ABSTRACT

Ph.D Thesis

DETERMINATION OF PVY, PVX, PVS AND PLRV AT POTATO TUBERS WHICH WERE PRODUCED IN ÖDEMİŞ REGION WITH RT-PCR METHOD

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At potato production, for obtaining virus free seed it was important to use fast and sensitive test which defined viruses. RT-PCR method was used to define viral factors at potato tubers. But when the potato tubers infected more than one virus, at first time for obtaining mixture viruses (Potato Y Virus = PVY, Potato X Virus = PVX, Potato S Virus = PVS, Potato Leafroll Virus = PLRV) quickly, usefulness of multiplex RT-PCR method formed this study purpose.

For this purpose, in İzmir-Ödemiş region, total RNA's were extracted from 25 tubers belong to Agata, Consul, Granola, Marabel and Marfona kinds which were used mostly for seed. PVY, PVX, PVS, PLRV at total RNA's were determined using special primers to these viruses with RT-PCR and multiplex RT-PCR methods.

With RT-PCR method, four viral factors were found at five potato kinds. But it wasn't dedected four viral factor together at any tuber. For this reason multiplex RT-PCR method used for samples which have two (PVX+PVS, PVX+PLRV, PVX+PVY, PVS+PLRV, PVS+PVY, PLRV+PVY) and three viral factors (PVX+PVS+PLRV, PVS+PVS+PVY, PVS+PLRV+PVY ve PVX+PLRV+PVY) all together and it was determined that this method can use except PVY.

To determine of three viral factors at one sample with multiplex RT-PCR, for the first time it was tested specific primer pairs belong to PVY with the other viruses'es primer pairs in this study. But it wasn't taken conclusion.

To utilize the RT- PCR and multiplex RT-PCR results, it was determined that 75 of 125 tubers were infected with at least one of four viral factors. In spite of this 50 tubers were healthy.

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Key Words:

Potato sertification, PLRV, PVS, PVX, PVY, RT-PCR