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LUCERNE MOSAIC VIRUS IN QUEENSLAND

By G. M. BEHNCKEN, B.Agr.Sc.\*

SUMMARY

Lucerne mosaic virus was identified on six new hosts in Queensland, viz. *Chenopodium album*, *Sonchus oleraceus*, *Lamium amplexicaule*, *Stachys arvensis*, *Medicago polymorpha* and *Solanum nigrum*.

Symptoms of lucerne mosaic virus (LMV) have previously been recorded in south-eastern Queensland on potato, white clover and lucerne. Recent surveys in the Lockyer Valley area have disclosed some new natural hosts of this virus.

In late 1964, a considerable number of potato plants exhibiting calico symptoms were observed in a field adjacent to a permanent pasture of white clover which was found to be generally infected with both the calico strain of LMV and the common strain resembling, on host range and symptoms, that described by Swenson and Venables (1961) in Canberra. The distribution of the calico-infected potato plants suggested that the adjacent LMV-infected white clover was acting as an inoculum source for aphid transmission of the virus. Many clover plants in this area were also infected with white clover mosaic virus.

Recently, several annual weed species growing in the same white clover pasture and exhibiting virus-like symptoms were indexed to a range of susceptible test plants and found to be new hosts of LMV in Queensland. That the six new host species belong to five different families is consistent with the wide experimental host range of this virus. In the following list the symptoms given are those occurring in the field at the time of collection (June-July).

Host plant	Symptoms
CHENOPODIACEAE	
<i>Chenopodium album</i> L. (fat hen) . .	Variable green mottle on lower leaves; more severe and chlorotic towards the apex, with some distortion of the apical leaves

\* Division of Plant Industry, Queensland Department of Primary Industries.

## COMPOSITAE

- Sonchus oleraceus* L. (milk thistle) Bright yellow leaf mottle varying from chlorotic vein-banding to scattered irregular chlorotic blotches

## LABIATAE

- Lamium amplexicaule* L. (deadnettle) Symptomless  
*Stachys arvensis* L. (stagger-weed) Irregular chlorotic blotches on upper leaves, with some interveinal chlorosis on lower leaves

## LEGUMINOSAE

- Medicago polymorpha* L. var. *vulgaris* (Benth.) Shinnars (burr medic) Mild green leaf mottle

## SOLANACEAE

- Solanum nigrum* L. sens. lat. (black-berry nightshade) Irregular bright yellow chlorotic mottle

Although at least nine distinct strains of LMV have been reported, mainly in North America (Halisky, Houston, and Magie 1960), only three have been recorded in Queensland, viz. the calico strain, the common strain and a "severe" strain which has not yet been correlated with a known strain. The virus isolates from *Chenopodium album*, *Solanum nigrum*, *Sonchus oleraceus*, *Stachys arvensis* and possibly that from *Lamium amplexicaule* appear to be the calico strain of LMV, while the isolate from *Medicago polymorpha* appears to be the common strain. The "severe" strain of LMV, isolated from white clover, differs from the other two strains in inducing marked epinasty and systemic vein necrosis, in addition to necrotic local lesions, in several varieties of bean, a systemic mottle in cowpea and vein necrosis in potato.

Two isolates of LMV, one of which was the "severe" strain, have been purified by differential centrifugation (Gibbs, Nixon, and Woods 1963) and electron micrographs of the purified preparations in each case show short bacilliform particles of similar size and shape to those obtained by Gibbs, Nixon, and Woods (1963). This confirms the identification of LMV based on experimental host range, symptoms and physical properties of the virus.

## REFERENCES

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