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A New Cactus Virus

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Investigation of a *Zygocactus* X *Schlumbergera* hybrid (Christmas Cactus), which showed no symptoms, led to the isolation of a strain of cactus virus X (CVX) and another, new virus for which the common name zygocactus virus (ZV) is suggested.

Crude sap from a cladophyll of this cactus hybrid inoculated to *Chenopodium quinoa* Willd. caused many local lesions after about 6 days, and some days later slight distortion and curling of young leaves. While the local lesions were typical of CVX, the systemic symptoms supported the existence of a second virus (ZV). Mechanical transmission of sap from systemically infected *C. quinoa* to *Nicotiana glutinosa* L., which is not a host for CVX, caused systemic infection and resulted in light green spotting of the younger leaves. The virus infected but caused no symptoms in *Nicotiana clevelandii* Gray and *Solanum demissum* Lindl. The thermal inactivation point of ZV in crude sap of these four herbaceous hosts was at 10 min. exposure 72 to 74°.

Electron microscopy with leaf dip preparation (Brandes, 1957) from *Chenopodium quinoa, Nicotiana glutinosa* and *N. clevelandii* revealed a few flexuous rods about 580 nm. long. The concentration of virus particles was very low in all herbaceous hosts. It was not possible to identify ZV in crude sap of the cactus hybrid because of its low concentration and its similar shape to CVX, which occurs at a high concentration in this plant. The normal length of ZV places it in the potato virus X group, which includes potato aucuba virus (PAV), CVX, potato virus X (PVX) and others (Brandes, 1964). PAV and ZV have the same normal length and produce the same kinds of symptoms on some hosts (Horvath, 1965; Paul & Bode, 1956). Since this cactus hybrid is neither a native nor a naturalized plant in Europe, it might have become infected by PAV under greenhouse conditions. On the other hand, the temperature inactivating point of ZV is nearly 10° higher than that of PAV (Bode, 1968). Micro-precipitin tests demonstrated that ZV is not identical with PAV. A PAV antiserum with a titre of 1/1280 did not react with partially purified ZV (titre 1/40), nor did a ZV antiserum (titre 1/320) react with partially purified PAV (titre 1/160). The results with those two antisera exclude identity but not a more remote serological relationship between the two viruses. Further investigations with more potent antisera are in progress. Partially purified ZV was also tested with two antisera against CVX and one antiserum against PVX. These antisera had homologous titres between 1/4000 and 1/5000 but neither reacted with ZV.

These results and the findings of Brunt (1966) on narcissus mosaic virus (a flexuous rod of 568 nm., when shadowed), support the idea, also supported by Bercks (1969), that there may be groups of viruses with a normal length between 560 nm. and 600 nm. distinct from the potato virus X group.

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