APPLICATION OF PCR TO DIAGNOSE THE YELLOW LEAF CURL DISEASE ON TOMATO IN SOUTHERN PROVINCES

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Tomato Yellow Leaf Curl disease is one of the most damaging diseases of tomato worldwide. Using molecular biology techniques helps early to diagnose Tomato Yellow Leaf Curl Virus (TYLCV) before symptom occurrence on tomato such as leaf becoming yellowing. A survey was conducted at 20 tomato farms in Lam Dong province (Don Duong and Duc Trong districts) to collect information concerning the outbreak of Tomato Yellow Leaf Curl disease. One hundred leaf samples were collected randomly from investigated farms (five samples per farm). In addition, thirty leaf samples with clear symptoms of disease were collected from Dak Lak province. All samples were packed in specific collection bags and transferred to laboratory for PCR analysis. The diagnosis of Tomato Yellow Leaf Curl Virus disease consists of 4 steps as follow: extracting total DNA from leaf samples, amplifying target DNA by using PCR technique, agarose gel electrophoresis of PCR product, and interpreting result from the gel in order to have conclusion.

The results of the survey showed that 15% (3/20) of tomato farms showed symptoms of disease compared to 60% (12/20) in previous crop (2007). PCR results showed that 100% (30/30) of samples from Dak Lak province contaminated Tomato Yellow Leaf Curl Virus, meanwhile only 18% (18/100) of samples from Lam Dong province were found.

Keywords: Polymerase chain reaction (PCR), Tomato Yellow Leaf Curve Virus (TYLCV),
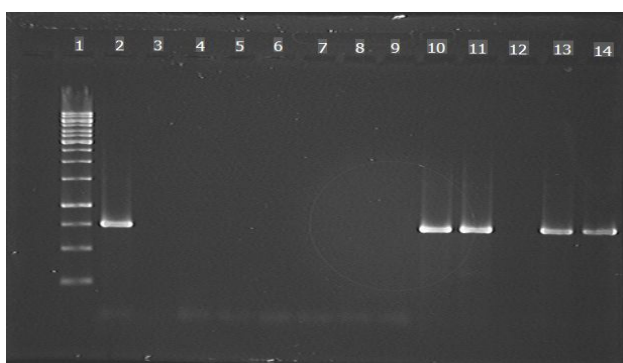
PCR product of tomato samples in Lâm Đồng
Lane 1: 1 Kb ladder, Lane 2: positive control, Lane 3: negative control, Lane 4-14: DNA of tested tomato samples
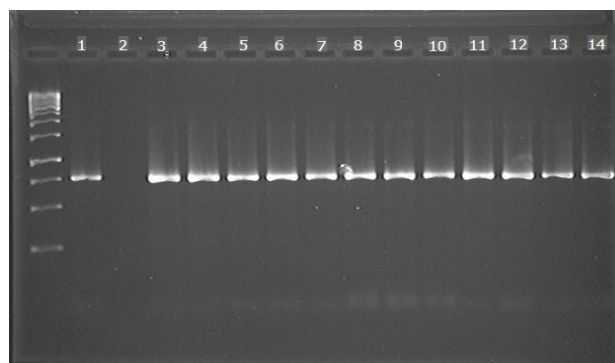
PCR product of tomato samples in Đắc Lắc
First lane: 1 Kb ladder, Lane 1: positive control, Lane 2: negative control, Lane 3 -14: DNA of tested tomato

Forward Primer 5′-GTA TGC GAG CAA GGA GCA AG–3′. Reverse Primer 5′-AAT TCG TCA CCC TCA ACA GC-3′