POSTHARVEST TREATMENT OF BROWN MARMORATED STINK BUG WITH SULFURYL FLUORIDE

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Abstract. Brown marmorated stinkbug (BMSB), *Halyomorpha halys*, is an insect pest of concern to certain countries that import automobiles from USA. Adult BMSB contained in gas-permeable cages were fumigated in 28.32-L chambers at 10.0 ± 0.5 °C ($\bar{x} \pm s$) for 2 or 12 h over a range of sulfuryl fluoride doses. Fumigant exposures, expressed as concentration (*C*) × time (*t*) products (*Ct*) were calculated by the method of Monro (1969) and exposure-mortality regressions were modeled using Polo Plus (LeOra Software, 2002-2007). For fumigations lasting 2 h, *Ct* exposures of 248.6 and 535.3 $mgL^{-1}h$, respectively, were projected to cause 99 and 99.9968% mortality in the treated population (respectively LE_{99} and LE_{P9}). For fumigations lasting 12 h, *Ct* exposures of 89.8 and 142.8 $mgL^{-1}h$ were projected for the LE_{99} and LE_{P9}, respectively. Results of this study identify how the applied dose and/or treatment duration can be modulated (i.e., tuned) to ensure adequate toxicological efficacy toward adult BMSB is attained following a sulfuryl fluoride fumigation at temperature (T) ≥ 10.0 ± 0.5 °C ($\bar{x} \pm s$).

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