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BIODIVERSITY OF JASSIDS FROM AGROECOSYSTEMS OF KOLHAPUR DISTRICT, INDIA

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Abstract: Jassids (Hemiptera: Cicadellidae) are cell sap sucking insects of plants of economic importance. While sucking the cell sap they inject toxins into the plant body and cause yellowing and curling of leaves and flowers. Eventually, growth of the plant is retarded and flowering and fruiting bodies drop down. The sooty moulds affect photosynthesis and the yield of crops. Therefore, biodiversity of Jassids has been reported from Kolhapur district. In all, 22 species of Jassids belonging to the genera *Deltocephalus, Empoasca, Nilaparvata, Nephotettix, Recilia, Cofta* and *Typhlocyba* have been found damaging various crops of Kolhapur region.
Key words: Jassids, Diversity, agroecosystems, Kolhapur.

Introduction

Jassids (Hemiptera: Cicadellidae) are wedge shaped insects which walk diagonally and suck the cell sap from piercing type of mouth parts. While sucking the cell sap they inject toxins into the plant body which results yellowing and curling of leaves, dropping down of flowering and fruiting bodies. They secrete honey due like sticky substance which create sooty mould on leaves and affect photosynthesis, growth and finally the yield of the crop. Correct identity and making the index of crop plants and jassids from the region therefore, has practical relevance. Hence, the present work was carried out. In past several workers (Baker, 1924; Datta,1922; Distant,1908,1918; Pruthi,1930,1936; Hussain and Pruthi,1923; Rao,1980; Singh,1989; Das and Vraktamath,1998; Sathe and Margaj, 2001; etc.) worked on diversity of jassids from India. However, very little is known from Maharashtra on this important group of insects.

Materials and Methods

Jassids have been collected from various ecosystems of Kolhapur district of Maharashtra. The collected samples were examined and identified by consulting appropriate literature (Distant, 1908, 1918; Datta, 1912; Pruthi, 1930 and 1936). The specimens are time being with Dept. of Zoology, Shivaji University Kolhapur and will be deposited ZSI, Kolkata, in

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due course of time. Occurrence of the species was studied by visiting various ecosystems at 15days interval and by one man one hour search method.

Results and Discussion

Results are recorded in table-1. In all, 22 species of Jassids have been reported from Kolhapur district. Most of the species were prevalent in the region in mansoon season. However, some of the species of genera *Nilaparvata, Sogatella* and *Deltocephalus* were found throughout the year. *Deltocephalus* genus was mostly associated with grassland ecosystems. The species of *Empoasca* were found most destructive to the cotton and castor crops in Maharashtra. Castor plants persisted most of time of the year therefore, *Empoasca* comlex was also more persistent on castor ecosystems. Mango Jassids were found throughout the year on the crop but during hot months, May-June and cold months, October-January only adults were found sitting in the cracks and crevices of tree trunk. The Jassids population peaks on mango ecosystem were from July-August which damaged new sprouting leaves. Second peak was observed in February synchronizing blossoming of the crop during which severe damage was caused this peak to the crop. Almost mango trees were made sterile by feeding on cell sap of inflorescence. Most of the flowering bodies dropped down and sticky substances were associated with the crop. Therefore, Jassids are supposed to be rank first pest of mango tree. However, jassid diversity was relatively more associated with paddy crops. Probably due to mono and continues culture of the crop from Kolhapur region.

Many species of Jassids attract towards the light hence, they may be controlled with light sources (Traps) for avoiding pesticidal use on various crop ecosystems. In future, more attention should be given on this important group of destructive pests since pesticides are less effective against Jassids because they take their food by deeping their beak into plant tissues.

