

DETECTION OF PLUM POX VIRUS BY ENZYME-LINKED IMMUNOSORBENT ASSAY IN SOME APRICOT AND PEACH VARIETIES AND HYBRIDS IN ROMANIA

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Summary. – Plum pox virus (PPV) is a potyvirus widely spread in many species of the *Prunus* genus such as plum, apricot, peach, sweet cherry and others. This potyvirus causes great damage to stone fruit trees in Romania and other European countries as Hungary, Italy, Czech Republic, France, Spain, Greece, Turkey, and Slovak Republic. The Research Station for Fruit Tree Growing Baneasa in Bucharest has realized many studies on the epidemiology and spread of PPV and also on the disease symptomatology and detection possibilities. The control of sharka disease by sanitary selection measures requires corresponding detection techniques. The aim of this study was to determine the presence or absence of PPV in some apricot and peach varieties and hybrids in 1995–1997 by the enzyme-linked immunosorbent assay (ELISA) and to verify if some of our biological materials evaluated as symptom-free under field conditions for many years are also virus-free and can be considered healthy.

Key words: plum pox virus; enzyme-linked immunosorbent assay; apricot; peach; nectarine

Introduction

PPV is the causal agent of the sharka disease of stone fruit trees (Dunez and Sutic, 1988; Nemeth, 1993). Accurate and reliable diagnosis of PPV is essential for the development of a control strategy.

ELISA proved to be a convenient and sensitive tool for detection of PPV (Tobias *et al.*, 1992). The control of PPV is based on certification of propagative materials and use of PPV-resistant cultivars only.

Materials and Methods

The biological material consisted of a large number of apricot, peach and nectarine varieties.

The samples were collected from apricot and peach orchards from different parts of the trees from mid June to mid July 1997.

ELISA technique for detection of PPV in plants developed by Clark *et al.* (1976), Clark and Adams (1978), and Minoiu and Patantys (1997) was employed. The antigen was obtained from leaves and the ELISA reagents were supplied by Sanofi (France). The absorbance readings at 405 nm were made in an ELISA reader.

Results and Discussion

We found that the Romanian apricot varieties Comandor, Excelsior, Olimp, Favorit, Dacia and some apricot hybrids like B 4/73, B 3/ 60, B 4/104, B 12/7, B 3/19, B 4/21, B 11/3, B 12/17, and B 12/34 were free of PPV.

Furthermore we found that some of our peach and nectarine varieties and hybrids were also free of PPV. The following healthy peach varieties can be mentioned: Triumf, Congres, Victoria (all developed at the Research Station for Fruit Tree Growing Baneasa), Cardinal, Flacara, Collins, and Superba de Toamna. Of healthy peach hybrids they were HB 9/25, HB 8/36, HB 11/ 63, HB 7-45, HB 24/44, and HB 9/10 (all developed at the Research Station for Fruit Tree Growing Baneasa). Also some nectarine varieties like NJN 58, Pocahontas, ARK 125, and NJN 21 were found virus-free.

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PPV can be successfully detected by ELISA in different species of the *Prunus* genus such as apricot, peach, nectarine and others. Further investigation effected by other authors (Polák, 1989; Minoiu and Pattantyus, 1997) has confirmed the high accuracy of ELISA.

Many apricot and peach varieties in Romania seem to be resistant to PPV, namely apricot cvs. Excelsior, Comandor, Olimp, Favorit, Litoral, and Dacia; and peach cvs. Triumf, Victoria, Flacara, Superba de toamna, and Congres developed at the Research Station for Fruit Growing Baneasa.

Our ELISA results with some apricot and peach varieties and hybrids presented here confirmed our earlier observations made during the last 10 years. All this biological material proved the absence of PPV symptoms under natural infection in field. Nevertheless, these varieties should be tested in the future after artificial PPV inoculation and besides ELISA also more sensitive detection techniques like polymerase chain reaction should be used.

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