

# Evaluations on the Lethal, Choice and Secondary Effects of Four Insecticidal Baits against German Cockroaches

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The laboratory studies were carried out in plastic cages and glass jars for evaluating control effects of four commercial insecticidal baits such as DBK<sup>®</sup> (2.0% hydramethylnon), Combat-Gold<sup>®</sup> (2.0% hydramethylnon), Combat-Power<sup>®</sup> (0.05% piperalin) and Raid-Roachbait<sup>®</sup> (0.6% chlorpyrifos) against German cockroaches (*Blattella germanica*). The control rates of four kinds of toxic baits were all 100.0% mortality of German cockroaches in 5 days after treatment. The results of Combat-Power<sup>®</sup> and Raid-Roachbait<sup>®</sup> brought 100.0% mortalities in 3 and 2 days after treatment, respectively. The different control rates among the four toxic baits came in first 3 days only after treatment. Combat-Gold<sup>®</sup> showed only 8.0% but Combat-Power<sup>®</sup> and Raid-Roachbait<sup>®</sup> appeared 100.0% control of the cockroaches in 3 days. After 3 day treatment, there was not significantly different control effect among the four toxic baits. As a result of these experiments, 0.05% piperalin (Combat-Power<sup>®</sup>) and Raid-Roachbait<sup>®</sup> (0.6% chlorpyrifos) showed faster killing action than hydramethylnon formulations (products of DBK<sup>®</sup> and Combat-Gold<sup>®</sup>) for control of German cockroaches. In the attraction / choice tests, DBK<sup>®</sup> (average 17.0) was significantly more attractive baits to German cockroaches than Combat-Gold<sup>®</sup> (avg. 7.0), Combat-Power<sup>®</sup> (avg. 5.3) and Raid-Roachbait<sup>®</sup> (avg. 3.3). The differences of the attraction effect came until 10 minutes after treatment. In order to evaluate the secondary killing effect of toxic baits by coprophagy against adult *Blattella germanica*, the comparative experiment was carried out. Most mortality rates of the adults were significantly different among four toxic baits showing 86.7% mortality at Combat-Power<sup>®</sup>, 60.0% at DBK<sup>®</sup>, 30.0% at Raid-Roachbait<sup>®</sup>, and below 13.3% at Combat-Gold<sup>®</sup> in 6 days. During 12 days, Combat-Power<sup>®</sup> showed the highest mortality rate (90.0%) and the 2nd highest mortality appeared from DBK<sup>®</sup> (60.0%). Although the secondary killing effect of toxic baits by coprophagy against adult *Blattella germanica*, appeared at all of them, the mortality rates by the secondary action were somewhat different and depended on the toxic bait products.