

PPV strains in the Middle East: Jordan and Syria

Al Rwahnih M., Ismaeil F.

in

Myrta A. (ed.), Di Terlizzi B. (ed.), Savino V. (ed.).
Virus and virus-like diseases of stone fruits, with particular reference to the Mediterranean region

Bari : CIHEAM

Options Méditerranéennes : Série B. Etudes et Recherches; n. 45

2003

pages 95-97

Article available on line / Article disponible en ligne à l'adresse :

<http://om.ciheam.org/article.php?IDPDF=3001778>

To cite this article / Pour citer cet article

Al Rwahnih M., Ismaeil F. **PPV strains in the Middle East: Jordan and Syria**. In : Myrta A. (ed.), Di Terlizzi B. (ed.), Savino V. (ed.). *Virus and virus-like diseases of stone fruits, with particular reference to the Mediterranean region*. Bari : CIHEAM, 2003. p. 95-97 (Options Méditerranéennes : Série B. Etudes et Recherches; n. 45)



<http://www.ciheam.org/>
<http://om.ciheam.org/>

PPV STRAINS IN THE MIDDLE EAST: JORDAN AND SYRIA

M. Al Rwahnih^{1,2} and F. Ismaeil³

¹Dipartimento di Protezione delle Piante e Microbiologia Applicata, Università degli Studi and Istituto di Virologia Vegetale del CNR, Sezione di Bari (Italy)

²Ministry of Agriculture, Queen Rania st. Amman (Jordan)

³Ministry of Agriculture and Agrarian Reform, Hijaz Square, Damascus (Syria)

SUMMARY - A few PPV foci were found during surveys carried out for stone fruit viruses in Jordan and Syria. PPV infections occurred in 3 peach, 2 plum and 2 apricot trees in Jordan and one apricot tree in Syria. PPV isolates were typed later with strain-specific Mabs and tested isolates from both countries were PPV-M strain.

Key words: Middle East, Jordan, Syria, PPV, virus strain, ELISA

RESUME - Des foyers de PPV ont été repérés au cours des prospections réalisées en Jordanie et en Syrie pour la détection des virus des espèces fruitières à noyau. Les isolats du PPV identifiés provenaient de 3 pêchers, 2 pruniers et 2 abricotiers en Jordanie et d'un abricotier en Syrie. Les isolats de PPV ont été typés successivement avec des Mabs spécifiques et tous les isolats des deux pays testés appartenaient à la souche PPV-M.

Mots-clés: Moyen-Orient, Jordanie, Syrie, souche virale, ELISA

INTRODUCTION

Plum pox virus (PPV) causes heavy losses to stone fruit production. It is reported from the great majority of Mediterranean countries, where its introduction is relatively recent (Roy and Smith, 1994).

PPV was first reported in the region in Syria by Dunez (1988), in the frame of a FAO expert sanitary survey for stone fruit crops. Extended sanitary surveys for the stone fruit industry in several Middle East countries were carried out only recently: i.e. Lebanon (Jawhar *et al.*, 1996), Jordan (Al Rwahnih *et al.*, 2001), Palestine (Jarrar *et al.*, 2001) and Syria (Ismaeil *et al.*, 2003). PPV was not found in Lebanon and Palestine, but a few virus foci were found in Jordan (Al Rwahnih *et al.*, 2000) and Syria (Ismaeil *et al.*, 2003).

The serotyping of PPV isolates was carried out in DAS-ELISA with strain-specific MAb: AL, specific to PPV-M (Boscia *et al.*, 1997); 4DG5, specific to PPV-D (Cambra *et al.*, 1994); EA24, specific to PPV-EA (Myrta *et al.*, 1998); TUV and AC specific to PPVC (Myrta *et al.*, 2000). Additional decoration tests in electron microscopy were done also.

JORDAN

PPV was found in seven trees that showed clear-cut symptoms in the field: 3 peaches, 2 plums and 2 apricots. Infected plums and apricots were Middle-East-native, but PPV-infected peaches were imported from Europe. Four orchards were found infected: one of plum and two of apricot in Northern Jordan (Jamla and Majar, Jarash), and one peach in the South area of Amman (Al Jizza). ELISA and decoration tests showed that all Jordan PPV isolates belong to PPV-M strain.

All infected trees were uprooted by the plant protection service of the Ministry of Agriculture. However, more detailed monitoring for PPV is required, besides strict quarantine regulation to be applied to new imports of plant propagating material.

SYRIA

PPV was found in a single apricot tree of unknown cultivar in an old varietal collection in Douma research centre near Damascus. Serotyping in ELISA identified the Syrian isolate as PPV-M. PPV strain identification in Syria fits well with the report of PPV-M in the northern areas of Jordan, bordering Syria. In the bordering areas of both countries there are many small-sized local nurseries supplying planting material of native varieties. The unrestricted movement of the propagating material between the two countries may account for the occurrence of the same strain.

The PPV situation in Syria seems to be under control, due in part to eradication measures of PPV-infected trees. This status was achieved even though the disease was reported time ago.

CONCLUSIONS

PPV represents a real threat to the regional stone fruit tree industry, although the disease is currently limited in a few orchards and trees.

