



Fig. 1. *Hardenbergia mosaic virus* (HarMV) symptoms on *Hardenbergia comptoniana*; typical purple flowers on an uninfected plant (a); mild mosaic symptoms of HarMV (b); and yellow mosaic symptoms of HarMV (c). Photo credits: C. Webster (a), (b). S. Wylie (c).

Common Name: *Hardenbergia mosaic virus* (HarMV)
Disease: Hardenbergia mosaic
Classification: F: *Potyviridae*, G: *Potyvirus*

A mosaic disease was found on the creeper *Hardenbergia comptoniana*, which is endemic to south Western Australia. Research found the responsible agent was *Hardenbergia mosaic virus* (Fig. 1) which is probably indigenous to south Western Australia. The symptoms of infection can range from a mild mosaic to more severe mosaic symptoms with leaf deformation. The virus was found at eight locations across the range of its host *H. comptoniana*. High (~20%) nucleotide diversity of the coat protein gene indicates that this virus evolved in Western Australia.

Host Range:

Only two natural hosts are known (*H. comptoniana* and *H. violacae*). Sap and aphid inoculations transmit the virus to 12 other species in four families (Amaranthaceae, Chenopodiaceae, Fabaceae and Solanaceae). Different strains of the virus show major differences in their experimental host range and only *Nicotiana benthamiana* is known to be susceptible to all strains. Most strains of the virus also infect virus indicator species such as *Chenopodium quinoa* and *C. amaranticolor*. Three agriculturally important species are also able to be infected experimentally (*Medicago truncatula*, *Lupinus angustifolius* and *L. luteus*). Surveys to detect natural infection of these species has not been undertaken.

Impact:

The impact on native plants is unknown, but stunting of infected plants may impair their reproductive success. Neither *H. comptoniana* or *H. violacae* are threatened species. As no natural infection of HarMV in economically important species is known, the effect on agriculture is likely to be minimal.

Symptoms and Diagnosis:

Infected plants often display mosaic symptoms on young leaves, however, asymptomatic infection is also known to occur. Leaf symptoms can range from chlorosis (Fig. 1b) to bright yellow spots (Fig. 1c). More severe infections show leaf deformation and leaves have a puckered or blistered appearance. The most reliable way to identify virus infected samples is PCR amplification using HarMV-specific primers.

Control:

HarMV is a natural part of the environment and control methods are not required.

Distribution:

Virus infected samples have been found along the West Australian coast from Gilderton in the north to Pemberton in the south. Percentage incidences of HarMV infected plants ranges from 10% to over 70%. A single infected *H. comptoniana* plant was found in a private garden in Canberra. It is possible that infection of HarMV in *H. violacae* occurs in eastern Australia.

Further Reading:

Webster *et al.*, (2007) *Plant Pathology* 56, 729-742

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