

VIRUS DISEASES OF VANILLA IN FIJI



Leaf distortion, vine blackening and dieback caused by vanilla potyvirus



A healthy vanilla plant.

The viruses

Vanilla is attacked by viruses which cause disease. Viruses are too small to be seen by the human eye, but they can be seen using a powerful microscope.

Three kinds of virus have been found in vanilla in Fiji; these are shown in Figs. 1, 2 and 3. The names of these are: **cymbidium mosaic virus**, **odontoglossum ringspot virus** and **vanilla potyvirus**.

Cymbidium mosaic virus and odontoglossum ringspot virus are found in ornamental orchids throughout the world, but the vanilla potyvirus has only been found in vanilla in the South Pacific.

Once vanilla plants become infected by viruses they stay infected for life. The viruses travel in the sap and move into the new shoots as the plant grows.

The vanilla potyvirus causes a disease which kills the plants. The disease must be controlled to prevent crop loss. This leaflet explains how this can be done in Fiji.

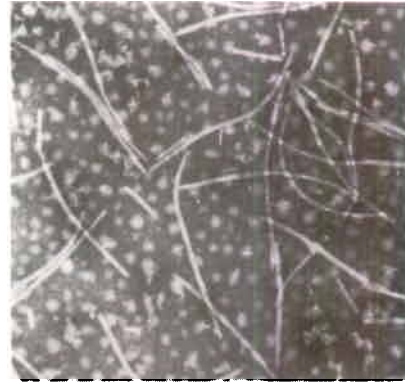


Fig. 1: *Cymbidium mosaic virus*.

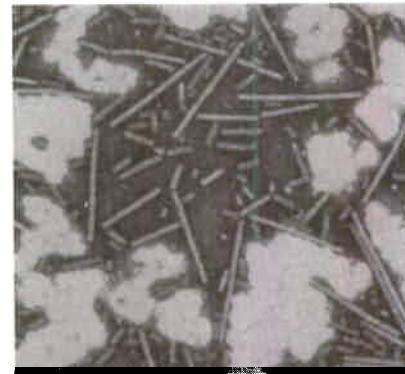


Fig. 2: *Odontoglossum ringspot virus*.

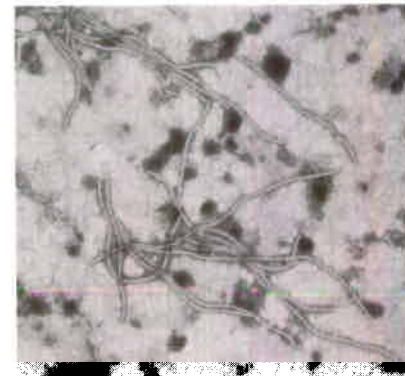


Fig. 3: *Vanilla potyvirus*.

The disease

1. Signs of the disease are first seen on the new leaves. They have yellow or white patches, and are distorted with uneven surfaces and edges. Young diseased leaves are shown in Figs 4 and 5, and a healthy leaf in Fig. 6.
2. As these leaves get older, small brown spots sometimes appear (Fig. 7). Larger brown patches may occur on the stems (Fig. 8).
3. Eventually, the leaves fall off and the stems die. Following the first signs of disease it may take several months to a year for the whole plant to die.



Fig. 4: Shoot-tip with distorted leaves.



Fig. 5: Distorted leaf with yellow patches.



Fig. 6: Healthy leaf.



Fig. 7: Brown spots on older leaf.



Fig. 8: Dying vine with black patches.

Spread of the disease

1. The disease may be spread to new vanilla plots in cuttings taken from diseased plants. Cuttings may look healthy, but still have the virus inside.
2. Sap from a diseased plant will contain virus. If this sap is passed to a healthy plant, on hands or tools, then that plant will become diseased.
3. The virus can also be spread from plant to plant by insects called aphids. These insects are not common on vanilla, and it is not known how important they are in spreading the virus.

Disease control

Good control of the disease is possible if all the advice given below is followed:

1. Take cuttings only from healthy, fast growing plants. NEVER use cuttings from a diseased plant, even if part of the plant looks healthy. It is best to take cuttings from vanilla plots which have never shown signs of disease.
2. Pull out plants with disease immediately. Burn or bury these plants. This is important in order to stop further spread of the disease. Do not replant until the diseased plants have been pulled out. Wait for one month before replanting.
3. After handling diseased plants: a) wash hands well with soap; b) heat cutting-tools in a flame or place them in boiling water for five minutes.
4. Keep vanilla crops free of all weeds, as these may be a source of aphids.

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REMEMBER:

Contact your MPI extension officer if you have any questions about the virus diseases of vanilla.