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EFFECT OF LEAFHOPPER, *Amrasca devastans* (DIST.) FEEDING ON THE RESPIRATORY ACTIVITY OF OKRA, *ABELMOSCHUS ESCULENTUS* (L.) MOENCH LEAVES

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Leafhopper infestation in okra leaves has altered the respiratory activity of leaves. A. E. 22, a resistant variety, respired less compared to highly susceptible *(*Pusa Sawani*)* and susceptible (F1 hybrid) varieties. Rate of respiration in the infested leaves was more compared to healthy leaves in all the varieties.

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Bhendi or okra, *Abelmoschus* (L) Moench is a popular vegetable grown throughout the year. The crop is infested by many insect pests of which the leafhopper, *Amrasca devastans* (Dist.) (Cicadellidae : Homoptera) is serious causing desapping of leaves. Severe infestation leads to typical phytotoxemia resulting in hopperburn damage and total loss of crop. Uthamasamy and Subramaniam (1980; 1985 studied the resistance in okra varieties to this leafhopper. Changes brought about in the respiratory activity of bhendi leaves by leafhopper feeding are reported in this paper.

MATERIALS AND METHODS

Based on earlier results, two varieties viz., A. E. 22 (resistant) and Pusa Sawani (Highly susceptible) along with their F1 hybrid (susceptible) were selected for further studies. Potted plants with and without leafhopper infestation were maintained separately under insectary conditions from which leaf samples were taken for respiratory studies. Respiratory activity in healthy and leafhopper fed leaves was estimated following Umbrieit *et al.*, (1964). The quantity of oxygen uptake was calculated and expressed as microlitres per hr per g of leaf tissue on dry weight basis (Table).

RESULTS AND DISCUSSION

The rate of respiration among varieties varied considerably. The resistant A. E. 22 respired less compared to other varieties. There was an increase in the rate of respiration in infested leaves of all varieties. Increased respiration in plants affected by Hemiptera, particularly aphids and coccids, has been reported by Kloft (1960), in potato injured by the leafhopper, *Empoasca fabae*, Ladd and Rawlins (1965) and in castor leaves infested by *E. flavescens* (Jayaraj, 1966). This increase in respiration may also result in accumulation and mobilization of metabolites in the infested plants. These metabolites might require extra energy and consequently increase the rate of respiration.

Increased respiratory activity in the hopperburn diseased leaves might also be due to the 'hypersensitive' reaction, an important defence reaction of the plant. Such a hypersensitive reaction has been described for many plant disease and this is usually accompanied by an accumulation and oxidation of phenolic compounds. Perhaps, a similar process is involved in the increased respiration of okra leaves infested by *A. devastans* in as much as a higher phenolic content and increased peroxidase activity has been observed (Uthamasamy and Subramaniam, 1980).

Table. Effect of leafhopper infestation on respiration of okra leaves.

Variety	Oxygen uptake in ul/h/g of leaf on dry weight basis		% increase in infested over healthy.
	Healty	Infested	
A. E. 22 (Resistant)	2796	2877	+ 2.90
Pusa Sawani (Highly susceptible)	2848	2904	+ 1.97
FI (susceptible)	2945	3899	+32.39

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