minor insect pests of sugarcane crop in detail along with their respective systematics, life histories and economic impacts on sugarcane crop. Systematics of major and minor pests are recorded on sugarcane crop has been tabulated at one place and detailed description of each major insect pests is given in detail.

II. DIVERSITY OF INSECTS OCCURING ON DIFFERENT ZONE OF INDIA:

The study of insect diversity in the field of sugarcane represents their adaptability to the wide range of environmental conditions. Indian continent,various species of sugarcane are grown for economic and various purpose in our daily life . It is one the most affected cultivated food crops by insect pests. Early shoot borer (*Chilo infuscatellus*) belong to the (*Pyralidae :Lepidoptera*) has been reported as a pest of sugarcane crop from North Bihar. (*Chilo infuscatellus*) attacks in early phase of plant growth by entering laterally through holes in the shoots and damage complete cane by boring producing 'dead hearts. Its caterpillars destroy about 20% of the young shoots during April to June (Dhaliwal and Atwal, 2004). In India, it is widely distributed in sugarcane growing parts of country (Karnataka, Bihar, Haryana, Punjab,Gujarat and Tamil Nadu). Root borer, *E.depressella* has been reported as a pest of sugarcane in India reducing the levels of productivity ranging between 1.3-10% due to infestation and it is the only species of borer infesting the underground portion of canes and , hence generally reffered to as 'root borer' (Avasthy and Tiwari 1986) and widely distributed in India and Pakistan (Cheema 1953a). Besides, Gotterell (1954) reported it from Afhghanistan and Avasthy and Tiwari (1986) included Malaysia and Bangladesh and in north Indian sugarcane belt,northern areas of Gujarat, Maharastra, Karnataka , and Andhra Pradesh states (Avasthy 1867); it was noted as a rare occurance in Assam (Anonymous 1936) and in the Yamunanagar of Haryana and Muzaffarpur of Bihar were more prone to attack than Haryana (Anonymous 1993).

Top shoot borer*, Sciropophaga excerptalis (Pyralidae;Lepidoptera)* is considered to be major pests of sugarcane in many parts of India , Bihar , West Bengal , etc., reducing the yield and sugar contents upto 51% and 2.0 units ,respectively, as recorded in Indian cane fields and also damaging the other crops like millets , other grasses , it attack in the tunnelling of midrib in a leaf, small holes in a parallel lines in the freshly leaves , appeared as dead heart reddish in brown and a bunchy top grown up of the crop. Stalk borer , *Chilo auricillus* is a major pests of sugarcane in western Uttar Pradesh in India since it appears in 1954 [8,9] . Stalk borer, young larvae feed within the top leaf sheaths and later bore inside cane stalks causing dead hearts and also attacking in the other field of the vegetables, paddy and cereals. Sugarcane is attacked by a variety of mite species falling under the major phytophagous families *viz*., Tetranychidae, Tarsonemidae, and Eriophyoidea. In general, the mites are considered as minor pests. Among these nine species of superfamily Eriophyoidea has been reported on sugarcane, they are *Abacarus delhiensis*, *A. queenslandienis*, *A.doctus*, *A.sacchari*, *Aceria sacchari*, *A. merwei*, *Cathetacarus spontaneae* , *Catarhinus sacchari* and *Diptacus sacchari* (Ozman – Sullivan *et al.,* 2006) reported from the parts of India, Terai zone of West Bengal. The incidence of these mite species as pest was first recorded by Hirst (1926). Banerjee (1988) recorded *S. andropogoni* (Hirst) as a serious pest of sugarcane in India, besides several insect pests. Apart from insect pests, mites cause considerable yield loss (up to 20-30 %) on sugarcane (Ghoshal and Barman, 2012). Moreover, the diversity study of sugarcane insects in Pakistan recorded by Ahmed *et al.* (2004) showed the highest population of sugarcane plant hopper namely *Pyrilla perpusilla*, Otinotus *oneratus* and *Perkincsiella* sp, *Alerolobus barodenesis*.

