

SURVEY OF TUNGRO AND OTHER VIRUS DISEASES IN THE CENTRAL REGION OF SRI LANKA

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Unusual yellowing of rice leaves was observed in the last few years in many parts of Sri Lanka. A yellowing disorder occurred in an epidemic form in Hambantota District in the 1984 *Yala* season. Alerted by this epidemic we conducted a preliminary roving survey of yellowing malady in the central region of Sri Lanka in the 1984/85 *Maha* season. Rice fields were surveyed every 5 km along the main roads of the region. The region includes the administrative districts of Kandy and Matale. Age, variety, level of crop management, and any unusual yellowing condition were noted for each location. At each field visited green leaf hopper (GLH) density was assessed by collecting insects in ten 180° sweeps with a 50 cm diameter net. Ten hills were selected randomly in each field for observation. If there were unusual yellow patches in the field the ten hills were chosen in the patches. The second youngest leaf/tiller, and five leaves/hill were selected and subjected to the starch accumulation test using a 0.2% solution of iodine in potassium iodide.

A few plants of which leaves that gave intense darkening at the cut end were brought to the laboratory and used for transmission test with GLH. Rice varieties Bg 94 — 1 and Bg 379 — 2 were used as test plants. Forty-two leaves that were positive to I_2 test, plus three leaf samples that did not show any darkening, were subjected to ELISA* for the presence of rice tungro bacilliform virus (RTBV), rice tungro spherical virus (RTSV), grassy stunt virus (GSV), and ragged stunt virus (RSV). The results indicated that 53% of the field samples were infected with GSV, 49% with RSV, 58% with RTSV and only 4% with RTBV. Typical symptoms of any viruses were not observed during the survey. This could either be due to late infection of the plants, or due to viruses being latent in them. The yellowing disorder observed in the field could not be transmitted in glasshouse *via* GLH. This does not eliminate tungro disease altogether since RTSV is known to be asymptomatic in the Philippines. We suspect that the widespread yellowing disorder observed in our survey was due to a severe strain of GSV. Our results also showed that the reliability of I_2 -test is in doubt, since 16 locations were I_2 -positive yet no RTBV nor RTSV was detected in the leaf samples. This preliminary survey confirmed for the first time the presence of RTBV and RTSV in Sri Lanka.

* ELISA = enzyme-linked immunosorbent assay

Table 1. Occurrence of green leaf hoppers and rice virus diseases in the central region

KANDY DISTRICT							MATALE DISTRICT						
Location	<i>I</i> ₂ test	GLH density (no.)	RTBV	RTSV	RSV	GSV	Location	<i>I</i> ₂ test	GLH density (no.)	RTBV	RTSV	RSV	GSV
Pilimalatalawa	+	13	—	+	—	—	Udaththwa	+	09	—	+	—	+
Kadugannawa	+	06	—	+	—	—	Yatawara	+	06	—	+	+	—
Madawela	+	20	—	+	—	—	Matale	+	06	—	—	+	+
Yatirawana	+	13	—	+	+	—	Bodikotuwa	+	70	—	+	—	+
Wattegama	+	08	—	—	+	—	Rattota	+	16	—	—	—	—
Kahalla	+	11	—	+	—	—	Hunukete	+	20	—	+	—	—
Amepitiya	+	06	—	—	—	+	Narangolla	+	75	—	+	—	—
Arambepola	+	16	—	—	—	+	Kuruwewa	+	88	—	+	—	—
Doluwa	+	20	—	+	+	+	Udupihilla	+	26	+	—	—	+
Ganegoda	+	17	+	—	—	+	Mandandawela	+	27	—	+	—	+
Kalugoda	+	26	+	+	+	+	Walawela	+	65	—	+	—	+
Bulugahapitiya	+	02	—	—	+	—	Deewilla	+	37	—	—	—	—
Diyabubula	—	09	—	+	+	+	Mahawela	—	18	—	—	—	+
Podiwela	+	26	—	+	+	+	Paldeniya	+	40	—	—	—	+
Mahawela	+	01	—	+	+	+	Kobbehara	—	14	—	+	+	—
Urugala	+	12	—	+	+	+	Kobbehara	+	NA*	—	+	+	—
Hunnasgiriya	+	17	—	+	—	+	Enakalpota	+	16	—	—	+	—
Hunnasgiriya	+	NA*	—	+	+	—	Ellawela	+	10	—	+	+	+
Madugoda	+	35	—	+	+	+	Talatiriyagama	+	32	—	—	+	+
Kovilmada	+	40	—	—	+	—	Pallegama	+	20	—	—	+	+
Madaketiya	+	06	—	+	+	—	Kaakawela	+	06	—	—	—	—
Hasalaka	+	06	—	—	—	—							
Hasalaka	+	76	—	—	+	+							
Hasalaka	+	NA*	—	—	—	+							

*NA = not available

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