

**RESEARCH ARTICLE****HOST PLANTS FOR A WHITEFLY ALEURODICUS DISPERSUS FROM KOLHAPUR REGION, INDIA****Sathe. T.V and Gangate Ujjwala. S**

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ABSTRACT

Aleurodicus dispersus (Hemiptera : Aleurodidae) is polyphagous pest of many agricultural, horticultural, floricultural and nonagricultural plants. The Whitefly suck the cell sap from leaves and tender parts of the plants and affect the growth adversely. It also create sooty moulds on leaves which affect photosynthesis, growth and yield of the crops. Cotton *Gossipium hirsutum* L. Brinjal *Solanum melongena* L., Okra *Abelmoschus esculentus* L., mulberry *Morus alba* L. and Guava *Psidium guajava* have been attacked throughout the year. Custard apple *Annona reticulate*, Mango *Mangifera indica* L., Sunflower *Heliantus annuus* L., Cowpea *Vigna unguiculata* L., Tomato *Solanum lycopersicum* L., China Rose *Hibiscus rosasinensis* L. and several grasses have also been attacked by *A. dispersus* in Kolhapur region, India. Occurrence and damage by whitefly to different plants have been discussed in the paper.

INTRODUCTION

Spiral white fly *Aleurodicus dispersus* (Russel) (Hemiptera : Aleyrodidae) is small sized, 1-2 mm in body length with white bodies and two pairs of white wings. It has a characteristic spiral pattern of oviposition on the underside of leaves (Russel, 1965). There are at least 75 species of white flies (Mannion, 2010). Both nymphs and adults suck the cell sap of the crop plants from tender parts, especially leaves and affect the growth and yield of the crops. It is believed that *A. dispersus* has been recently, in 1994 introduced in India from other countries and spreading throughout the country on various agricultural and non-agricultural plants including weeds and grasses and became serious threat to several horticultural, floricultural and agricultural crop plants in India. Therefore, its host plants have been studied in Kolhapur region. In past, spiral white fly *A. dispersus* has been attempted by Costa (1969), Cherry (1980), Martin & Lucas (1984), Martin (1987, 1990), Neuenschwander (1994), Palaniswami *et al.*, (1995), Sathe (1999), Both *et al.* (2000), Banjo (1998, 2010), Banjo & Latunde Data, (1999), Banjo *et al.* (2003,) Sathe & Margaj (2001), Sathe (1998, 2014) etc.

MATERIALS AND METHODS

Survey of *A. dispersus* was made on various crops at morning hours between 8.00 a.m. to 9.00 a.m. by visiting various agro-ecosystems of crops at 15 days interval. The number of whiteflies per leaf was counted in case of guava, china rose, custard apple, tomato and other crop plants. The nature of damage and their association with the crops was taken into account by spot observations. Observations were taken during the years 2013-14

on various crops. The collected insects were identified by consulting literature cited in the references.

RESULTS

Results recorded in table-1 and figs 1 to 8 indicated that *A. dispersus* was found throughout the year on the crops guava (*Psidium guajava* L.), china rose (*Hibiscus rosasinensis* L.), rose (*Rosa 'Santana'*), brinjal (*Solanum melongena* L.) and *Terminalia catappa*. However, its incidence was decreased on guava & Terminalia in Feb and March. While increased on Brinjal and China rose. Probably the pest migration was due to the dropping of leaves in February. The incidence of white fly was also cotton (*Gossipium hirsutum* L.) noted on cowpea (*Vigna unguiculata* L.), Mulberry (*Morus alba* L.) and certain weeds during the monsoon months.

