ABSTRACT

KHAMDAN KHALIMI. Detection and Characterization of Cymbidium Mosaic Virus (CymMV) Orchid Isolate. Under supervised of GEDE SUASTIKA and YOYO SULYO.

Observation during field survey has proved that CymMV has infected orchid in West Java. The disease on orchid plants in Gunungsidur, Segunung, and Kebun Raya Bogor Districts was characterized by mosaic or chlorotic and necrotic sunken patches on the leaves. The objective of the research is to detect and characterize the virus causing mosaic or chlorotic and necrotic on orchids in West Java. Double antibody sandwich-enzyme linked immunosorbent assay (DAS-ELISA) using antibody specific to CymMV successfully detected the virus in leaf tissues from symptomatic orchid plants. A reverse transcription-polymerase chain reaction (RT-PCR) assays using oligonucleotide primers specific to CymMV were also successfully amplified the regions of the coat protein (CP) gene of the virus. Analysis by using sodium dodecyl sulphate-polyacrylamide gel electrophoresis (SDS-PAGE) revealed that the virus have a major structural protein with an estimated molecular weight of 28 kDa. Flexuous filamentous particles were also observed in electron microscopy preparations from infected plants and middle layer of purified virus preparation. Alignments of partial nucleotide sequences of the CP gene displayed 86 to 92% homology to CymMV isolates from other countries. The CymMV has an intermediate host range including plants belong to family of Orchidaceae, Solanaceae, Chenopodiaceae, Leguminosae, and Graminace.

Keywords: Cymbidium mosaic virus, orchids.