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Disease Notes

First Report of *Rice stripe virus* in Vietnam

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Rice stripe virus (RSV) is the type member of the genus *Tenuivirus*, and one of the prevalent viruses infecting **rice**. The disease was first recorded in central Japan in 1903, and is currently present in many Asian countries, including South Korea and China in the Far East (1,2). In May of 2012, a disease outbreak in **Indica rice** (*Oryza sativa* L.) caused losses in a field in Huaifu, Hungyen, Vietnam (20°53'N, 106°02'E). Infected plants showed yellowing **stripe** symptoms on leaves. A survey indicated that disease incidence was about 10%. Six leaf samples were randomly collected and four were found positive in dot-ELISA using RSV-specific monoclonal antibodies (provided by Dr. X. Zhou, Institute of Biotechnology, Zhejiang University) (3). To confirm RSV infection, total RNA was extracted from dot-ELISA positive and asymptomatic control samples. RT-PCR was performed using RSV-specific primers (CP(+): 5'-GAGGATCCATGGGTACCAACAAGCCAG-3', CP(-): 5'-TCGTGCGACCTAGTCATCTGCACCTTCTG-3'; SP(+): 5'-TGGGATCCATGCAAGACGTACAAAGGAC-3', SP(-): 5'-CTGTGCGACCTATGTTTTATGAAGAAGAGGT-3'; NS2(+): 5'-GAGGATCCATGGGTACCAACAAGCCAG-3', NS2(-): 5'-CCGTGCGACTCATACATCTGAATTTG-3'; NS3(+): 5'-ACCGGATCCATGACTATCAAATACAAC-3', NS3(-): 5'-CCGTGCGACTCATACATTAGCTATTGTC-3') that amplify the coat protein, disease-specific protein, and NS2 and NS3 genes of RSV, respectively. Amplicons of the expected size were obtained from the four symptomatic but not the asymptomatic plants. Amplicons obtained from one of the positive samples were cloned into the vector pMD18-T (TaKaRa, Dalian, China) and sequenced (GenBank Accession Nos. KC197055 to KC197058). Sequence comparisons indicated that the complete sequences of the CP, SP, NS2, and NS3 of the Vietnamese isolate shared 97.1%, 97.5%, 96.8%, and 97.3% sequence identity at the nucleotide level with the corresponding genes of RSV isolate T (NC_003776, NC_003753, and NC_003754, respectively). These results indicate that the **virus** associated with yellowing **stripe** disease of **rice** in Vietnam is an isolate of RSV. To our knowledge, this is the first report of RSV in Vietnam. This finding redefined the distribution of RSV in the world. Research on whole-genome sequencing of the Vietnamese isolate is continuing and is being expanded to compare the genetic diversity of the **virus**, assisting in the study of the evolution of the **virus**.

References: (1) S. Toriyama. Microbiol. Sci. 3:347, 1986. (2) Q. Y. Lin et al. J. Fujian. Agric. Univ. 20:24, 1991. (3) G. Z. Wang et al. Acta Phytopathol. Sinica 34:302, 2004.