Laboratory Studies on the Biology of *Nilaparvata lugens* (Stål) and Chemotaxonomy of Biotypes from Sri Lanka and Philippines

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B.Sc. (Special) 1974

THESIS

Submitted to the Department of Zoology
University of Peradeniya
in Partial Fulfilment of the Requirements
For the Degree of
Master of Science

January 1982

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ABSTRACT

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The present studies on life-history and chemo-taxonomy of *Nilaparvata lugens* (Stål) of Sri Lanka and Philippines were undertaken to explore possible differences between *N. lugens* population of Sri Lanka and biotypes 1, 2 and 3 of Philippines.

No difference in morphology was observed between the macropterous and brachypterous forms of *N. lugens* of Sri Lanka, male and female, and the population of Philippines.

When *N. lugens* of Sri Lanka was grown on three different varieties of paddy - IR 9-60, IR 8 and Taichung (Native) 1,

or TN 1, the adults grown on TN 1 were seen to have a body length significantly greater than those grown on other two varieties. This was found to be true in both macropterous and brachypterous forms, male and female. Nymphs grown on TN 1 were significantly larger than the other two populations from 3rd instar onwards.

No significant differences were seen in the size of eggs of N. lugens grown on these three varieties. No difference in longevity was seen in macropterous and brachypterous forms, male and female, as well as incubation period of eggs of macropterous and brachypterous females. Percent hatch of eggs of macropterous females grown on these three varieties did not manifest any significant difference. But among the brachypterous forms, eggs laid by females on TN 1 had a significantly lower percent hatch than those grown on other two varieties.

Measurable differences were noted in body length between macropterous, male and female, of Sri Lanka and the Philippines population. The body lengths of the Philippines population were greater. The Philippines macropterous population also manifested greater fecundity. Incubation period of eggs of macropterous females of Sri Lanka grown on IR 9-60 was longer than that of eggs of macropterous females of Philippines, also grown on IR 9-60.

Four free amino acids - lysine, threonine, phenylalanine and tryptophan were detected in the eggs of Sri Lanka population and eggs of biotypes 1, 2 and 3 of Philippines using thin-layer chromatography. The concentrations of lysine and tryptophan in eggs of Sri Lanka population were significantly higher than in 3 biotypes of Philippines. No differences in concentration were noted in the four amino acids of the three biotypes of Philippines.