

ABSTRACT

SALIVARY SECRETIONS OF *HOMALODISCA VITRIPENNIS* AND THEIR RELATION TO *XYLELLA FASTIDIOSA* INOCULATION

The glassy-winged sharpshooter, *Homalodisca vitripennis*, is a xylophagous leafhopper that transmits *Xylella fastidiosa*, the causative agent of various scorch diseases such as Pierce's Disease of grapes. The objective of this study was to begin biochemical investigation of the salivary secretions by (1) developing a method of saliva collection and subsequently (2) analyzing the profile of collected salivary proteins, and (3) examining the association of saliva with the transmission process. A novel collection method was developed that involved brushing the sharpshooter's clypeus, clypellus, and labrum with a camel hair brush and collecting the secreted salivary bubbles using glass or cellulose paper. The SDS-PAGE analysis revealed that the salivary secretion is a mixture of numerous proteins with estimated molecular weights ranging between 9 and 154 kDa. Using sharpshooters that acquired GFP expressing *X. fastidiosa* and were allowed to probe on Parafilm[®], GFP-*Xf* was found embedded in both salivary flanges and sheaths. This suggests that inoculation of the pathogen is not primarily due to watery saliva but rather to the total secreted saliva as early as the first several salivary droplets.

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