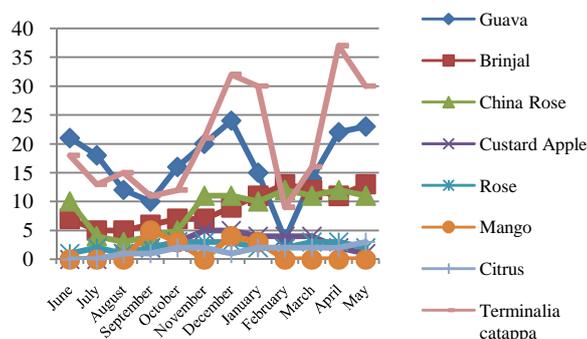


Fig. 1 Occurance of *A. dispersus* on different crop plant

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Table 1 Occurrence of *A. dispersus* on various crops in Kolhapur

Sr. No.	Crop	June	July	August	Sept.	Oct.	Nov.	Dec.	Jan.	Feb	March	April	May
1.	Guava	21	18	12	10	16	20	24	15	3.5	14	22	23
2.	Brinjal	7	5	5	6	7	7	9	11	13	12	11	13
3.	China rose	10	4	3	4	5	11	11	10	12	11	12	11
4.	Custard apple	0	0	1	2	3	5	5	4	4	4	2	1
5.	Rose	1	2	1	2	3	3	3	2	2	3	3	2
6.	Mango	-	-	-	5	3	-	4	3	-	-	-	-
7.	Citrus	-	-	1	1	2	2	1	2	2	2	2	3
8.	Terminalia catapa	18	13	15	11	12	21	32	30	9	16	37	30



Fig 2 *A. dispersus* on *Psidium guajava* L.



Fig. – 6 *A. disperses* on *Gossipum hirsutum* L.



Fig. 3 - *A. dispersus* on *Rosa* sp.



Fig.7A. *dispersus* on *Morus alba* L



Fig. 4 - *A. dispersus* on *Hibiscus rosinensis* L.



Fig. 8 - *A. dispersus* on *Solanum melongena* L.



Fig.5 - *A dispersus* on *Terminalia catapa* L.



Fig. 9 - *A dispersus* on *Annona reticulata* L.

DISCUSSION

The developmental biology of *A. dispersus* has been investigated by Banjo (2010) in Nigeria. He found a cumulative developmental period of 23-41 days. The mean numbers of egg develop to adult was 138.1 per thousand eggs. The spread of the insect have been found to be connected to human traffics. The oviposition and feeding occurred simultaneously and occurred more on their abaxial surface of host larvae. Rainfall and temperature played a prominent role on the abundance and seasonal fluctuation of the insects and infacts, regulating their population. *A. dispersus* was found on arable as well as ornamental plants but, rarely on gramminae.

A. dispersus has been spread westward across the pacific and Southeast Asia (Waterhouse & Norris, 1989). Waterhouse and Norris (1989) further mentioned that the pest has been reported in Brazil, Ecuador, Peru, Phillipines, Fiji, Maldives, Mariana Island and Canary Islands etc. This insect was occurred in West Africa much earlier than 1992 as was reported, but was confused with the Cassava mealybug (Asiwe *et al.*, 2002). According to Banjo *et al.*, (2003) the host range of *A. dispersus* is increasing day by day as it spread to other part of the world (Banjo, *et al.*, 2003).

A. dispersus was the vector of plant pathogens for transmitting diseases such as cotton leaf curl, tobacco leaf curl and cassava mosaic (Costa, 1969). *A. dispersus* has been recorded on more than 27 plant families, 38 genera with 100 species including citrus and ornamentals (Russel, 1965, Cherry, 1980) in Nigeria. However, Akinlosotu *et al.*, (1993) had reported that *Anacardium occidentale*, *Annona* sp., *Cocos nucifera* and *Psidium guajava* were among most preferable host plants. Banjo & Latunde-Dada (1999) assessed preference in eight plant species using egg count fortnight method. *P. guajava* has the highest egg count followed by *Terminalia catappa*, *Acalypha* sp. and *Ficus exasperate*. The plants such as *Manuhot esculanta*, *Musa* sp., *Bauhinia monandra* and *Sida acuta* showed less egg count. *A. dispersus* has been shifted to low lying weed like *S. acuta* during weanther season from where they reinfested the taller and cultivated plants when favourable conditions occurred. They concluded that *A. dispersus* has not really reached a pest status in Nigeria but, regarded as only a miner pest of *Cassava* (Banjo, 1998). From India, Palaniswami *et al.* (1995) also studied *A. dispersus* on *Cassava* plant as major and destructive pest. In the present study, 12 host plants have been reported for *A. dispersus* and the work will be helpful for designing ecological and cultural control of the pest.

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