

Extension Fact Sheet 5: Chilli Viruses



Common name: Chilli viruses

Scientific name: *Cucumber mosaic virus*; *Tomato mosaic virus*; possibly other viruses.

Hosts: *Cucumber mosaic virus* has a very wide host range, including cucurbits, tomato, banana, tobacco and many species of legumes – there are many strains. *Tomato mosaic virus* also has a wide host range: other than tomato it infects tobacco and numerous weeds. The host range of these viruses in Solomon Islands is not well known.

Damage

Leaves show yellow spots and blotches, curls and crinkles when infected with *Cucumber mosaic virus*. Infections with *Tomato mosaic virus* produce a general yellowing of the leaves. However, it is difficult to identify these viruses by symptoms alone.

Usually, symptoms are not severe, and it is likely that yields are not reduced greatly. Plants continue to produce acceptable crops of fruits. However, some plants near Auki, Malaita, have shown severe symptoms of yellow, distorted, bunched leaves, and fruit production on these plants is low (photo). It is not known what viruses are present in these plants¹.

Biology and Life Cycle

Cucumber mosaic virus has a wide range of hosts among crops and weeds. Aphids (green fly) spread the virus from plant to plant. The aphid, *Aphis gossypii*, is common

¹ Dr Denis Persley, Queensland Department of Primary Industries & Fisheries suggests that the symptoms might be due to a whitefly-transmitted geminivirus.

in Solomon Islands and is possibly the most important means of spread. Aphids spread *Cucumber mosaic virus* in a non-persistent way; this means that they pick up the virus when feeding, and transfer it immediately to healthy plants on their mouthparts.

Tomato mosaic virus is easily spread as it is not easily destroyed and is highly infectious. The main sources of infection are:

- The seed; the virus contaminates the outside of the seed;
- Old crops of tomato and chilli; these serve as a source of virus for new crops;
- Undecomposed plants in the soil;
- People handling the plants, seedlings in particular;
- Other crops (e.g., tobacco), and weeds (e.g., Cape gooseberry, *Physalis* spp.).

Signs and Symptoms

Look for yellow and green patterns on the leaves, mild distortions and curling. It is not possible to be sure which virus is present in plants with these symptoms; sap from leaves needs to be sent for analysis using antisera or molecular methods.

Management

Cultural control:

- For *Cucumber mosaic virus*, do not plant new plots of chilli next to old ones; they will act as a source of the virus. Pull out and burn the old plants before planting the new crop.
- For *Tomato mosaic virus*, destroy old crops as soon as possible; and avoid handling seedlings, especially after handling older plants.

Resistant varieties:

Nothing is known about the resistance of chilli varieties to these two viruses.

Chemical control:

This is not an option. Insecticides take time to kill insects; by the time the aphids are dead, they have already fed and passed on the virus.