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EFFECT OF LEAFHOPPER, *Amrasca devastans* (*Dist.*) FEEDING ON THE PIGMENT CONTENT OF OKRA, *Abelmoschus esculentus* (L.) MOENCH LEAVES.*

S. UTHAMASAMY.

Okra variety, A.E. 22. resistant to leafhopper contains more of total chlorophyll. xanthophyll and carotene than the highly susceptible (Pusa Sawani) and susceptible (F_1) varieties. Leafhopper feeding has further decreased the content of the pigments in all the varieties. The decrease was much more in the F_1 hybrid than the resistant and susceptible parents.

Okra, *Abelmoschus esculentus* (L) Moench is a popular vegetable in this country. The crop is ravaged by many insect pests of which the leafhopper, *Amrasca devastans* (Dist.) (Cicadellidae: Homoptera) is very serious. Severe infestation leads to typical phytotoxemia causing hopper-burned plants. Uthamasamy and Subramaniam (1985) studied the inheritance of resistance in okra varieties to this insect. Based on this, three varieties viz., A. E. 22 (Resistant), Pusa Sawani (Highly susceptible) and their F_1 hybrid (susceptible) were taken to investigate the possible biochemical mechanisms of resistance and the changes in pigments as a result of leafhopper feeding

MATERIALS AND METHODS

Leaf samples were collected from leafhopper infested and healthy plants maintained separately under insectary conditions. The total chlorophyll content of okra leaves was estimated by the method described by Smith and Benitez (1955) from ten sq.cm: of leaf tissue, usinga Spectrophotometer. The carotein and Xanthophyll contents were determined by the method of snell and Snell (1937). The intensity of colour was noted using the Klett-Summerson colorimeter. Potassium dichromate, 0.2 per cent was used as standard.

RESULTS AND DISCUTSION

The data on the total chlorophyll, xanthophyll and carotene contents of leaves of healthy and infested leaves are presented in Table.

There were reduction in the content of photosynthetic pigments viz., chlorophyll, xanthophyll and carotene in the leaves infested by the leafhopper as compared to healthy leaves. The per cent reduction was remarkable in F_1 plants for all the three pigments. The carotenoid pigments or lipochromes are commonly absorbed by insects and accumulated in the blood of tissues. Freenkel (1953) considered carotenes of plants as nutritionally imporant because of their conversion to cuticular pigments in certain phytophagous insects.

*Associate Professor of Entomology, Tamil Nadu Rice Research Institute, Aduthurai - 612 101,

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Table. Effect of leafhopper infestation on the pigments content of okra leaves. (Mean of five observations-mg/g of leaf on dry weight basis).

Variety.	Total chlorophyll		% decrease in infested over healthy	Xanthophyll		% decrease in infested over healthy	Carotene		% decrease in infested over healthy
	Healthy	Infested		Healthy	Infested.		Healthy	Infested.	
A. E. 22 (Resistant)	6.02	4.96	—17.61	0.24	0.19	—20.83	0.71	0.56	—21.13
Pusa Sawani (Highly susceptible)	5.75	4.67	—18.78	0 20	0.15	—25.00	0.59	0 46	—22.03
F 1 (susceptible)	5.19	3.19	—38 54	0.14	0.10	—28.57	0.35	0.19	—45.71
L S D.	Between varieties.								
C. D. (P=0.05)	0.24**			0.36**			0.10**		

In plants, carotenoids also serve in the protection of chlorophyll, mechanisms against free oxygen (Griffiths *et al.* 1955, Cochen-Bazire *et al.*, 1957) and also against possible photodynamic damage by chlorophyll in green plants (Giese, 1973). Hence the removal of carotenoid pigment may result in the disintegration of chlorophyll. Similarly a reduction in moisture level is known to seriously affect photosynthesis (Gaffron, 1960). Similar observations have also been reported by Jayaraj and Seshadri (1966) in castor varieties iniured by *Empoasca flavescens*.

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