The varieties of sugarcane insect pests identified were Lepidoptera (*Scirpophaga nivella, Chilo infuscatellus, Emmalocera depressella, Acherontia atropos), grasshoppers (Atractomorpha acutipennis, Coenagrion puella, Gryllus bimaculatus, Trigonidium cicindeloides, Chrotogonus trachypterous, Oxya intricata, Euconocephalus incertus, Hedotettix gracilis, Chlaenius quadricolour, Orthrophagus atroplitus), beetles (Calosoma maderae, Craspendophorus elegans, Orthrophagus atroplitus, Scrabaeus brahminus, Heteroderes lenis, Aspidomorpha miliaris, Aulacophora foveicollis*) and Hymenoptera (*Vespa orientalus, Rhyssa persuasoria, Formica* spp*., Monomorium minimum*). Innocent and Merlindayana (2012) assessed the diversity of insects at Allinagaram village, Periyakulam in Theni District, Tamil Nadu. White grub (*Holotricia serrata*) belongs to the Scarabaedae family and order Coleoptera, infestation has been recorded in the tropical and subtropical (David et al. (1986); Varma (1993) and in the Theni district of Tamil Nadu. *Holotricia serrata* damaging the roots of the sugarcane and sorghum, jowar, paddy, groundnut,maize, pearl millets , chillies , bhendi and brinjal . The grubs feed on the tap roots of the seedlings and the damaged plants wilt and die (Bandara, 1990). Woolly aphid, *Ceratovacunal lanigera* is an sap sucking insect pests and their infestation has been recorded in India, Nepal, West Bengal and throughout East and South -East Asia, Gujarat, Maharastra, tropical region [David et al. (1986); Varma (1993)]. *Ceratovacunal nigera* feed on sugarcane by inserting their styles through stomata of the leaves and leaves appeared as whitish patches, dried tip along margins and leaves become brittle and dries completely.

Black bug (*Cavelerius excavates*) belong to the family Lygaeidae and order Hemiptera insect pest of sugarcane infestation has been reported in the part of India, Punjab, Subtropical region and Pakistan. Epilechana beetle, *E. viginitoctopunctata* (Coccinelidae: Coleoptera) have been reported key pests of sugarcane in the part of India and Terai zone of West Bengal and reported as polyphagous insect pests of several crops are sugarcane, potato, brinjal, bitter-ground and few solanaceous plant. *Aleurolobus barodensis* firstly reported by (Maskell ,1896) as a pest of sugarcane from the part of Tropical and Subtropical region and Theni district of Tamil Nadu in India. Mealy bug, *Saccharicoccus sacchari (*Pyralidae: Hemiptera) have been reported in the distribution of tropical and subtropical region of India and damaging nature in the sugarcane crop,both nymphs and adult suck a large amount of sap from leaves and stem with the help of piercing -sucking mouthparts, depriving the plants essentials nutrients and cause shooty molud and also the several poaceae , some grasses are host plants of mealy bug . Scale insects, *Melanaspis glomerata* (Green ,1903) infested on the leaves turns pale green and nodal and internodal region. Infested crop loses its vigour, canes shrivel, growth is stunted and the internodal length is reduced drastically. Ultimately cane dries up. Such canes when slit open appear brownish red. Thick brown encrustations are seen on the nodal and internodal regions in severely affected canes (Kumar and Gaikwad 2017) in the distributed parts Bangladesh, tropical and subtropical region of India and Pakistan. Sugarcane have been attacked by *Bamisia tabaci* reported by Gennadius ,1889 recorded from distribution of tropical and subtropical region in India.

Silver whitefly, *Bissetia steniellus* has been reported from field of sugarcane as key pests of sugarcane in the part Of India Haryana, Punjab,U.P., and Pakistan and also Vietnam.Rice armywarm, *Leucania loreyi* (Duponchel, 1827) has been recorded from field of sugarcane as a pests in India ,Pakistan and Theni district of Tamil Nadu and attacked in the sugarcane ,wheat, rice , maize, etc. Rhinoceros beetle, *Oryctes rhinoceros* firstly reported by Linnaeus,1758 as a key pests of sugarcane in theni district of Tamil Nadu in India and damaging the sugarcane, vegetables and wheat crops,etc. Rice ear bug, *Leptocorisa acuta* (Thunberg ,1783) reported in the field of sugarcane as a pest in the theni district of Tamil Nadu. *Agrionemics pygmaea* in India they damaging the other host plants like rice, wheat, maize, etc. Pygmy wisp, (Rambur ,1842) reported in the sugarcane crops in the theni district of Tamil Nadu in India and infested on the other crops like wheat, millets, vegetables, etc. Migratory locust, *Locusta migratoria (Linnaeus,1758)* attacks sugarcane young shoots and leaves and also feed on other plants. Rice sting bug, Cletus punctiger has been widely distributed in India, Bangladesh, Punjab, Himachal Pradesh and China, they attacked in the field of sugarcane,millets, rice and sorghum. White-spotted leaf beetle, *Monolepta signata* infestation has been reported widely distribution in the terai zone of West Bengal, South-India, India. *Monolepta signata* is an polyphagous pests of sugarcane,beet root , cabbage , cauliflower , chilli and reddish. Red cotton bug, *Dysdercus spp.* reported in the field of the sugarcane crops by damaging by sucking the sap and destroys shoots,leaves of sugarcane in theni district of Tamil Nadu in India and damaging the sugarcane crops, cotton ,orange,ashwagandha(medicinal plants), mentha (aromatic plants) and other vegetable crops,etc. Flower chafer beetles, *Oxycetonia versicolor* belongs to the Scarabaeidae has been reported to cause considerable damage to sugarcane crops by feeding tender shoots, buds and leaves in some parts of India and Terai zone of West Bengal and they feed on other host plants cotton,brinjal ,pollens , flowers and buds . Six spotted zig zag beetle, *Cheilomenes sexmaculata (Fabricius ,1781)* has been reported to cause considerable damage to sugarcane crops by infesting on the shoots and leaves become turn brownish and yellowish and other host plants are rice, ashwagandha, aromatic plants and rice, chilli, etc. *Seven* spotted beetle, *Coccinella septempunctata (Linnaeus,1785)* has been reported to cause considerable damage to sugarcane crops widely distributed in the theni district of West Bengal,they feed on sugarcane, herbaceous plants , shrubs, grasses etc. Sugarcane aphid, Melanophis sacchari(Zehntner, 1897) (Homoptera : Aphididae has been reported variously as *Aphis sacchari* (Zehntner) (Zimmerman,1948) and *Longiungui sacchari* (Zehntner) (Eastop ,1965). *M.sacchari* infestation cause damaging the sap from xylem tissues of leaves and leaves become wilting/curling and also result in chlorosis.

