TRANSMISSION EFFICIENCIES OF TWO STRAINS OF *XYLELLA FASTIDIOSA* FROM CULTURE THROUGH GLASSY-WINGED SHARPSHOOTERS

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ABSTRACT
Xylella fastidiosa (Wells) (*Xf*) is a gram-negative, xylem-limited bacterium that causes diseases in various crops by blocking xylem or water vessels of plants. It can induce Pierce's disease (PD) of grapevine, almond leaf scorch, oleander leaf scorch (OLS), and citrus variegated chlorosis. The xylem sap-feeding insects generally serve as the biological vectors in the process of *Xf* transmission, which occurs when the insect inserts its mouthparts into the plant's xylem vessels. The glassy-winged sharpshooter (GWSS), plays an important role in *Xf* transmission for it has an extremely broad host plant range and spreads across the southern and western states. Because it was reported that GWSS previously inoculated with OLS strain was not able to transmit the subsequently acquired PD strain to grapevine, the competition for space and nutrition among different strains of *Xf* might impact the ability of an insect to be a proficient vector. In order to evaluate if biofilm formation by the PD strain is negatively impacted by the presence of a non-PD strain, we inoculated GWSS with various combinations of *Xf* strains. The competition between two strains of *Xf* was evaluated via the melting curve analysis and a novel molecular beacon system. When introduced first, the antecedent non-PD *Xf* strain was likely to become dominant in the foregut of GWSS and significantly suppress of the biofilm formation of PD strains that colonized later.