

COMPARATIVE ANALYSIS OF ELECTRICAL PENETRATION GRAPHS OF NYMPHS AND ADULTS OF *DIAPHORINA CITRI* (HEMIPTERA: PSYLLIDAE) ON CITRUS

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The phloem-limited bacterium associated with citrus huanglongbing (HLB), *Candidatus Liberibacter asiaticus*, is transmitted by *Diaphorina citri* Kuwayama (Hemiptera: Psyllidae) with a higher efficiency when acquired by psyllid nymphs. In this study, we compared electrical penetration graphs (EPG) of nymphs and adults of *D. citri* in citrus to investigate possible differences in probing activities that could explain the higher acquisition efficiency of the pathogen by nymphs. Fifteen health laboratory-reared nymphs (4th instar) and adults (1-week old) were recorded for 5 h on health seedlings of *Citrus sinensis* (L.) Osbeck, using a DC-monitor, Giga-8 model. The same EPG waveforms previously described for *D. citri* adults were observed in nymphs. No significant differences were observed regarding the mean number of probes and waveforms C (representing pathway stylet activities), D (phloem contact), E1 (putative salivation in sieve tube elements) and E2 (phloem sap ingestion) performed by nymphs and adults in 5 h. Only 1 nymph and 3 adults (out of 15 tested) performed waveform G (xylem phase), showing that both stages are primarily phloem feeders. Mean waveform duration per event also did not vary between nymphs and adults, except for E1, which was longer in nymphs (mean of 175 s) than in adults (78 s). Both nymphs and adults started probing in a few minutes (averages of 1.2 and 2.7 min, respectively) after placed on the plant. The mean time to start phloem sap ingestion (E2) from onset of the first probe was slightly shorter in nymphs (62.7 ± 15.8 min, varying from 16.0 to 241.4 min), but not statistically different from adults (75.0 ± 13.2 min, ranging from 12.1 to 216.1 min). Overall, this study shows no substantial differences in probing behavior between *D. citri* nymphs and adults that could account for the higher acquisition efficiency of *Ca. L. asiaticus* by nymphs. It indicates, however, that some nymphs and adults can reach phloem sieve elements (and possibly acquire or inoculate the pathogen) in relatively short access periods (≥ 15 min).

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