Table.1 illustrating insect pests of sugarcane

Insect Pest	Scientific Name	Family	Order	Distribution	Host Plant	Reference
Early shoot borer	*Chilo infuscatellus (Snellen ,1890)*	Pyralidae	Lepidoptera	India,Punjab ,Haryana ,Bihar,Uttar Pradesh, Gujarat, TamilNadu, peninsular region.	Sugarcane, maize, pearl millets,rice, sorghum, barley, Bermuda grass,jungle rice,oats.	David et al. (1986); Varma (1993), Mengistu et al.2013.
Root borer	*Emmalocera deperecella*	Pyralidae	Lepidoptera	India,Pakistan, Bangladesh ,Haryana , Assam, Maharastra, Punjab,New Delhi	Sugarcane, sorghum.	David et al. (1986); Varma (1993). Mengistu et al.2013.
Internodal borer	*Chilo sacchariphagus indicus*	Pyralidae	Lepidoptera	Andhra Pradesh, Karnatka, Kerala,Tamil Nadu,U.P. ,Tropical region	Sugarcane, maize, sorghum	David et al. (1986); Varma (1993). Mengistu et al.2013.
Top shoot borer	*Scirpophaga excerptalis (Walker, 1863), Scirpophaga nivella F.*	Pyralidae	Lepidoptera	India,West Bengal, Bihar, M.P.,U.P. ,Rajasthan ,Tamil Nadu, South- East Asia, Japan, tropical and subtropical region	Sugarcane, millets and other grasses.	David et al. (1986); Varma (1993). David H et al. (1986), Varma A et al. (1993).
Sugarcane scales insect	*Melanoaspis glomerata*	Daispididae	Hemiptera	India, Pakistan Bangladesh,Tropical, Subtropical region.	Sugarcane, grassy plants	David et al. (1986); Varma (1993).

Sugarcane leafhopper pyrilla	*Pyrilla perpusilla Walker*	Lophopidae	Hemiptera	India, Punjab, Haryana, M.P., U.P., Delhi, Afhghanistan, Bangladesh, Mayamar, Java, Nepal, Combodia, China, Pakistan, Srilanka,Thialand	Sugarcane, millets, wheat, barley, sorghum, maize, etc.	David et al. (1986); Varma (1993), Gupta and Ahmed 1983; Kumar Singhe and Wratten 1996; Gamehiearachi and Femando,2006.
White grub	*Holotrichia serrata (Fabricius,1781)*	Scarabaeidae	Coleoptera	India,Tropical ,Subtropical region, Theni district of Tamil Nadu, U.P.	Sugarcane, sorghum, maize, pearl millets, chillies, bhendi and brinjal	David et al. (1986); Varma (1993) Brenske et al 1892, Bandara,1990
Sugarcane pink mealy bug	*Saccharicoccus sacchari*	Pseudococcidae	Hemiptera	Tropical and Subtropical region	Sugarcane, weeds and some grasses	David et al. (1986); Varma (1993).
Termites	*Odontotermes obesus (Rambur, 1842)*	Termitidae	Isoptera	Tropical and Subtropical region	Wheat, barley, pea, sorghum, pearl millt, maize, groundnut,cotton, soyabean tea, tabacco,etc.	David et al. (1986); Varma (1993).
Woolly aphid	*Ceratovacuna lanigera,, Melanophis sacchari (Zehntner)*	Pemphigidae Aphididae	Hemiptera Homoptera	India, Nepal,Bangladesh, throughout East and South East Asia, Gujarat, ,Tamil Nadu,	*Sugarcane ooficinarum ,Saccharum granium,Sorghum bicolor*	David et al. (1986); Varma (1993), Agarwal et al. 1983 Young et al 1997, Young 1970 et al.