Even when PPV-M infected peach, no evidence was found of active virus spread in the field. However, more surveys are needed to clarify the PPV-M epidemiological behaviour under local conditions. In any case, the infected trees constitute highly dangerous inoculum sources, which should be promptly eliminated. In addition a more extensive and detailed survey appears desirable to gather more precise information on the distribution and incidence of the disease. An active information campaign is also to be undertaken to the benefit of phytosanitary and extension services, and principally of growers and nurserymen

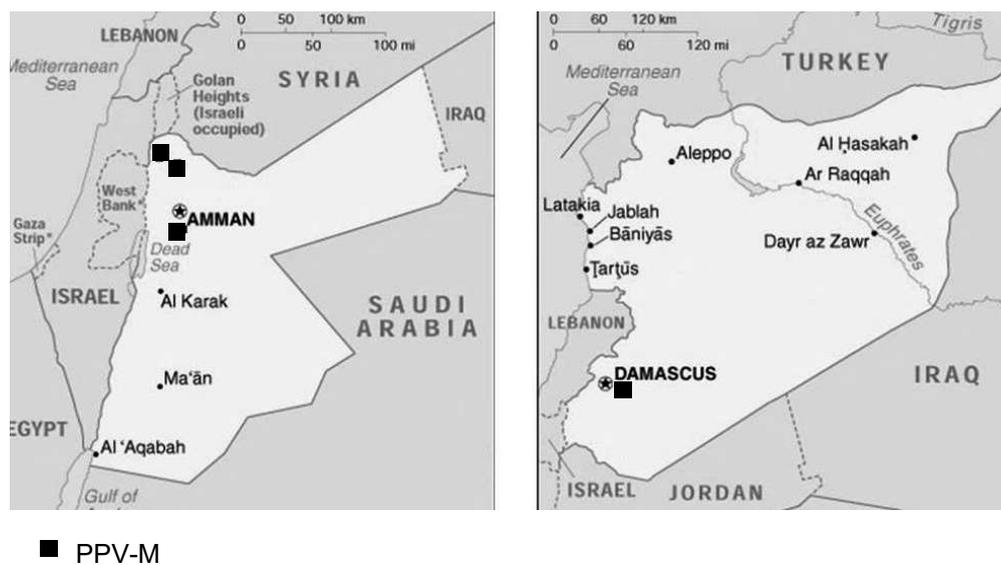


Fig. 1. PPV foci in Jordan and Syria

REFERENCES

- Al-Rwahneh, M., Myrta, A., Di Terlizzi, B. and Boscia, D. (2000). First record of plum pox virus in Jordan. *Journal Plant Pathol.* 82: 243-244. (disease note).
- Al-Rwahneh, M., Myrta, A., Abou-Ghanem N., Di Terlizzi, B. and Savino, V. (2001). Viruses and viroids of stone fruits in Jordan *EPPO Bull.* 31: 95-98.
- Boscia, D., Zeramdini, H., Cambra, M., Potere, O., Gorris, M.T., Myrta, A., Di Terlizzi, B. and Savino, V. (1997). Production and characterization of a monoclonal antibody specific to the M serotype of plum pox potyvirus. *Eur. J. Plant Pathol.* 103: 477-480.
- Cambra, M., Asensio, M., Gorris, M.T., Pérez, E., Camarasa, E., Garcia, J.A., Moya, J.J., Lopez-Abella, D., Vela, C. and Sanz, A. (1994). Detection of plum pox potyvirus using monoclonal antibodies to structural and non-structural proteins. *EPPO Bull.* 24: 569-577.

- Dunez, J. (1988). Situation of virus and virus-like diseases of stone fruits in the Mediterranean and Near east region. In *Fruit crop sanitation in the Mediterranean and Near East region: status and requirements*. UNDP/FAO Publication. pp. 226-275.
- Ismaeil, F., Myrta, A., Abou Ghanem-Sabanadzovic, N., Al Chaabi S. and Savino, V. (2003). Viruses and viroids of stone fruit industry in Syria. *EPPO Bull.* 32: 485-488.
- Jarrar, S., Myrta, A., Di Terlizzi, B. and Savino, V. (2001). Viruses of stone fruits in Palestine. *Acta Hort.* 550 (1): 245-249.
- Jawhar J., Di Terlizzi B., W. Khoury and Savino, V. (1996). Preliminary account of the phytosanitary status of stone fruit trees in Lebanon. *EPPO Bull.* 26: 161-166.
- Myrta A, Potere O, Boscia D, Candresse T, Cambra M, and Savino V 1998. Production of a monoclonal antibody specific to the El Amar strain of Plum Pox Virus. *Acta Virol.* 42: 248-250.
- Myrta, A., Potere, O., Crescenzi, A. Nuzzaci, M. and Boscia, D. (2000). Properties of two monoclonal antibodies specific to the cherry strain of Plum pox virus. *Journal Plant Path.* 82 (2): 95-110
- Roy, A.S. and Smith, M. (1994). Plum pox situation in Europe. *EPPO Bull.* 24: 515-525.