

Sukanya Noochoo 2015: Development of *Papaya ringspot virus* Detection kit in Cucurbits. Master of Science (Plant Pathology), Major Field: Plant Pathology, Department of Plant Pathology. Thesis Advisor: Mr. Srimek Chowpongpan, Ph.D. 114 pages.

The *Papaya ringspot virus* Type P (PRSV-P) caused a major disease in cucurbits. The Polyclonal antibody anti PRSV production used the recombinant PRSV coat protein that was produced in the bacterial cell system, It was injected into a rabbit to produce PRSV coat protein specific polyclonal antibodies. Antiserum was collected and purified. The extracted IgG used for PRSV-specific detection in cucurbits, Absence of cross reactivity was not observed in healthy plant. On the other hand, Similar results were obtained from using this IgG and commercial antibody. So we developed PRSV detection by Serological techniques; Indirect Enzyme-linked immunosorbent assay (indirect ELISA), Dot-blot immunobinding assay (DIBA), Tissue blot immunoassay (TBIA) and Lateral Flow Immunochromatography Assays (LFIA). The result showed indirect ELISA was highest efficiency to detect of purified Recombinant PRSV coat protein at 5 ng/ μ l, and the dilution of PRSV infected plant sap at 1:1,280, Also PAb-PRSV did not react with healthy plant sap, PRSV were detected in many parts of this plant that infected with PRSV. Five hundred and sixty plant samples that were collected from farmer's field were tested for the presence of PRSV. The result showed that 265 (47.32%) samples were positive. And watermelon samples showed the highest incidence for PRSV (19.24%). This PAb-PRSV was used at LFIA development for PRSV detection, PAb-PRSV was conjugated with colloidal gold particles for antigen capture at the conjugate release pad. And MAb-Potyvirus was immobilized on test line. The efficiency of LFIA was assessed by testing with purified Recombinant PRSV coat protein (the sensitivity was about 100 μ g/ml) nevertheless this kit couldn't detect PRSV infected plant. So this PAb-PRSV should develop as ELISA kit or DIBA kit for PRSV detection in cucurbits.

Student's signature

Thesis Advisor's signature