				Maharastra, Punjab,Kashmir, Karnatka, Assam , Tropical , Asia etc.	*Miscanthurs sinensis, Pennisetum sp., Sorghum helpans and Echinicloa crusgali.*	
Lygaeid bug or black bug	*Cavelerius excavates*	Lygaeidae	Hemiptera	India,Punjab, Pakistan Subtropical region	Sugarcane,rice, maize and a number of grasses.	David et al. (1986); Varma (1993)
Gurdaspur borer sugarcane	*Bissetia steniellus*	Crambina e	Lepidoptera	India,Haryana, Punjab, U.P.,Pakistan and Vietnam , Subtropical region.	Sugarcane, sorghum, maize.	David et al. (1986); Varma (1993).
Rice armywar m	*Leucania loreyi (Duponchel, 1827)*	Noctuidae	Lepidoptera	India,Pakistan, Theni district of Tamil	Sugarcane, wheat,maize , rice ,etc.	Salunke et al. 2017
Rhinocero s beetle	*Oryctes rhinoceros(linnaeu s,1758)*	*Scarabaei dae*	Coleoptera	India,Theni district of Tamil Nadu	Sugarcane, vegetables, wheat.	Banu J et al 2016
Rice ear head bug	*Leptocorisa acuta (Thunberg,1783)*	Alydidae	Hemiptera	India,Theni district of Tamil Nadu	Sugarcane, food crops, wide range of gramineous crops	Dayana L.M. 2015
Pygmy wisp	*Agriocnemis pygmaea(Rambur, 1842)*	Coenagrio nidae	Odonata	India, Theni district of Tamil Nadu	Sugarcane, wide range of gramineous crops	Banu J et al. 2016

Migratory locust	*Locusta migratoria(Linnaeus,1758)*	Acrididae	Orthroptera	Northern,central and South East Asia	Sugarcane, wide range of gramineous crops	Kalshoven,1981, Banu J et al 2016
Stalk borer	*Chilo auricilus*	Crambidiidae	Lepidoptera	Subtropical region	Sugarcane, rice,cereals ,maize,pearl millet, etc.	David et al. (1986); Varma (1993).
Rice sting bug	*Cletus punctiger*	Coereidae	Hemiptera	India,China ,West Bengal , Punjab and Himachal Pradesh	Sugarcane, sorghum, rice, millets	David et al. (1986); Varma (1993).
White - spotted leaf beetle	*Monolepta signata*	Chrysomelidae	Coleoptera	India, Terai zone of West Bengal, South -India, Mid hills of Meghalaya.	Polyphagous pests, sugarcane, beet root, cabbage, cauliflower, chilli and reddish, blackgram pods.	Gyawali 1986, Singh 2002
Flea beetle	*Phyllotreta spp.*	Chrysomelidae	Coleoptera	India,Terai zone of West Bengal	Sugarcane, millets, sorghum, polyphagous.	David et al. (1986); Varma (1993).
Epilechina beetle	*Epilachna vigintioctopunctata*	Coccinellidae	Coleoptera	India, Terai zone of West Bengal	Sugarcane, potato, brinjal, bitter-ground and few other solanaceous plant.	David et al. (1986); Varma (1993)

