

BIBLIOGRAPHY

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ABSTRACT

The study was conducted to assess the reaction of different plant species against Strawberry Crinkle Virus and potential indicator plant for the virus.

In the greenhouse experiment, Gotukola (*Centella asiatica*), Lavender (*Lavandula angustifolia*), Basil (*Ocinum basilicum*, Amti (*Solanum nigrum*), Anthurium (*Anthurium andreanum*), Spathiphyllum (*Spathiphyllum wallisi*), Kalunay (*Amaranthus spinosus*) and Galinsoga (*Galinsoga parviflora*) showed high disease incidence of Strawberry Crinkle Virus. These plants were found to be potential indicator plants for the virus.

On the other hand, the symptoms varied from leaf yellowing to leaf crinkling. Gotukola showed both leaf crinkling and leaf yellowing. Of all the tests plants, Philodendron showed low disease incidence.



RESULTS AND DISCUSSION

Incidence of Strawberry Crinkle Virus

Results showed that, Gotukola (*Centella asiatica*), Basil (*Ocinum basilicum*) were among the plants with highest disease incidence 7 days after the inoculation (Fig.2-3). These two plants species had the highest disease incidence maybe because of its thin leaf which makes it an easy entry for the virus. On the other hand Impatiens, Spathiphyllum and Katakataka were among of the lowest maybe because of its thick leaves which makes it hard for the virus to enter (Fig.4-6).

During the 14th day, Lavender, Amti, Anthurium, Galinsoga and Spathiphyllum together with Gotukola, Basil, Kalunay and Lagundi were among the plants with highest disease incidence (Fig.7-14). Amti, Lavender, Anthurium, Galinsoga and Spathiphyllum where included among the highest maybe because of their soft succulent leaves. Philodendron has the least disease incidence (Fig.15). Philodendron's low disease incidence maybe attributed to its thick leaves, though belonging to one family with anthurium, philodendron was less susceptible compared to others.

Indicator plants react diagnostically to certain viruses. They can be used to distinguished between these viruses, usually by observing immunity to one and susceptibility to others. Thus, indicator plants are important in diagnosing plant virus diseases for they provide some symptoms that indicate to where the infecting virus group particularly belongs.

Table 1. Incidence (%) of strawberry crinkle virus on mechanically inoculated plant species



PLANTS	COMMON NAME	SCIENTIFIC NAME	INITIAL NUMBER OF LOCALLY INFECTED PLANTS, 7 DAYS AFTER INOCULATION	PERCENT INCIDENCE	FINAL NUMBER OF SYSTEMATICALLY INFECTED PLANTS, 14 DAYS AFTER INOCULATION	PERCENT
P1	Gotukola	<i>Centella asiatica</i>	10/10	100	10/10	100
P2	Lavender	<i>Lavandula angustifolia</i>	9	90	10	100
P3	Basil	<i>Ocimum basilicum</i>	10	100	10	100
P4	Lagundi	<i>Vitex negundo</i>	5	50	7	70
P5	Stevia	<i>Stevia rebaudiana</i>	8	80	9	90
P6	Amti	<i>Solanum nigrum</i>	8	80	10	100
P7	Kalunay	<i>Amaranthus spinosus</i>	6	60	10	100
P8	Tarragon	<i>Artemisia dracunculus</i>	8	80	9	90
P9	Sage	<i>Salvia officinalis</i>	5	50	9	90
P10	Oregano	<i>Oreganum vulgare</i>	5	50	9	90
P11	Anthurium	<i>Anthurium andreanum</i>	8	80	10	100
P12	Peperomia	<i>Peperomia caperata</i>	4	40	8	80
P13	Impatiens	<i>Impatiens walleriana</i>	3	30	9	90
P14	Spathiphyllum	<i>Spathiphyllum wallisi</i>	3	30	10	100
P15	Miniature Roses	<i>Rosa hybrids</i>	4	40	8	80
P16	Philidendron	<i>Philodendron selloum</i>	5	50	5	50
P17	African Violets	<i>Saintpaulia ionantha</i>	7	70	7	70
P18	Galinsoga	<i>Galinsoga parviflora</i>	5	50	10	100
P19	Katakataka	<i>Bryophyllum pinnatum</i>	3	30	7	70





