



Virus diseases of orchids

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Orchids may be infected by a number of different plant viruses. As early as 1943 it was thought that virus may have been responsible for yellowing symptoms observed on orchid leaves. Since then, 10 viruses have been identified in orchids. The two viruses most important and widespread in Australian cultivated orchids are Cymbidium mosaic virus (CyMV) and Odontoglossum ringspot virus (ORSV).

Orchid viruses are known to reduce plant vigour and in the case of Cattleyas, to reduce flower quality due to striping and flecking.

Cymbidium mosaic virus (CyMV)

CyMV causes yellowing of the leaves that forms a mosaic pattern followed by a blackening and death of that area of the leaf along the leaf margins. More specifically, CyMV has been shown to cause colour breaking in Cattleya flowers.

Odontoglossum ringspot virus (ORSV).

ORSV was first known to cause a yellowing ringspot symptom on leaves of *Odontoglossum grande* Lindl. It is now more commonly known to cause a characteristic diamond shaped yellowing of *Cymbidium* leaves. This "diamond mottle" is also associated with yellowing streaks in the cymbidium.

Symptoms

The symptomatology of orchid virus diseases is confusing to professional and amateur orchid growers, as well as plant pathologists. Virus induced symptoms on the leaves of a particular plant depend on many factors including plant genera and the environment.

An infected host plant that appears symptomless under one set of environmental conditions may show prominent

symptoms under different light and temperature conditions. It must be remembered that an orchid can have a virus infection without showing any symptoms.

Transmission and control

Both CyMV and ORSV are only transmitted by humans through handling and division of orchid plants. There is no known transmission of these viruses by insects or through seed.

Once an individual plant is infected, it is impossible to cure it. Control of virus diseases in orchid collections is possible if you have good management practices that do not permit spread of virus from any infected plants to healthy ones. Therefore, when propagating plants, all propagation implements such as knives, razor blades, benches and any other tools, should be sterilised. Cutting implements should be dipped in alcohol or methylated spirits and flamed, and benches should be washed down thoroughly with soap and hot water.

If a new plant is introduced into a collection, the plant should be isolated from the main collection for at least two months under low light intensity conditions. Under these conditions, if a virus is present in the plant, symptoms are more likely to be expressed.

However, some infected plants never produce symptoms. If a plant has developed symptoms of a virus infection, it must be separated from the orchid collection or destroyed.

Since not all virus-infected plants express symptoms, visual assessment does not detect all infected plants. The most reliable methods available for detection of virus infection are laboratory techniques such as electron microscopy and serology.

For effective pest and disease control, correct diagnosis is essential. A commercial diagnostic service is available at the Institute for Horticultural Development. For further information, contact the Diagnostic Service. ph: (03) 9210-9222 or fax (03) 9800 3521.

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