



## DETECTION AND MOLECULAR CHARACTERIZATION OF *ODONTOGLOSSUM RINGSPOT VIRUS* (ORSV) JAVA AND BALI ISOLATES

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### ABSTRACT

Orchids are one of the most important ornamental plants and cultivated in tropical countries, including in Indonesia. Virus infections become an important limiting factor in orchids cultivation because it causes significant losses of the plants. *Odontoglossum ringspot virus* (ORSV) is one of the most reported viruses infecting orchids and spread widely in the world. The common symptoms are mosaic with line pattern and necrotic ringspot on leaf surface, and also color breaking on flowers. The purpose of this research was to find out the occurrence of ORSV infecting orchids in Java and Bali, genetic relationship among ORSV isolates based on similarities of coat protein (CP) gene, and to analyze the pathogenicity test of ORSV Java and Bali isolates. Survey and samples collection were conducted in seven locations cultivating orchids in Java and Bali. Detection with *Reverse Transcription-Polymerase Chain Reaction* (RT-PCR) showed that ORSV was infected three leaf samples of *Phalaenopsis* sp., called ORSV BOC, ORSV KRB and ORSV TNBB isolates. The results showed 474 bp-amplified DNA band as the expression of ORSV CP gene. Phylogenetic analysis based on nucleotide sequences of CP gene showed that ORSV BOC have similarity close to ORSV Germany, whereas ORSV KRB and ORSV TNBB leads to speciation that possible to be a new strain. Pathogenicity test using various healthy plants showed that ORSV BOC may infected and cause systemic symptoms on *Chenopodium amaranticolor*, *Nicotiana tabacum*, *Dendrobium* sp., *Cymbidium* sp., *Chattleya* sp., *Phalaenopsis* sp., *Liparis* sp., *Spaththoglotis* sp. and *Pectelis sussanae* (L.) Raf.

Key words: ORSV, orchids, coat protein, RT-PCR