

**POTENTIAL OF USING BEHAVIOURAL CHARACTERISTICS OF
DELTOCEPHALUS MENONI, VECTOR OF SUGARCANE WHITE LEAF
DISEASE, IN SCREENING SUGARCANE VARIETIES FOR THE DISEASE**

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Sugarcane White Leaf Disease (WLD) is one of the major threats to the cane sugar industry in Sri Lanka and *Deltocephalus menoni* (Hemiptera: Cicadellidae, Deltocephalinae) is the only locally-identified vector of this phytoplasma disease. In Sri Lanka, screening of sugarcane varieties for WLD resistance is done by field evaluation of them considering the natural infection levels of WLD. It is a lengthy, tedious and expensive process. This study was conducted at the entomology laboratory and the research farm of the Sugarcane Research Institute (SRI), Uda Walawe with the objective of finding the potential of using vector performance on sugarcane varieties to evaluate varietal reaction to WLD. Level of WLD infection by *D. menoni* on eight sugarcane varieties and two wild relatives under natural environment and the behavioural characteristics of *D. menoni*; aggregation, amount of feeding amount of feeding, fecundity, nymphal development and adult longevity on the same varieties were studied. Variations between varieties and correlations between level of WLD infection and insect behavioural characteristics were studied. The level of WLD infection and behavioural characteristics of *D. menoni* were significantly varied with sugarcane varieties. Significant and positive correlations observed for aggregation, amount of feeding and adult longevity of the vector. Correlation coefficient between natural infection of WLD and insect aggregation was 0.59 (n = 90, p = 0.001). It was 0.73 (n = 90, p = 0.001) for amount of feeding and 0.71(n = 90, p = 0.001) for adult longevity. Amount of feeding correlated with insect aggregation (r = 0.54, n = 90, p = 0.05) and adult longevity (r = 0.71, n = 90, p = 0.001). As aggregation, feeding and adult longevity of vector directly correlate with the natural infection level of sugarcane WLD, there is a potential of using these behavioural characteristics at the primary stages of variety evaluation process for WLD reactions. It makes the screening process timely and cost effective.

Keywords: *Behavioural characteristics, Deltocephalus menoni, Sugarcane White Leaf Disease, Variety screening, Vector*