

TOXICITY, REPELLENCY, and PERFORMANCE of an INDOXACARB BAIT for CONTROL of GERMAN COCKROACHES (DICTYOPTERA: BLATTELLIDAE)

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Experimental gel and powder bait formulations containing 0.25, 0.5, and 1.0% Indoxacarb were evaluated in a series of laboratory and field studies against the German cockroach, *Blattella germanica* (L.). Mortality was first determined in 18 by 31 by 10 cm plastic boxes with loosely fitting covers. Twenty adult cockroaches (10 female and 10 male) were placed in each box with »0.5g of bait and mortality was scored daily. All Indoxacarb treatments had LT_{50} values of <2 d (1.10-1.90 d). There was no difference in LT_{50} values between aged and fresh deposits of 0.25% Indoxacarb gel bait. The 0.25% Indoxacarb gel formulation is also toxic to adult American cockroaches, *Periplaneta americana* (L.) and pyrethroid-resistant German cockroaches. Repellency and potential for effectiveness were evaluated in Ebeling choice boxes. Food and water were placed in the lighted compartment of the choice box and »1.0 ml of bait (contained in a plastic weighing boat) was placed in one of the corners of the dark compartment. The boxes were maintained at 25-27°C and 45-55% RH, and exposed to a photoperiod of 12:12 (L:D) h. The condition and position of each cockroach was recorded daily for 14 d.

None of the Indoxacarb baits were significantly repellent, and all baits had positive potential for effectiveness, or performance index (PI) values of >95 (on a scale of -100 to 100). Performance index values increased as a hyperbolic function with time, indicating increasing mortality and low repellency of the treatments. German cockroach-infested single family dwellings located in Opelika, Alabama, USA were used in the field trial. Visual counting methods were used to estimate the number of cockroaches infesting the kitchens of the infested dwellings. Gel bait containing 0.25% Indoxacarb was applied at 130 positions in each kitchen, and the number of cockroaches evaluated 1, 3, 7, and 14 d after treatment. All replicate kitchens had significantly fewer cockroaches every day after treatment. There was a »40% reduction in cockroach counts 1 d after treatment and a >95% reduction after 14 d. Indoxacarb baits are toxic, nonrepellent, and can significantly and rapidly reduce German cockroach populations in infested areas.