



Control of sesame phyllody caused by PLO's

D. M. Pathak¹, N. S. Joshi¹, M.S. Dulawat and N. V. Patel²

¹ Subject Matter Specialist, ² Agricultural Officer,
Krishi Vigyan Kendra, Junagadh Agricultural University,
Junagadh- 362 001.Gujarat

Received: 5 January 2013; **Revised:** 6 February 2013; **Accepted:** 8 February 2013

Abstract: Sesame or Til (*Sesamum indicum* L.) belongs to family *Pedaliaceae* is one of the principal oilseeds in common use in India. Among the several diseases infecting sesame, phyllody seems much prevalent in Gujarat and especially in Saurashtra region. Managed disease by check the vector population through systemic insecticide is only way to control this disease.

Key words: *Sesamum indicum*, phyllody, vector control, insecticide

INTRODUCTION

Among the edible annual group of oilseed crops, sesame plays an important role in the oilseed economy through out the world. It is considered as "Queen of Oilseeds". In Gujarat, there are five districts viz. Amreli, Junagadh, Bhavnagar, Mehsana and Kaira under low runoff and medium yield gap region and three districts viz. Ahmedabad, Rajkot and Surendra Nagar under low runoff and high yield gap region accounts 3.72 lakh hectares area with an annual production of 1.70 lakh tonnes. Major factors that limit its productivity besides narrow genetic base are extreme susceptibility to biotic and abiotic stresses. The phyllody an important disease of sesame is caused by mycoplasma – like organism (Phytoplasma) and transmitted by leaf hopper¹.

In Saurashtra region of Gujarat state now a days phyllody become alarming problem especially in summer. So looking to the importance of disease resulting in major loss, attempts were made to managed this disease by vector control and this paper reports the results of such experiments.

MATERIALS AND METHODS

Management through vector control: A field trial was laid out during kharif 2008-09 and summer 2008-09 to evaluate efficacy of different insecticides separately for the control of vector (*Orosius albicinctus* Dist.) of phyllody on sesame cv Guj Til-2. The insecticides applied at 35 and 50 days after sowing. Observation on vector population recorded 1 day before spraying and at 1 and 7 days after spraying. The trial lay out in the field of university farm. The field ploughed well and fertilizers applied as per recommendation. Weeding done regularly and irrigation given as and when necessary. The trial included the following 6 treatments replicated thrice in a randomized block design with accommodating 150 plants of plot size 4.5 m x 2.25 m.

1.	Control	No treatment
2.	Dimethoate	0.025% a.i. sprayed fortnightly
3.	Methyle-o-demeton	0.025% a.i. sprayed fortnightly
4.	Phosphamidon	0.03% a.i. sprayed fortnightly
5.	Imidacloprid	0.009% a.i. sprayed fortnightly
6.	Monocrotophos	0.05% a.i. sprayed fortnightly

The spray fluid adjusted according to crop stage between 300 to 500 liters per hectare and same trial repeated during summer season.

RESULTS AND DISCUSSION

Since it is persistent type of relationship, protection against insect vectors during the growth of the crop is one of the important strategies to manage the disease. Result of field trial indicated that out of five insecticides, application of methyle-o-demeton @ 0.025 % significantly reduced the vector population in both the seasons. The percentage of phyllody was lower in methyle-o-demeton treated plants (1.2 and 1.6 %) than in the control (2.6 and 2.9 %) during kharif and summer season, respectively. Same treatments also check the phyllody incidence for further spread in both the seasons. Application of methyle-o-demeton also increased seed yield (380 and 330 kg/ha) as compared to check (210 and 180 kg/ha) during kharif and summer season, respectively (**Table 1 & 2**).

Table-1: Effect of systemic insecticides on vector population and incidence of phyllody(Kharif).

Treatments	Vector population (per sweep)*		Incidence of phyllody (per cent)	seed yield kg/he
	1(DAS)	7(DAS)		
Methyl-o-demeton	0.0	1.3	1.2	380
Dimethoate	0.8	2.2	2.1	340
Phosphamidon	0.5	1.2	2.2	350
Imidacloprid	0.8	1.3	1.6	360
Monocrotophos	1.2	2.2	2.2	350
Control	3.6	4.2	2.6	330

* Average of five sweep

Table-2: Effect of systemic insecticides on vector population and incidence of phyllody (summer).

Treatments	Vector population (per sweep) *		Incidence of phyllody (per cent)	seed yied kg/he
	1(DAS)	7(DAS)		
Methyl-o-demeton	0.0	1.6	1.6	210
Dimethoate	1.2	2.5	2.3	180
Phosphamidon	1.5	2.2	2.1	200
Imidacloprid	1.8	2.3	1.9	205
Monocrotophos	1.6	2.5	2.5	190
Control	4.3	6.2	2.9	180

* Average of five sweep

Despite wide interest in chemotherapy of plant phytoplasma disease, no effective mycoplasmacical agent that can cure the disease completely has yet been found². In practice, control of the disease by prophylactic treatments rather than cure of affected plants. Also, a schedule needs to be worked out in relation to the appearance of vectors along with timely application of systemic insecticides for keeping the plants free from the disease. Under these circumstance development of resistant or tolerant variety would be best. But no any cultivars found 100 per cent resist or tolerant to phyllody.

REFERENCES

1. R. S. Vasudeva and H. S. Sahambi, Phyllody in sesamum (*Sesamum orientale* L.). *Indian Phytopath.*; 1955, **8**(2):124 – 129.
2. S. P. Raychaudhuri, S. Rishi and N. Rishi, Chemotherapy: Basic research approaches in mycoplasma diseases of crop. Springer-verlag, *Berlin*, 1988, pp. 391-416.

Corresponding author: D. M. Pathak; Subject Matter Specialist,
Krishi Vigyan Kendra, Junagadh Agricultural University,
Junagadh- 362 001.Gujarat