

Viroids (Family: Pospiviroidae)

What are they?

The Pospiviroidae are a family of viroids, including the first viroid to be discovered, Potato spindle tuber viroid (PSTVd). Viroids are one of the smallest known pathogens of plants. This fact sheet covers Pepper chat fruit viroid (PCFVd), Tomato chlorotic dwarf viroid (TCDVd), Tomato apical stunt viroid (TASVd), Tomato planta macho viroid (TPMVd), Columnea latent viroid (CLVd), Citrus exocort viroid (CEVd) and others.

How are they transmitted?

There are a variety of ways viroids are transmitted. For example, TASVd can be transmitted mechanically and via seed. Bumblebees can also transmit TASVd from infected plants to healthy plants during pollination. TPMVd has not been shown to be transmitted by seed but is transmitted mechanically and by aphids. It is also thought that viroids are present in wild plants or ornamentals (but do not show symptoms) and may transfer to crops.

What does it look like?

Symptoms are similar to those caused by viruses (Figs 1 and 2). Stunting and shortening of internodes is a dominant symptom of infected plants. Other symptoms include leaf discoloration, distortion, necrotic or chlorotic lesion on plants or leaves, yellowing of leaves and epinasty (bending outwards and downwards). Fruit either may not form or are a reduced size and remain discoloured.

Why are they important?

Although there is little specific information available on the economic impact of viroids, it can be assumed production volumes and quality will be affected due to the effect they have on foliage and fruit development.

Where are they present?

As a group, Pospiviroids have been found in virtually all major regions throughout the world although not all are present in every region. In many cases they are identified as eradicated or 'a few occurrences'.

How can I protect my industry?

Check your production site frequently for the presence of new pests and unusual symptoms. Make sure you are familiar with common pests of your industry so you can recognise something different.



Fig 1: Viroid symptoms on tomato plants . Image: © 2017 cra.wallonie.be all rights reserved

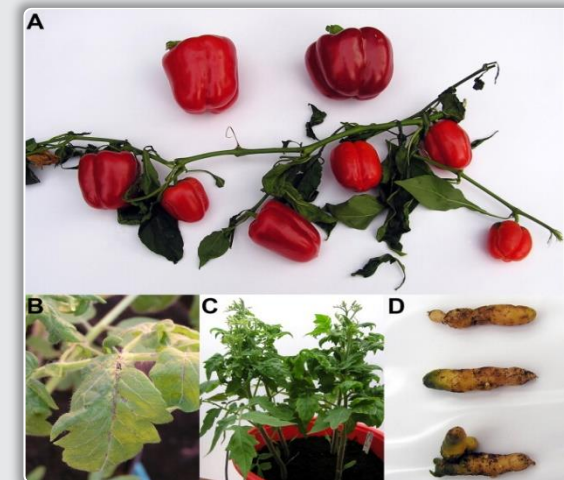


Fig 2: PCFVd symptoms on a range of plants including tomato plants . Image: © Elsevier (Verhoeven, 2009)