

3-3-22. Effect of Tannic Acid on the Development of Soybean Bug, *Riptortus clavatus*

- in relation to the Seasonal Occurrence in Sweet Persimmon Orchards -

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The marmorated stink bugs (*Halyomorpha halys*) and green stink bugs (*Plautia stali*) occurs from late May on wild host plants. However they invade sweet persimmon orchards and suck fruit juice from late July. We analysed seasonal changes of tannic acid contents in sweet (var. Fuyu) and non-sweet (var. Chongdo-si) persimmon fruits from early June to late September in 2001. We also tested the effect of synthesized tannic acid and persimmon tannin on the survival, reproduction, hatchability of eggs of the soybean bugs (*Riptortus clavatus*). The feeding behavior of *H. halys* was also examined on the sweet and non-sweet persimmon fruits.

Soluble tannin contents in sweet persimmon decreased from around 3% at early June to 0.5% at late September. However the contents in non-sweet persimmon increased from 2% to 8% during the same period. Synthetic tannin acid was very harmful to the nymphs and adults of *R. clavatus*. Mortalities of the nymphs reached at 100% at 14, 12, and 7 days after feeding 0.1%, 1%, and 3% concentration solutions of tannin, respectively. Adults were more tolerable to tannic acid than nymphs. Survival of the adults was not affected by 0.1%. However 1% and 3% tannin solutions was fatal to the survival of the adults. All adults died 16 and 29 days after feeding 1% and 3% tannin solutions, respectively. Feeding of higher concentrations of synthetic tannic acid was resulted in a reduced reproduction. However it has no effect on the hatchability of the oviposited eggs. Persimmon tannin showed very similar effects to the synthetic tannic acid on the survival and reproduction of the *R. clavatus*. Feeding amount of the *R. clavatus* adults was greatly decreased by the increase of the tannin contents in the tannin solutions. Persimmon tannin solutions of 1% and 3% solutions gave a fatal effects on the survival of *R. clavatus*. The reproduction and hatchability of the *R. clavatus* were decreased by the increase of the concentration. It could be concluded from these results that tannic acid in persimmon works as a feeding deterrents to the stink bug species, and this can be one of the reasons why bug species do not invade sweet persimmon orchards before late July.