

Sanitary assessment of olive varieties in a collection plot at the University of Perugia (Italy)

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Abstract

A survey was carried out in an olive collection plot at the University of Perugia (Umbria, Italy), for assessing the sanitary status of a representative olive plants were selected from different local and international olive trees varieties in order to evaluate the possibility to utilize the selected olive plants maintained in the collection plot at University of Perugia as potential mother plants to multiply in the framework of the olive certification program. Olive is affected by a number of virus and virus-like agents that persist in the plant material with which they can be transmitted and disseminated (Martelli et al., 2002). Their presence in the plant is sometimes associated with symptoms, but more often infections are latent (Alkowni R. 2000). Cardoso et al., 2005).

A total of 95 olive samples were tested by RT-PCR to check for the presence of Arabis mosaic virus (Ar-MV), Cherry leaf roll virus (CLRV), Cucumber mosaic virus (CMV), Olive leaf yellowing associated virus (OLYaV), Olive latent ringspot virus (OLRSV), Olive latent virus-1 (OLV-1), Olive latent virus-2 (OLV-2), and Strawberry latent ringspot virus (SLRSV). 0.2g from olive phloem tissues were subjected for extraction of total nucleic acids, then cDNA was synthesized by Moloney Murine Leukaemia virus (M-MLV) reverse transcriptase using random hexamers primer. cDNA mixture were submitted to PCR amplification using specific primers for 8 viruses were previously mentioned (Alabdullah A. et al 2005). DsRNA and mechanical transmission tests were applied to all PCR-negative samples in order to detect other viruses different from those were detected by PCR (Dodds, 1993).

About 83% of plants were infected by at least one virus. All tested viruses were present, with the prevalence of CMV and OLRSV (more than 30% of infection). Eight out of 17 samples showed different dsRNA patterns, thus suggesting the presence of infection by viruses other than those previously checked by PCR. This study allowed identifying 9 virus free and 39 virus tested candidate clones potentially useful as mother plants to be used in certification programmes.

Nevertheless, in order to be recognized as primary sources and for satisfying the sanitary requirements of the national certification protocol, these candidate clones need to be checked for the absence of other graft-transmissible diseases included in certification scheme.

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