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Assessment of Phytoplasma Diseases Associated with Flavescence Doree in Mother Stock and Collection Vineyards in the East Part of Georgia

In recent years the symptoms characteristic for a disease of phytoplasma etiology,widely distributed in Europe - Flavescence Doree Phytoplasma (FD) - are registered on red-fruited varieties in newly planted vineyards in Georgia.

12 grapevine varieties ("Tempranillo", "Alicante","Mercy", "Kistauruli sagvine", "Black magic", "Bastard", "Crimson sidles", "Merlo", "Albane", "Italia","Baga", "Grenache") were investigated for detection of phytoplasma associated with flavescence doree in the east part of Georgian vineyards including mother stock and collection vineyards. 145 samples were tested using a double antibody sandwich-enzyme linked immunosorbent (DAS-ELISA) assay according to manufacturer's instructions (SEDIAG) and triplex real-time PCR assay was applied with TaqMan minor groove binder probes (TaqMan-MGB). Two set of primers and probes pair were used for the detection of FD in the same samples of grapevines in order to compare the efficacy for each one.

Based on DAS-ELISA results infection was not found in any researched samples. Obtained results from triplex real-time PCR assay showed that both set of primers pair were sensitive for FD identification. The presence of infection in grapevine cultivars such as "Kistauruli sagvine", "Black magic", "Bastard", "Crimson sidles" was confirmed with both set of primers and probes.

Among tested grapevine samples out of 145 samples 4.79% were infected when tested using primers and probes set I. In case of primers and probes set II infection rate comprised 1.71% respectively.

Study revealed that DAS-ELISA assay is not effective and reliable method for the identification of Flavescence Doree Phytoplasma while molecular approaches like triplex real-time PCR can be considered as an accurate and confirmatory assay with high performance.

Biography

Iveta Megrelishvili has completed Ivane Javakhishvili Tbilisi State University, Specialty-Biology. She has completed her PhD in Biochemistry in 2008. Since 2014 she is head of Virology Laboratory of LEPL Scientific Research Center of Agriculture. She has published 9 full papers in rated journals in Agricultural field. She was a principal investigator of the project "Production of in vitro walnuts planting materials using modern biotechnology method in Georgia" founded by SRNSF. She is Coordinator of the project "Survey of grapevine phytoplasma diseases using modern methods (DAS-ELISA, qPCR) for the support of production of healthy planting material in Georgia" founded by SRNSF. Nowdays her research area is to study the plant viruses and phytoplasma diseases using Das-Elisa and qPCR method.

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