

Effect of the Epicuticular Wax Level of Leaf Lamina on the Behaviour of leaf hopper *Deltocephalus menoni* (Hemiptera:Cicadellidae); A Vector of Sugarcane White Leaf Disease

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ABSTRACT

Sugarcane White Leaf Disease (WLD) is one of the major threats to the cane sugar industry in Sri Lanka and *Deltocephalus menoni* is the only recorded vector in local conditions. Epicuticular waxes (EW) play an important role in protecting plants against herbivore attacks. Therefore, this study was conducted with the objective of determining the effect of EW level on the behavioral characteristics of *D. menoni* in ten different sugarcane varieties. EW level of the selected varieties, behavioral characteristics of *D. menoni* and the level of WLD infection under natural conditions were studied. The effect of surface waxes on feeding behavior of *D. menoni* was also investigated under in-vitro, conditions using agarose-sucrose. Pearson correlation coefficient test was performed to detect the associations existing between EW and insect behavioral characteristics. Varieties with higher level of EW showed a significantly lower *D. menoni* feeding and disease infection. There was a significantly positive correlation ($r = 0.78$, $P = <0.0001$) between the level of feeding and rate of disease infection in natural environment. Hence it is quite possible that wax may play a significant role in feeding of *D. menoni* on sugarcane. In vitro study also further confirmed the relationship of EW and feeding behaviour by recording high feeding preference in agarose-sucrose diet containers with less wax content. Therefore, sugarcane accessions having high level of EW could be incorporated into directional breeding of varieties in order to increase the resistance against WLD.

Keywords: *Deltocephalus menoni*, Epicuticular Wax, Sugarcane White Leaf Disease, vector