Abstract

In a field inspection of commercial greenhouse orchids in 2011 in the state of Morelos, plants were observed to exhibit damage in the form of chlorotic mottle, faint yellow stripes and ring-shaped chlorotic and necrotic spots. Damaged leaves were collected from plants of the genera Brassia, Brassocattleya, Cattleya, Encyclia, Epidendrum, Guariathia, Laelia, Oncidium, Shomburghia, Vainilla and Xilobium. Viral protein serological detection tests (double antibody sandwich enzyme-linked immunosorbent assays, DAS-ELISA) were done with specific antisera for diverse viruses that affect orchids. At least one plant of each genus had Cymbidium mosaic virus (CymMV; Potexvirus) and Odontoglossum ringspot virus (ORSV; Tobamovirus) in individual or mixed infections. Encyclia and Laelia plants had the highest incidence of infection by both viruses. The electrophoretic pattern of the CymMV genome was determined in polyacrylamide gels (PAGE) with double chain viral RNA from the samples that were positive in the DAS-ELISA serological assays. Identity of CymMV and ORSV was confirmed by direct sequencing and by cloning products different from the reverse transcriptase linked to PCR (RT-PCR) final point with degenerated oligonucleotides, which amplify two consensus regions of the replicase gene (RdRp) of the genus Potexvirus, and specific oligonucleotides, which amplify a conserved region of the capsid protein gene (CP of CymMV and ORSV). Clones of the gene RdRp from three Laelia plants (GenBank access numbers HQ393958, HQ393959, HQ393960, HQ393961 and HQ393962), of the CP gene of CymMV from two Oncidium plants (GenBank access numbers HQ393956 and HQ393957), and from three Encyclia plants (GenBank access numbers HQ393953, HQ393954 and HQ393955), were obtained and sequenced. The nucleotide sequences of the capsid protein gene (CP) of CymMV and of the ORSV CP, obtained from samples of orchids cultivated in México, were 96 to 97 % similar to CymMV and 99 to 100 % to ORSV, with sequences available in the GenBank, confirming that both viruses isolated in México are identical to those found in other parts of the world.

Keywords

Replicase (RdRp), RT-PCR, ornamentals.