LAMP for detection of RRSV and RDV in insect vector

E. R. Tiongco[a], M. J. C. Duque[b], R. P. Alili[c], and X. H. Truong[a]

[a]Crop Protection Division and [b]Plant Breeding and Biotechnology Division, Philippine Rice Research Institute, Munoz, 3119 Nueva Ecija, Philippines; ertiongco@yahoo.com; [c]College of Veterinary Medicine, Central Luzon State University, Munoz, 3119 Nueva Ecija, Philippines

Rice ragged stunt virus (RRSV) is transmitted by the brown plant hopper *Nilaparvata lugens* (Stal) in a persistent manner without trans-ovarial passage. The 2005-06 outbreaks of brown plant hopper and very high RRSV incidences in Vietnam and Thailand and the current sporadic reports of hopper burn and RRSV incidences in the Philippines are warning signs not to ignore this disease. Rice dwarf virus (RDV) is common in rice growing temperate countries. RDV was reported in the Philippines in 1994 and is presently limited to the south main island of Mindanao. The virus is transmitted in a persistent manner with trans-ovarial passage by the green leaf hopper *Nephotettix nigropictus* (Stal). RDV is transmitted to the nymphs *via* infected eggs and is an emerging threat to rice production in the country.

The loop-mediated isothermal amplification (LAMP) virus assay was reported to be an excellent tool for virus detection and may facilitate studies on rice disease epidemiology and outbreak surveillance[1]. In the present study, LAMP detected RRSV and RDV in the insect vector. Detecting the virus in the insect vector forestalls the impending threat of spread of virus infection. This gives an advance warning of two weeks, the latent period of the virus in the insect vector, which is enough to mobilize and employ the disease and insect control systems to prevent the vector and virus disease to establish a foothold in the crop.

An operational system to detect these viruses in the insect vector is prepared for use in the coming cropping season and is plausibly feasible because of the ease of collection of insect samples which can be done even without a standing rice crop and effortless nucleic acid extraction from the insect within a very short time. These features make LAMP assay an ideal diagnostic tool for the detection of rice viruses in the insect vector.

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Reference:

1. D. T. Le, O. Netsu, T. U. Ichiki, T. Shimizu, I-R. Choi, T. Omura, and T. Sasaya, Molecular detection of nine rice viruses by a reverse-transcription loop-mediated isothermal amplification assay, *Journal of Virological Methods*, 2010, **170**, 90-93.