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Table-1: Diversity of Jassids from Kolhapur district

Sr.No.	Scientific name	Family	Host plants	Features	Occurance
1.	Brown plant hopper *Nilaparavata lugena* (Stal.)	Delphacidae	Paddy *Oryza sativa* L.	Body and eyes brownish, 4mm long, nymph brownish black.	Throughout year, abundant Oct-Feb.
2.	White black plant hopper *Sogatella furcifera* (Horv.)	Delphacidae	Paddy *Oryza sativa* L.	Adult straw coloured. nymph greyish white.	Throughout year.
3.	Green leaf hopper *Nephotettix nigropictus* (Stal.)	Cicadellidae	Paddy *Oryza sativa* L.	Adult greenish and smaller in size.	July-Aug.
4.	*Nephotettix virescens* (Distant)	Cicadellidae	Paddy *Oryza sativa* L.	Adult green.	July-Aug.
5.	White leaf hopper *Cotta spectra* (Distant)	Cicadellidae	Paddy *Oryza sativa* L. Maize *Zea mays* L. Jowar *Sorghum vulgare* L.	Adult yellowish, 4 black spots on vertex, 6mm long.	July-March

6.	Zigzag leaf hopper *Recilia dorsalis* (Mots.)	Cicadellidae	Paddy *Oryza sativa* L.	Adult whitish grey, 'V' shaped zigzag lines on wing, 3.5mm long.	July-Oct.
7.	Blue leaf hopper *Typhlocyba maculifrons* (Mots.)	Cicadellidae	Paddy *Oryza sativa* L. Maize *Zea mays* L. Jowar *Sorghum vulgare* L. Sugarcane *Saccharum sp.*	Adult bluish with black spot on mid pronotum, yellow vertex.	July-Oct.
8.	*Amrasca spp*	Cicadellidae	Wheat *Triticum sp.*	Wedge shaped,	Aug.-Dec.
9.	*Laodephax striatella* (Fall.)	Delphacidae	Wheat *Triticum sp.*	Walk diagonally	Aug.-Dec.
10.	Grapevine leaf hopper *Erythroneura sp*.	Cicadellidae	Grape vine *Vitis vinifera* L.	Greenish yellow	Spring
11.	*Idioscopus clypealis* (Lethi.)	Cicadellidae	Mango *Mangifera indica* L.	Grey, 6.0mm long	Feb.-April
12.	*Idioscopus atkinsoni* (Lethi.)	Cicadellidae	Mango *Mangifera indica* L.	Grey, 5.0mm long	July-Aug.
13.	Potato Jassid *Hishimonus phycitus* (Distant)	Cicadellidae	Potato *Solanum tuberosum* L.	Wedge shaped, walk diagonally	July-Nov.
14.	Cotton Jassid *Empoasca devastan* (Distant)	Cicadellidae	Cotton *Gossypium arboreum*	Greenish, yellow, 3mm long.	July-Nov.
15.	*Empoasca notata* (Mel.)	Cicadellidae	Cotton *Gossypium hirsutum* L.	Green, wedge shaped.	July-Jan.
16.	*Empoasca flarescens* (Distant)	Cicadellidae	Castor *Ricinus communis* L.	Pale.	July-Jan.

17.	*Empoasca kerri* (Pruthi)	Cicadellidae	Castor *Ricinus communis* L.	Wedge shaped,	July-Jan.
18.	*Empoasca parathea* (Pruthi)	Cicadellidae	Castor *Ricinus communis* L.	Walk diagonally.	July-Jan.
19.	*Deltocephalus vulgaris*	Cicadellidae	Jowar *Sorghum vulgare* L.	Wedge shaped, ocherus. Aedeagus strongly narrow at apex.	• Aug- Sept.
20.	*Deltocephalus trisuli*	Cicadellidae	Grass	Female 3.5mm long, aedeagus small and short.	Aug- Sept.
21.	*Deltocephalus truncatus*	Cicadellidae	Grass	Ocherus, pronotum with two lateral longitudinal strips.	Aug- Sept.
22.	*Deltocephalus brevis*	Cicadellidae	Grass	Ocherus, anntenal cavity dark brown.	July- Sept.