Fig. 1 Strawberry Plant Exhibiting Strawberry Crinkle Virus



Fig.2 Reaction of Gotukola to Strawberry Crinkle Virus 7 Days After Inoculation



Fig. 3 Reaction of Basil to Strawberry Crinkle Virus 7 Days After Inoculation



Before and After Inoculation, Plants with Highest Disease Severity 7 Days After Inoculation



Fig. 4 Reaction of Spathiphyllum to Strawberry Crinkle Virus 7 Days After Inoculation



Fig. 5 Reaction of Katakataka to Strawberry Crinkle Virus 7 Days After Inoculation

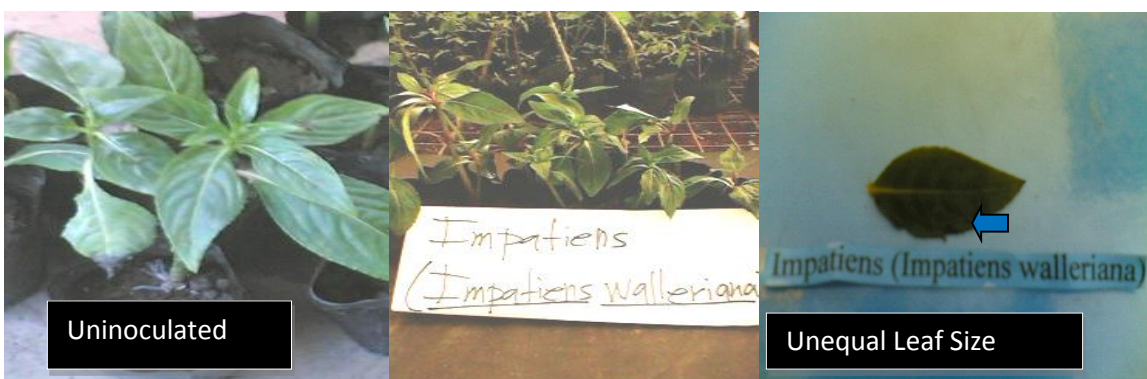


Fig. 6 Reaction of Impatiens to Strawberry Crinkle Virus 7 Days after Inoculation

Plants with Lowest Disease Incidence, 7 Days



Fig. 7 Reaction of Lavender to Strawberry Crinkle Virus 14 Days After Inoculation

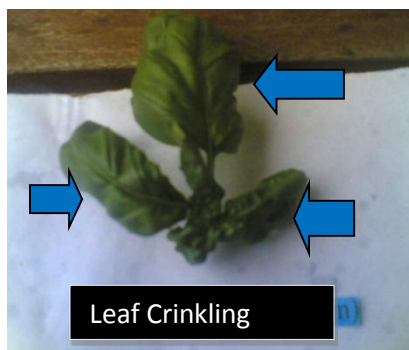


Fig. 8 Reaction of Basil to Strawberry Crinkle Virus 14 Days After Inoculation

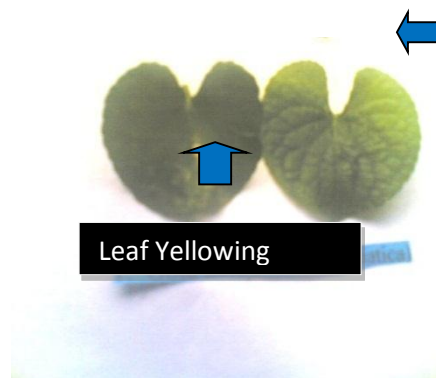


Fig. 9 Reaction of Gotukola to Strawberry Crinkle Virus 14 Days After Inoculation



Fig. 10 Reaction of Anthurium to Strawberry Crinkle Virus 14 Days After Inoculation

