



**Fig. 1** Yellow tailflower mild mottle virus infecting a *Anthocercis littorea* (yellow tailflower) plant exhibiting branch tip death, on a chili plant showing leaf chlorosis, and on *Nicotiana benthamiana* showing whole plant collapse, and close up of yellow tailflower.

**Disease:** Yellow tailflower mild mottle **Causal agent:** Yellow tailflower mild mottle virus

**Classification:** D: Virus, F: Virgaviridae, G: Tobamovirus

*Yellow tailflower mild mottle virus* (YTMMV) was first identified in 2013 naturally infecting the indigenous solanaceous plant *Anthocercis littorea* (yellow tailflower) on coastal dunes and rock faces north of Perth in Western Australia. Infected plants exhibited mild chlorosis and mottling on their leaves, and in some cases, stem dieback.

**Host range and Distribution:** So far, this virus has been identified only in yellow tailflower, and only from two populations north of Perth, Western Australia. A collection of wild *A. littorea* plants made by Prof. Adrian Gibbs in September 2013 from the Albany region south of Perth, was not infected with YTMMV.

**Biology:** Like its close relative Tobacco mosaic virus (TMV), YTMMV is transmitted readily by contact between leaves of adjacent plants. Great care must be taken to separate plants and to prevent transmission by brushing against infected plants, or by touching them with tools, hoses etc. Vectors are not known. Seed transmission has not been tested in its natural host. YTMMV is most closely related to other tobamoviruses that infect solanaceous hosts. It is the first member of the Tobamovirus genus to be identified from an Australian native plant, and its presence is a tantalising indication that others may have evolved in the unique Australian flora.

**Symptoms:** In its natural host, YTMMV appears to induce mild symptoms of chlorosis, and possibly branch tip dieback. When inoculated to *N. benthamiana* and *N. umbratica* seedlings, symptoms were rapid and severe. Initial symptoms were leaf curling, followed by plant collapse resembling water stress, then necrosis. Older plants reacted differently.

Interveinal bleaching often occurred and flowers were distorted and dark-green islands were present on leaves. On chilli (*Capsicum annuum*) young leaves of infected plants became chlorotic within 7 days post-inoculation.

**Impact and Quarantine risk:** There is no commercially-available assay for YTMMV, so detection is difficult. Oligonucleotide primers should be based on the complete genome sequence available on sequence databases (GenBank accession NC\_022801). YTMMV is not recorded from commercial species. The recently opened Indian Ocean Drive, which runs past the original collection site, may provide opportunities for a mechanically-transmitted tobamovirus to extend its range to other hosts, potentially to the commercially produced solanaceous crops of tomatoes and capsicums that are cultivated in areas surrounding the greater Perth metropolitan region nearby.

**Management:** YTMMV is an example of a potential plant pathogen originating from the Australian flora. As far as we know, it is currently confined to indigenous species, where it appears to induce a mild disease. Should it become established in commercial crops, rouging will be necessary to eliminate source plants. Before efficient management strategies can be advised, more research is needed to establish if there are vectors capable of transmitting the virus, and if it is seed-transmitted.

**Reference:** Wylie S, Li H, Jones M (2013) Yellow Tailflower mild mottle virus: a new tobamovirus described from *Anthocercis littorea* (Solanaceae) in Western Australia. *Archives of Virology*. DOI 10.1007/s00705-013-1891-4.

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