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“Solidarity in a competing world —
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Surveying Cassava Mosaic Disease (CMD) and *Sri Lankan Cassava Mosaic Virus* (SLCMV) in Four Provinces of Cambodia

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Abstract

Cassava growers in Asia account for 30% of world production. Its production, processing and marketing contributes to social and economic development in Asia. Cassava in Cambodia is the second most produced commodity after rice. Over the past 10 years, their cassava output has grown from 330 thousand tonnes in 2003 to 8 million tonnes in 2013 (FAOSTAT). Early this year, Wang et. al. reported a disease outbreak of cassava mosaic disease (CMD) observed in May 2015 in the province of Ratanakiri, Cambodia. The causal agent was identified as *Sri Lankan cassava mosaic virus* (SLCMV) (Wang et al. 2016). A study was conducted through a survey to determine the status of CMD and SLCMV in farmers' fields in four provinces: Ratanakiri, Tbong Khmum, Pursat and Battambang in February 2016 in Cambodia. To monitor the disease and the virus, collection of samples from the field was done through walking in the field using a “W” pattern. A total of 30 plants were assessed per field. SLCMV detection was done by ELISA and by PCR using primers designed to SLCMV. The study reveals that cassava mosaic disease was present only in Ratanakiri with a prevalence of 51.4% at the Holley Eco-Industrial Co., Ltd fields. Interestingly, no symptoms of CMD were observed in any other cassava plot inspected around the location of the company or in other provinces of Cambodia. However, PCR results readily indicated that although the disease is contained to a limited region in Ratanakiri, the virus is already present in other provinces of Cambodia. Sequencing results confirmed the identity of the virus in all these provinces as SLCMV (>99% identity in nucleotide sequence of the capsid protein to other isolates of SLCMV). The ELISA tests could detect the virus only in samples displaying symptoms of the disease and were associated to high levels of virus accumulation in symptomatic plants. PCR test sensitivity was significantly higher than ELISA. These results confirmed the presence of SLCMV and its wide distribution in other cassava growing regions in Cambodia. Monitoring and management strategies need to be done to control and prevent yield losses in the region.

Keywords: Cambodia, cassava mosaic disease, *Sri Lankan cassava mosaic virus*