

RESIDUAL EFFECTIVENESS EVALUATION OF INSECTICIDES AGAINST COCKROACHES NYMPHS ON POROUS SURFACE

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Abstract The residual effect of an insecticide is directly related to its formulation, active ingredient and application rates. The aim of this study was to evaluate the effectiveness of 2 distinct commercial insecticides products against *Blattella germanica* nymphs during the following six months after their application on porous surface. The tested products were P1: 2.5% Lambda-cyhalothrin on a microencapsulated formulation (Demand 2.5 CS®) and P2: 3.5% Lambda-cyhalothrin combined with 11.6% Thiamethoxam on a ZC formulation – microencapsulated + suspension concentrate, respectively (Tandem®/Optigard Duo®/Demand Duo®). Three treatments were tested: 1 dosage for P1 (P1A:10mL/1L of water) and 2 dosages for P2 (P2A: 2mL/1L of water and P2B: 4mL/1L of water). Each insecticide solution was sprayed on a 20cm x 20cm cement surface, following 1L insecticide solution/20m² proportion. Two hours after the application, 10 *Blattella germanica* nymphs (3rd and 4th instars) were exposed on the treated surface for 15 minutes and five repetitions were made for each treatment. Residual effectiveness was evaluated at 30, 60, 90, 120, 150 and 180 days after application. These evaluations followed the same proceedings: individuals exposed for 15 minutes, 5 repetitions for each treatment. All the surfaces were kept in a laboratory, under room temperature and humidity. After exposure, all the individuals were moved to an insecticide free arena, with food and water available. Mortality was evaluated until 96 hours after exposition. Results showed that P1A provided 100% of control even 6 months after applications, while P2A provided 100% of control for the first 3 months, 62% in the fourth month, 24% in the fifth month and 16% in the sixth month. P2B provided 100% of control for the first 5 months and 38% in the sixth month. CS and ZC formulations provided long lasting residual effectiveness even on porous surface.

Key words *Blattella germanica*, microencapsulated, ZC formulation, Lambda-cyhalothrin, Thiamethoxam