Red pumpkin beetle	*Raphidopalpa foveicollis*	Chrysomelidae	Coleoptera	India, Terai zone of West Bengal	Sugarcane, cotton paddy vegetables, coconut	Banu J et al. 2016
Grasshopper short horn	*Oxya nitidula (Walker,1870)*	Acrididae	Orthoptera	India,Terai zone of West Bengal, Peninsular India .	Sugarcane	Muralirangam et al. (1993), Banu Jet al 2016.
Ground beetle	*Ophionea nigro fascita*	Carabidae	Coleoptera	India, Terai zone of West Bengal	Sugarcane	David et al. (1986); Varma (1993).
Yellow mite	*Oligonychus sacchari*	Tetranychidae	Acari	India,Terai zone of West Bengal	Sugarcane	David et al. (1986), Varma (1993).
Yellow hairy caterpillar	*Psalis pennatula (Fabricius,1793)*	Erebidae	Lepidoptera	India,Terai zone of West Bengal	Sugarcane, mentha .	David et al. (1986), Varma (1993).
Red cotton bug	*Dysdercus spp.*	Pyrrhocoridae	Hemiptera	India,Terai zone of West Bengal, Theni district of Tamil Nadu.	Sugarcane, Ashwagandha, mentha, cotton and other vegetable crops,etc.	David et al. (1986); Varma (1993).
Flower chafer beetles	*Oxycetonia versicolor*	Scarabaeidae	Coleoptera	India, Terai zone of West Bengal,Gujarat,Wardha , Maharastra.	Sugarcane,cotton,feed on pollens , flowers, brinjal etc.	David et al. (1986); Varma (1993).
Six - spotted zigzag ladybird beetle	*Cheilomenes sexmaculata (Fabricius ,1781)*	Coccinellidae	Coleoptera	India,Terai zone of West Bengal	Sugarcane,chilli,rice,aromatic plants,ashwagandha,etc.	David et al. (1986); Varma (1993).
Ladybird beetle	*Micrapis discolor*	Coccinellidae	Coleoptera	India, Terai zone of West Bengal	Sugarcane	David et al. (1986); Varma (1993).
Lady bird beetle	*Micrapis yasumatsui*	Coccinellidae	Coleoptera	India,Terai zone of West Bengal	Sugarcane	

Lady bird beetle	*Propylea dissecta*	Coccinellidae	Coleoptera	India, Terai zone of West Bengal, Srilanka, Bangladesh and Nepal.	Sugarcane, wheat, rice, etc.	David et al. (1986); Varma (1993).
Seven spotbeetle	*Coccinella septempunctata(Linnaeus,1785)*	Coccinellidae	Coleoptera	India,Terai zone of West Bengal.	Sugarcane,herbaceous plants , shrubs, grasses etc.	Poorani J. 2002, David et al. (1986); Varma (1993).
Silver leaf whitefly	*Bemisia tabaci(Gennadius, 1889)*	Aleyrodidae	Hemiptera	India, Theni District of Tamil Nadu	Sugarcane	Oliveria et al. 2010
Praying mantis	*Mantis religiosa*	Mantidae	Mantodea	India,Terai zone of West Bengal	Sugarcane	David et al. (1986); Varma (1993).
Wolf spider	*Pardosa sp.*	Lycosidae	Araneae	India,Terai zone of West Bengal	Sugarcane	Rajeeva et al. 2019
Blue marsh hawk	*Orthetrum glaucum (Brauer,1865)*	Libellu	Odonata	India,Terai zone of West Bengal,tropical and subtropical Asia.	Sugarcane	David et al. (1986), Varma (1993).
Line forest skimmer z	*Cratilla lineta (Brauer, 1878)*	Libellulidae	Odonata	India,Theni District of Tamil Nadu	Sugarcane	David et al. (1986), Varma (1993).
Web mite	*Schizotetranchyus andropogoni*	Tetranychidae	Araneae	India,Terai zone of West Bengal	Sugarcane, medicinal plants and other crops .	Ozman-Sullivan et al. 2006, Hirst 1926, Banerjee,1988, Ghoshal and Barman, 2012.

III. CONCLUSION

The current study provides information about the diversity of sugarcane in India. The main aim of the review paper was to collect the relevant contribution in the field of insect pest fauna in sugarcane farm. All important information like sugarcane production and diversity of major pests and their attacking intensity impact on sugarcane in India diversity.The pests species were grouped into five orders, 15 families and 33 species. A total of 1,928 individuals representing 27 orders, 11 families and 34 species were collected by sweeping method during eight different stage of sugarcane growth (Poolprasert and Jongjitvimol 2014). The present study showed that biodiversity parameters as the richness diversity and composition of these insect communities differ from month to month. Similar results are also observed that (Thamaraiselvi and Dayana, 2015) a total number of seven species in order viz., Odonata, Orthroptera, Hemiptera, Homoptera, Coleoptera, Lepidoptera and Hymenoptera were collected from November 2012 to January 2013 in a sugarcane field at A. Vadipatti, Periyakulam Taluk Theni Distric India.Thus this review paper is very useful for farmers and research students to get detail about relevant topic.

IV. ACKNOWLEDGEMENTS:

Authors, are thankful to the Head of PG Department of Zoology, BSNV PG College, Lucknow for providing necessary lab facilities.

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