

Cells of Red Kennedy pea plants infected with both viruses not only contain particles of both, but also show the intracellular changes characteristic of both (Fig. 2).

We wish to obtain natural variants of these viruses and (A.G.) would be very pleased to receive samples of leaves of *Kennedia* spp. (preferably named) from other parts of Australia to check for these viruses.

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Cucumber Mosaic Virus in Gerbera

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Cucumber mosaic virus (CMV) has been isolated by sap transmission from diseased gerbera (*Gerbera jamesonii* Bolus) plants from two nurseries at Bundaberg and from a home garden at Brisbane. The flowers of the infected plants had distorted petals with colour break, while some of the leaves were mottled and reduced in width. Gerbera seedlings mechanically inoculated with the virus developed similar symptoms in the systemically infected leaves, but later growth was often symptomless.

The virus had a host range similar to that described for cucumber mosaic virus (1,3) and was transmitted in a non-persistent manner by the aphid *Myzus persicae*. Polyhedral particles c. 25 nm in diameter were observed in negatively stained preparations obtained from the sap of infected *Nicotiana clevelandii* by butanol clarification and two cycles of differential centrifugation. The purified virus formed a single line of precipitation in gel diffusion tests against an antiserum to the Q strain of CMV (2), a strain originally isolated from capsicum in Queensland.

A distinct strain of CMV was also isolated from gerbera. It was not transmitted by over 150 *M. persicae* in 6 tests, and it rarely produced systemic infection in cucumber. Single joining precipitation lines formed in gel diffusion tests of this virus against its homologous antiserum and antisera to the Q strain of CMV, a Californian cucurbit strain of CMV, a Queensland gladiolus strain of CMV, and the gerbera CMV strain previously described, but not against an antiserum to tomato aspermy virus.

Cucumber mosaic virus has not been recorded previously as the cause of a disease in gerbera.

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Rust on *Xanthium pungens* in Australia

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A rust disease has been recorded for the first time on *Xanthium pungens* (Noogoora burr) in Queensland. As far as can be determined, this is the first Australian occurrence of the disease. The original collection was from Brookfield, near Brisbane, on 1st February, 1975.

Reddish-purple to brown, rounded lesions, often with a wide yellow margin, occur on the upper surfaces of infected leaves. On the underside of each spot is a large, dark reddish-brown pulvinate compound sorus consisting of many closely grouped individual pustules. A few pustules are sometimes found on the upper surface, and globose internal sori occur immersed in the mesophyll. Infection of petioles and stems also occurs. The lesions are \pm elliptical, often brown and sunken in the centre, with a raised yellow to brown rim, up to ca. 3 x 1 cm. on the stems or larger when confluent. In addition to some superficial pustules, these cankers also contain internal sori scattered through the cortical tissue. Pustules also occur on the fruit, both externally and internally on the pericarp.

The rust is microcyclic, with only teliospores present. Local collections agree closely with descriptions and specimens of *Puccinia xanthii* Schw. The only other rust recorded on *Xanthium* in the U.S.A. (1) is *P. canaliculata* (Schw.) Lagerh., a macrocyclic heteroecious species with uredinia and telia on *Cyperus* spp., and pycnia and aecia on *Xanthium*. The microcyclic *P. xanthii* is correlated with this species (2). In addition to *Xanthium*, *P. xanthii* is recorded on species of *Ambrosia*. It is known from the continental U.S.A., Hawaii, Canada, Mexico, the West Indies, Japan, and Europe (2,4). Recently, interest has been shown in its possible introduction as a biocontrol agent for Noogoora burr and Bathurst burr in Australia by Hasan (3), who found that a northern Italian strain of the rust infected both these hosts but not *Helianthus*, *Dahlia* or *Zinnia*.

Local populations of *X. pungens* are highly susceptible to the biotype(s) of *P. xanthii* now established here. Following wet periods in March, abundant new leaf infections occurred and resulted in rapid withering and death of heavily affected leaves. Although severely rusted plants still flowered and set seed, there is a probability that seed viability will be reduced (3).

The Queensland distribution as currently known suggests a single area of establishment from which the rust is gradually spreading. Up to early April, it included Beaudesert near the Queensland-N.S.W. border, Gympie on the near north coast, Gatton in the Lockyer Valley and Kingaroy in the south Burnett region. There are several reliable 'negative' records by experienced collectors for Bowen, Rockhampton and Biloela in northern and central Queensland, and west to Quilpie in southern districts. The teliospores in this rust are firm-pedicelled and germinate *in situ* without a dormant period. Its distribution by natural means may therefore be somewhat slower than one whose urediniospores or teliospores are readily airborne.

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