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One-step RT-PCR detection of APMV, ASGV, ACLSV and ASPV at *in vivo* and *in vitro* apple plant material from Albania

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Previous preliminary accounts of the presence of stone and pome fruit viruses in Albania based on bioindicators and serological method ELISA have shown a very high infection rate in apple and pear. Considering that four main apple viruses APMV, ASPV, ACLSV and ASGV can not be distinguished easily based on field symptoms that they are mainly latent, coexist in most of the cases and that many reports classify ELISA as a non-reliable method for their detection we decided to use RT-PCR for the early detection of above mentioned viruses in apple from two important areas of cultivation in Albania, respectively, i.e., from Kukës and Devoll. Fresh leaf material from apple cultivars Golden delicious and Starking were collected from parcels located in Devoll area (collections in Bitincke, Hocisht, Cangonj) and from Kukes during spring 2013 and 2014. Total RNA was extracted according to Lolic, 2007 and was used as template for one-step RT-PCR performed according to HS-RT-PCR Kit of SIGMA using virus specific primers and cycling conditions. Meanwhile, aiming to detect the presence of viruses in bud and seed material of the same origine, the last were used to produce *in vitro* plantlets which were further analysed for the presence of viruses. Results showed that both apple cultivars collected in Kukes and Devoll were infected, respectively, the first contigent by the four viruses and the second by APMV and ASGV only. *In vitro* produced plantlets of seed and bud origine were also infected. The amplicons from apples of Kukes area were of more than one close dimension for each virus suggesting the possible infection by multiple strains at the same time. The viral amplicons from Devolli area were of single dimensions. The amplicon's concentrations varied from collection to collection and between cultivars. Leaf material from both apple cultivars from the station of Bitincke gave major amplicons compared to amplicons from stations of Cangonj and Bitincke. Plantlets grown from either seeds or buds gave amplicons of significantly higher concentration from cultivar Starking compared to Golden delicious. Plantlets grown from seeds had a more concentrated amplicon than those originated from buds. Considering that the reaction conditions and template concentrations were equal, we believe that the concentration of amplicons is proportionate to the infection rate and could be used to monitor the situation in collections even in the absence or unclear situations of mixed field symptoms.

Biography

Ariola Bacu completed her Graduation in Biology in 1995 at the Faculty of Natural Sciences, University of Tirana, Albania; and her DSPU and MSc in Molecular Biology during 1998-2000 at the Center for Advanced Mediterranean Studies- CIHEAM, Greece. She completed her Doctorate in Plant Molecular Biology-Biotechnology in 2003 at University of Tirana, Albania. She worked at the Institute of Biological Research, Academy of Sciences of Albania, during 2005-2008 where she was the Researcher and Head of Section of Molecular Biology. She is working at the Faculty of Natural Sciences, University of Tirana, Albania, for the period 2008-2016 as a Lecturer-Researcher and Head of Department of Biotechnology. She participated in 25 international and national RD projects, and in 9 of them as Coordinator. She has more than 49 presentations of scientific research in which she is the first author of at least 30; 27 original research papers in which she is the first author of at least 11 to her credit. She is the Co-author for 4 monographies; Author of two text-books for students. She is the Supervisor of 5 PhDs and more than 10 MSc theses. She has been a Member of National Representative of Albania at FESPB (Federation of European Societies of Plant Biology), since 2006; and has been a Member of BENA-Balkan Environmental Association, since 2010.

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