

Effect of Purified Persimmon Tannins on Survival and Reproduction of the Bean Bug, *Riptortus clavatus* (Thunberg) (Hemiptera: Alydidae)

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Effects of purified persimmon tannins were evaluated on survival and reproduction of soybean bugs, *Riptortus clavatus*. Feeding behavior of *R. clavatus* was also examined on sweet (cv. Fuyu) and astringent (cv. Chongdosi) persimmon fruits. Survival and reproduction of *R. clavatus* will be discussed in relation to seasonal changes in levels of persimmon tannins in the fruits. Soluble tannins in sweet persimmon fruits decreased from 3% in early June to 0.5% in late September. However, it increased from 2% to 8% during the same period in astringent persimmon fruits. More bugs visited sweet persimmon than astringent persimmon. Numbers of piercing/sucking spots were significantly higher on sweet persimmon than on astringent persimmon. When fed 1% and 3% solutions of persimmon tannins, adult bugs ingested only 64.1% and 9.5% of the amount of water ingested by those offered the control (distilled water) solution. Amounts of persimmon tannin ingested by the adult bugs were 6.5 times and 2.8 times higher at 1% and 3% tannin solutions compared to a 0.1% solution. Persimmon tannin exerted very harmful effects on survival and reproduction of *R. clavatus* at higher concentrations (1% and 3% solutions). Feeding of *R. clavatus* adults decreased with increasing tannin concentrations. When results from both sexes were pooled, 50% mortality was achieved at 1 and 4 days after treatment with the 1% and 3% tannin solutions, respectively. Reproduction significantly decreased with 1% tannin solution, and no eggs were produced with 3% tannin solution. These adverse effects of tannins could be due in part to the direct effect of ingested tannin, and in part to the reduced absorption of water as a result of the anti-feeding effects of tannin. Our data may explain why *R. clavatus* does not invade sweet persimmon orchards until late July, when concentrations of soluble tannin are low enough to allow them to feed.