

Research Article

Study of effect of direct treatment with *Annona squamosa* oil, kernel extract and plant saponin on different aphids

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Abstract: Abstract: In recent time, the use of natural plants has been encouraged in research laboratories and institutes and also for commercial use. Now a days, there are available in market several spraying combinations of plant products and even in farming have been started using it, custard oil is found to be having natural insecticidal property like that of neem products. Now researches on plant saponin has been started which given desired results and found to be effective on Aphids (*Aphis gossypii*). These sprayings caused moulting behaviour change and fecundity of aphids. Alatae form aphids are controlled.

Keywords: treatment, *Annona squamosa*, (*Aphis gossypii*).

INTRODUCTION

Among several other vectors, aphids are most important in North India. Almost all species of aphids (*Aphis gossypii*) are with vulnerable vectors for transmission of viral diseases. The treatments have adverse effects on settling on to the leaves, oviposition, fecundity and hence with reduced population density. The direct treatments when applied are found to be more effective results and are found more better if the viruliferous aphids are previously starved along sprays.

METHOD & PROCEDURE: -

The Aphid species like *Aphis gossypii*, *Aphis craccivora*, *Brevicoryne brassicae*, *Myzus persicae* and *Rhopalosiphum maidis* are identified on the under surfaces of leaves of different varieties of plants. The products to be used are prepared in respective concentrations. Sufficient number of potted plants in replicates are made available. The experiments should be done at exposure places but under controlled conditions. Apterous as well as alatae adults are well identified, before starting the application of spraying treatments.

Observations, findings and analytic statistics

Aphid species	Treatments	Conc. %	Percentage mortality		
			nymphs	Apterous adults	Alatae adults
<i>Aphis gossypii</i>	kernel extract	1:10	59%	54%	----
<i>Myzus persicae</i>	Annona oil	1%	90%	90%	90%
<i>Rhopalosiphum maidis</i>	Plant saponin	1%	16%	20%	25%
<i>Aphis craccivora</i>	Kernel extract	1:10	55%	49%	2%
<i>Brevicoryne brassicae</i>	Annona oil	1%	90%	90%	90%
Control water	----	----	----	----	----

DISCUSSION:

The direct treatments affect also the virus vectors oviposition, nymphal development growth, mortality and there is change in pattern of appearance of population and its density, over all no of individuals per unit area and then accordingly also affects incidence and

transmission of viral diseases on to the healthy plants. The same has been observed during the experiment observation as *Annona* oil by its 1% concentration is more potent for all stages like nymphs' apterous adults and alatae adults. On the under surface (Abaxial) of host leaves with direct treatment all the stages of life cycle growthwise are inhibited. That is the reason, overall

mortality in highest percentage is observed. The direct treated leaves prevent the feeding behaviour of vectors along with physiologic metabolic enzymatic and hormonal changes along with retardation probably. *Myzus persicae* & *Brevicoryne brassicae* were found more prone for spraying.

CONCLUSION: -

The direction treatment which maybe apply as pre treatment on leaves before settling of aphids are effective also and should be kept in mind to decrease overall frequency of virus vectors.

Conflict of Interest: The authors declare that they have no conflict of interest.

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Ethical approval: The study was approved by the Institutional Ethics Committee of I.T. College Lucknow

REFERENCES: -

1. Smith, Ray F. "Pesticides: Their Use and Limitations in Pest Management." *Concepts of Pest Management*, 1970, pp. 103-113.
2. Singh, M. N., B. B. Nagaich, and H. O. Agrawal. "Spread of Viruses Y and Leafroll by Aphids in Potato Fields." *Indian Phytopathology*, vol. 37, 1984.
<https://agris.fao.org/search/en/providers/123819/records/64735f6b53aa8c89630a3c2f>.
3. Hein, A. "The Effects of Oil on Virus Transmission by Aphids." *Phytopathologische Zeitschrift*, vol. 71, no. 1, 1971, pp. 42-48.
4. Hein, A. "Investigations on the Effect of Oils on Virus Transmission by Aphids. II. Effect of Oil on *Myzus persicae* Sulz." 1972, pp. 241-249.
<https://www.cabidigitallibrary.org/doi/full/10.5555/19731304261>.