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Effect of Plant natural test products on Mechanical mode of transmission of viruses.

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Abstract

It has been found that non-persistent viruses are found to be usually more frequently transmitted by mode of mechanical transmission method along with virus vectors. The mechanically transmitted viruses are acquired from epidermal or sub-epidermal regions of the host plant. In the experiments with the natural products. It was found that these products kill the aphid (*Aphis gossypii*) and whitefly (*Bemisia tabaci*). The Neem oil acts antifeedant and also inhibit the acquisition or transmission of the virus by vector. The products could inhibit the multiplication of virus *in situ* then their value for vector control would be enhanced.

Keywords: viruses, *Aphis gossypii*, *Bemisia tabaci*, multiplication of virus

1. Introduction

With the above topic aim, the neem oil and citronella oil have given promising results. Mechanical mode of transmission also plays great role in transportation of viruses. Tobacco plant which is systemic host of the virus, here the virus is transmitted by mechanical mode, virus designated as TMV which causes multiplication by local lesions at touching point of new host which comes in contact. The effect was seen by treating plants before inoculation with the virus to see the protective effect on the plant against virus infection and after virus transmission treatments were also given to see their action as inhibitors of virus multiplication and lesion production.

Methods

The experimental work is based on the spraying treatments before pre-inoculation, inoculation and post-inoculation of virus on to the plants. The test products are neem oil, neem soap solution, neem leaf extract and neem seed kernel. Sufficient number of potted plants are prepared in replicates. Observations are compared with that of standard plants of control. Everyday plants were given two treatments of sprayings. The treated plants are placed in suitable environmental conditions.

Observations, findings and analytic computation.

Treatments	Concentration	No. of plants tested	Appearance of lesion number	Plants number showing symptoms %	Prone % for mechanical transmission
Neem oil	2%	30	125	25%	20%
Soap solution	1%	30	200	70%	60%
Citronella oil	0.5%	30	180	65%	55%
Neem leaf extract	10%	30	160	60%	50%
Neem kernel extract	50%	30	150	55%	45%
Control (water)	--	30	500	100%	100%

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Discussion

When analysed observation table after spraying of different test solutions and after giving sufficient time for lesions appearance and for prone percent for mechanical transmission then it is found that neem oil (2%) is most effect as compared to others that is the reason, it is recommended for virus mechanical transmission which is systemic in nature. The 2nd step effective is the neem seed kernel extract (50%). Lesions are counted the 3rd or 4th day after they had appeared fully. The percentage of increase or decrease in lesion number is counted and compared with that of control water-based lesions percent appearance accordingly the prone % found correlated and was by 20%.

Conclusion

Number of lesions give also the concentration of virus found on to the plant leaves. Based on this concentration percentage of virus, spraying of natural plant products are decided.

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