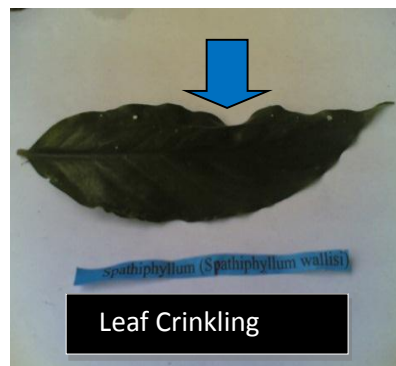


Fig. 11 Reaction of Spathiphyllum to Strawberry Crinkle Virus 14 Days After Inoculation



Fig. 12 Reaction of Amfi to Strawberry Crinkle Virus 14 Days After Inoculation



Fig. 13 Reaction of Kalunay to Strawberry Crinkle Virus 14 Days After Inoculation



Fig. 14 Reaction of Galinsoga to Strawberry Crinkle Virus 14 Days After Inoculation

14 Days After Inoculation, Plants with Highest Disease Incidence

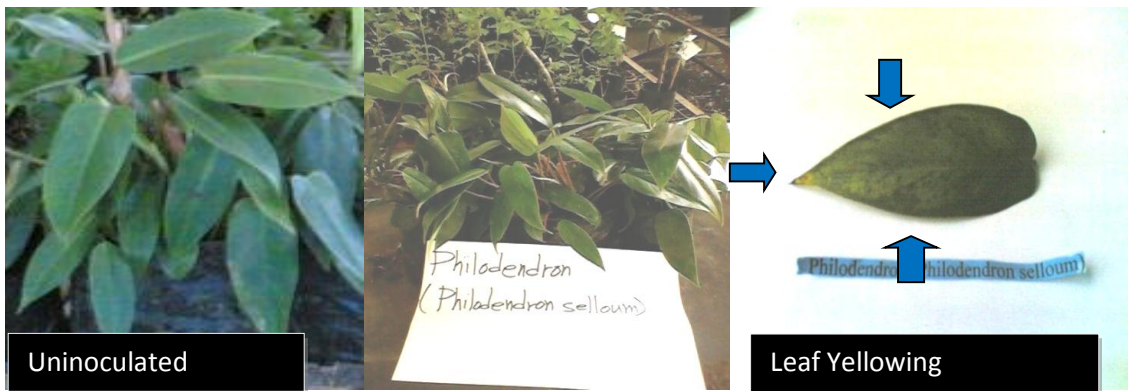


Fig. 15 Reaction of Philodendron 14 Days After Inoculation

Plant with Least Disease Incidence, 14 Days After Inoculation



SUMMARY, CONCLUSION AND RECOMMENDATION

Summary

The study aimed to assess the reaction of different plant species to Strawberry Crinkle Virus and identify potential indicator plants.

It was found that the lowest incidence of strawberry crinkle virus was from Philodendron with a disease incidence of 50%. The low disease incidence can be attributed to its thick leaves.

Gotu kola, Lavender, Basil, Amti, Anthurium, Peperomia, Spathiphyllum, and Galinsoga had the highest disease incidence of 100%. Symptoms on the test plants appeared as leaf distortion, yellowing of the leaf, and leaf crinkling. In the Araceae family which Galinsoga, Spathiphyllum and Anthurium belong, all test plants show the same reaction to strawberry crinkle virus which was leaf yellowing. While Lavender and Basil belonging to Laminaceae family had also the same reaction, which was leaf crinkling.

Gotu kola and Amti on the other hand had unequal leaf. Kalunay also had unequal leaf size with yellowing on its midrib. The results of the study suggest that all of the tests plants were potential indicators plant for the Strawberry Crinkle Virus because most of them exhibited high disease incidence.

Conclusion

The different test plants showed different reaction to Strawberry Crinkle Virus. Symptom Exhibited were similar to symptoms in infected strawberry, yellowing and crinkling. The plants may be used as test plants to identify Strawberry Crinkle Virus.



Recommendation

It is recommended that farmers should rogue weeds like Amti, Kalunay and Galinsoga from the farm for they serve as alternate host of Strawberry Crinkle Virus. Farmers should avoid planting lavender, basil, spathiphyllum, anthurium and gotu kola near the strawberries. For these plants are high potential alternate host of SCV.



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