INSECTICIDAL PROPERTIES OF IODINATED HYDROCARBONS

A. G. Appel and R. Rodríguez-Kábana*
Department of Entomology and Plant Pathology
Auburn University, Auburn, Alabama 36849

The insecticidal properties of low molecular weight [C1-C8] iodinated hydrocarbons were assessed in laboratory experiments with American, *Periplaneta americana* (L.) and German, *Blattella germanica* (L.) cockroaches. Groups of cockroaches were confined in 0.95-liter glass jars with a 2 cm diameter cotton ball. Exactly 50 µl of a chemical was applied to the cotton ball and the jar was sealed. Knockdown and mortality were assessed every 15 minutes for the first hour and hourly thereafter for 8 hours and again after 24 hours. Mono-iodo compounds [C1-C3] were generally more effective than di-iodo compounds against both species. Iodomethane, iodoethane, and 1-iodopropane knocked down 100% of cockroaches within 1 hour after treatment and caused 100% mortality within 2 hours. Di-iodomethane knocked down ≈40% of cockroaches within 1 hour and killed 100% of cockroaches by 4 hours. American cockroaches were more sensitive to 1,6-diiodohexane and 1,5-diiodopentane and iodoform than German cockroaches. Diiodomethane and 1,4-diiodobutane were repellent to German cockroaches. Several diiodinated did not cause mortality even after 24 hours of continuous exposure. Mortality with a number of other insect species has been observed using these compounds. These results differ somewhat from those with nematodes, indicating different modes of action of iodinated hydrocarbon compounds between phyla. Because of their chemical properties, low molecular weight mono- and di-iodinated hydrocarbons may be mixed to make an effective insecticidal and nematicidal formulation.