

Does Leaf Lamina Colour Affect the Behavioral Characteristics of *Deltocephalus menoni* (Hemiptera: Cicadellidae); a Vector of Sugarcane White Leaf Disease?

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Deltocephalus menoni is the only locally-identified vector of Sugarcane White Leaf Disease (SCWLD) in Sri Lanka. Leaf lamina colour of sugarcane plants is one of the major characteristics that has effects on the approach and arrest of the vector during initial colonization. Differences in population levels of *D. menoni* have been recorded in sugarcane fields which were maintained in a similar manner with different varieties of the same age. This study conducted at the Entomology Laboratory of the Sugarcane Research Institute (SRI), Uda Walawe aimed to detect the effect of leaf lamina colour of sugarcane varieties on the behavioral characteristics of *D. menoni*. Leaf lamina colour of ten sugarcane varieties and behavioral characteristics of *D. menoni* on these varieties were studied. Pearson correlation coefficient test was performed to detect the associations existing between leaf lamina colour and insect behavioral characteristics. The leaf colour parameters; RGB (Red-Green-Blue), HSB (Hue-Saturation-Brightness) values and the ratios of R:B, B:G, B:R and $r = R : (R+G+B)$, $g = G : (R+G+B)$ and $b = B : (R+G+B)$ used in correlation analyses has shown that red colour had significant and negative correlations with the aggregation, amount of feeding, rate of nymphs convert into adult and adult longevity but not with the nymphal period and oviposition. The green colour had significant and negative correlations with the amount of feeding and adult longevity of *D. menoni* but not with rate of nymphs converted into adult, nymphal period and oviposition. No significant correlations were found between behavioral characteristics of *D. menoni* and blue color intensity, hue, overall leaf colour saturation and brightness of the leaves. Similarly, R:G, B:G, B:R, r, g and b have no significant correlations with any of the considered behavioral characteristics of *D. menoni*. Results imply that higher intensities of red and green colour compositions in leaf lamina cause for making the plant less attractive for aggregation, insect feeding, nymphal period and adult longevity of *D. menoni*. Therefore, sugarcane varieties and wild relatives having leaf lamina with higher intensities of red and green colour compositions could be incorporated into directional breeding of sugarcane varieties with resistance to the vector of SCWLD. Secondary transmission of SCWLD in commercial sugarcane plantations can be reduced by growing such varieties with a potential to reduce vector feeding and population buildup.

Keywords: Behavioral characteristics, *Deltocephalus menoni*, Leaf colour, Sugarcane White leaf disease, Vector

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