

Survey of Potato Viral Infection Using Das-Elisa Method in Georgia

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Abstract : Plant viruses can cause loss of yield and quality in a lot of important crops. Symptoms of pathogens are variable depending on the cultivars and virus strain. Selection of resistant potato varieties would reduce the risk of virus transmission and significant economic impact. Other way to avoid reduced harvest yields is regular potato seed production sampling and testing for viral infection. The aim of this study was to determine the occurrence and distribution of viral diseases according potato cultivars for further selection of virus-free material in Georgia. During the summer 2015- 2016, 5 potato cultivars (Sante, Laura, Jelly, Red Sonia, Anushka) at 5 different farms located in Akhalkalaki were tested for 6 different potato viruses: Potato virus A (PVA), Potato virus M (PVM), Potato virus S (PVS), Potato virus X (PVX), Potato virus Y (PVY) and potato leaf roll virus (PLRV). A serological method, Double Antibody Sandwich-Enzyme linked Immunosorbent Assay (DASELISA) was used at the laboratory to analyze the results. The result showed that PVY (21.4%) and PLRV (19.7%) virus presence in collected samples was relatively high compared to others. Researched potato cultivars except Jelly and Laura were infected by PVY with different concentrations. PLRV was found only in three potato cultivars (Sante, Jelly, Red Sonia) and PVM virus (3.12%) was characterized with low prevalence. PVX, PVA and PVS virus infection was not reported. It would be noted that 7.9% of samples were containing PVY/PLRV mix infection. Based on the results it can be concluded that PVY and PLRV infections are dominant in all research cultivars. Therefore significant yield losses are expected. Systematic, long-term control of potato viral infection, especially seed-potatoes, must be regarded as the most important factor to increase seed productivity.

Keywords : virus, potato, infection, diseases

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