

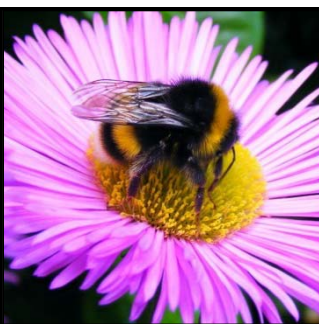


Detection and Epidemiology of Pospiviroids

Pospiviroids are plant pathogens, composed only of infectious RNA molecules, which are both latent on many ornamentals and harmful for cultivated plant species like tomato, potato, sweet pepper, citrus or chrysanthemum.

Throughout the world, these pathogens cause sporadic outbreaks on susceptible annual crops while they often remain undetected although widespread on ornamentals. To assess the risk posed by pospiviroids in EU, the link between this potential ornamental reservoir and the outbreaks on Solanaceae as well as the role of infected seeds in these contaminations have been recently reviewed by the EFSA panel on plant health (PLH)¹. However, the continuing uncertainty over the role of insects and infected seeds in the spreading of pospiviroids complicated the likelihood assessment of these transmission routes.

On the other hand, the PLH concluded that disinfection measures and the accurate generic detection of pospiviroids are among the indispensable tools for the management of these diseases.



The project DEP2 has focused on these different elements to decrease the uncertainty about the routes of interspecific transmission and seed transmission, evaluate the efficacy of the only approved pospiviroid disinfectant in EU and compare available generic detection methods. The European and Mediterranean Plant Protection Organization (EPPO), is currently working on a Diagnostic Protocol on Pospiviroids and the results from DEP2 will be used to develop the Standard.

Insect transmission

Since the discovery of pospiviroids many studies have focused on the potential role that insects may play in their transmission. In the framework of DEP2, the vectoring capability of the aphid pest *Myzus persicae*, the pollinating agent *Bombus terrestris* and the predatory bug *Macrolophus pygmaeus* was investigated. The results showed that, while individuals of *M. pygmaeus* maintained in contact with pospiviroid infected plants were found negative using RT-qPCR, some tested aphids and bumblebees were positive. Moreover, a transmission event of *Tomato chlorotic dwarf viroid* (TCDVd) from infected petunias to tomato by *B. terrestris* was observed. Even if the isolation of a pathogen from an insect does not guarantee its vectoring capability, nor does experimental transmission necessarily mean that the insect plays an

