

REPORT OF A PRA

Pests: **Potato deforming mosaic virus (PDMV)**
Potato yellow mosaic virus (PYMV)

PRA area: EPPO region

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INITIATION

Reason for doing PRA

Potato deforming mosaic virus (PDMV) and *Potato yellow mosaic virus* (PYMV) have been proposed for addition to the quarantine list. To decide on the status, a PRA for these viruses has to be made.

Taxonomic position of pests

At present the taxonomic position of PDMV is not clear. The virus is supposed to belong to the genus *Begomovirus*, family *Geminiviridae*, although it is not included in the Seventh Report of the International Committee on Taxonomy of Viruses. Therefore, the virus does not meet the criterium 'Is the organism clearly a single taxonomic entity and can it be adequately distinguished from other entities of the same rank?'

PYVM has been identified as a member of the genus *Begomovirus*, family *Geminiviridae*. Identification, however, still is very laborious (Guzman et al., 1997).

The taxonomy and identification of individual begomoviruses is troublesome. Identification is usually based on sequencing the whole DNA-A genome or at least the complete intergenic region of this genome. However, for many isolates of begomoviruses this sequence has not, or only partially, been determined. Therefore, these identifications should be considered tentative.

PYMV might be similar to *Tomato yellow mosaic virus* (Guzman et al., 1997). For PDMV, its membership of the begomoviruses is not established, and its relationship with *Tomato yellow vein streak virus* has not been elucidated (Faria et al., 1997). An additional problem is that begomoviruses quite frequently occur in mixed infections, which favour recombination (exchange of DNA between DNA components) and pseudo-recombination (exchange of DNA components) (Polston and Anderson, 1997). This phenomenon has resulted in an emergence of 'new', poorly characterised begomoviruses in tomato during the last decade. It cannot be excluded that many of these viruses from tomato also may infect and thus pose a risk to other solanaceous crops, like potato.

Therefore, the question arises if PDMV and PYMV, which probably have first been isolated from potato by incident, should be considered separately from the other begomoviruses that may infect solanaceous species. Firstly, for identification, in fact every isolate has to be at least partially sequenced. Secondly, it is questionable if such a consideration is appropriate from the phytosanitary point of view, as also begomoviruses known from other solanaceous crops might infect potato. Thirdly, there is a risk that these viruses will become introduced into the EPPO region by other pathways than potato.

In conclusion, we therefore suggest to focus on begomoviruses of solanaceous plants as a group, instead of dealing with individual poorly characterised viruses. Moreover, at present the poor knowledge on these particular viruses does not validate a qualification as quarantine pests according to the EPPO PRA.

References

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