

Tymovirus Isolation and Genomic RNA Extraction

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1. Introduction

At least 20 tymovirus species are known. The generic acronym, tymovirus, comes from *turnip yellow mosaic virus* (TYMV), the name of the first to be described (*1*), now the type species. The tymoviruses infect dicotyledonous angiosperms, mostly those that have the C3 photosynthetic pathway; few have been recorded in crop plants, and none are known to infect monocotyledonous angiosperms. They cause bright yellow mosaics, vein-clearing, and mottling. Their natural vectors, when known, are beetles, mostly halticid or galerucid flea beetles. Only four tymoviruses have been recorded as seed-borne (*2*).

Tymoviruses have been recorded from all continents except Antarctica. Most species have only been recorded from a single continent and often from only a single noncrop plant species, after which they are named; cacao yellow mosaic, okra mosaic, and voandezia necrotic mosaic viruses from Africa; abelia latent, desmodium yellow mottle, eggplant mosaic, passiflora yellow mosaic, physalis mosaic (syn. BMV-Iowa), plantago mottle, potato Andean latent, and wild cucumber mosaic viruses from the Americas; kennedyia yellow mosaic virus from Australia; belladonna mottle, dulcamara mottle, erysimum latent, ononis yellow mosaic, and scrophularia mottle viruses from Europe; melon rugose mosaic virus from the Middle East; turnip yellow mosaic from Australia and Europe, clitoria yellow vein from Africa and Southeast Asia, and poinsettia mosaic virus, which is only tentatively grouped with the tymoviruses, is found in ornamental poinsettias worldwide.

The serological relationships of tymovirus virions correlate with their known genomic sequence differences and place them in four groups: the turnip yellow mosaic viruses, the legume-infecting species plus cacao yellow mosaic and okra mosaic, those infecting solanaceous plants plus ononis yellow mosaic and