

Different methods of RT-LAMP for detection of potato leaf roll virus (PLRV)

Mohammad Amin Almasi^{1*}, Ali Haghazari², Aboubakr Moradi³, Esmail Saberfar⁴

1, 3- MS.c, Department of Plant Breeding, College of Agriculture, University of Zanjan

2- Ph.D, Department of Plant Breeding, College of Agriculture, University of Zanjan

4- Ph.D, Department of Microbiology, College of Medicine, University of Baghiatolla

* Corresponding Author, Email: aminalmasi66@gmail.com

ABSTRACT

Potato leaf roll virus is an important virus that causes economic loss in the yield and quality of potato tubers. One of the primary methods of managing infection in potato crops is using certified virus-free tuber as 'seed' for planting. Early and efficient detection of virus is essential for production of PLRV-infection free tubers. There are several techniques to detect the virus including serological test and molecular methods. LAMP is a new method to identify pathogens that is used in this study for detection of potato leaf roll virus. Potato plants with symptoms similar to PLRV were collected from Zanjan province and were subjected to a serological test. Total RNA was extracted and RT-LAMP reactions were carried out. Different methods were used to confirm performance of this reaction. Positive reaction was confirmed based on the resulting turbidity and loading product on agarose gel and using SYBR and ethidium bromide fluorescence dyes. The advantages of this new method include the speed (75 min), ease and safety of the method compared to other methods.

Key Words

Fluorescence dyes, Potato Leaf Roll Virus (PLRV), RT-LAMP Reaction, RT-PCR, Turbidity