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TOXICITY OF GRANULAR ANT BAIT FORMULATIONS AGAINST COCKROACHES (DICTYOPTERA: BLATTELLIDAE AND BLATTIDAE)

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Abstract The toxicity of granular ant bait formulations containing abamectin B1, orthoboric acid, or propoxur was evaluated in a series of laboratory experiments against American, *Periplaneta americana* (L.), and German, *Blattella germanica* (L.), cockroaches. LT_{50} values for American cockroaches ranged from < 1 d for the 2% propoxur formulation (cockroaches were either fed or starved for 24 h before treatment) to > 22 d for the Advance® Carpenter Ant Bait formulation (cockroaches were starved for 24 h before treatment and presented alternative food together with the bait). For German cockroaches, LT_{50} values ranged from < 1 d for the 2% propoxur formulation to 5.33 d for the 5.0% orthoboric acid Niban® formulation. In these tests, cockroaches had access to food and water 24 h before treatment, but were not provided with alternative food during testing. American cockroaches starved prior to the experiment and provided no alternative food had significantly lower LT_{50} values in all treatments with the exception of the Advance Granular Ant bait formulation compared with cockroaches provided alternative food. In contrast, 24 h starvation reduced the LT_{50} values of 100% of the slow-acting bait formulations for German cockroaches deprived of alternative food. Our results demonstrated that design of a toxicity experiment may affect the LT_{50} values of a particular bait formulation. Granular ant baits are clearly toxic to American and German cockroaches and may provide control of these pests in multi-species infestations. These results also imply that ant baits may provide control of additional pests in integrated pest management (IPM) systems. The lower LT_{50} values for bait formulations tested against of 24 h starved cockroaches are consistent with the recommendation that sanitation should be an important component of both domestic and peridomestic cockroach IPM systems.