

Laboratory Assays to Evaluate Insecticide Efficacy for the degradation/mortality of Bed Bug Eggs

Report for

Outdoor Environmental Services, LLC

Project Director:

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Objective:

1. To find out the degradation/mortality of bed bug eggs when exposed to direct spray applications of an enzymatic product

Materials and Methods

1. Start: August 4th, 2007
Completion August 9th, 2007

2. Test Facilities:

Laboratory assays were conducted at our lab in Fort Myers, Florida

3. Bioassay Designs

Direct spray assay: 3 groups of 10 eggs were removed and placed in three separate Petri dishes (35mm x 5mm). The bed bug eggs were sprayed with 2 ml of Bed Bug Terminator. Each product treatment was replicated 5 times. 1 control assay was done. Applications were made to bed bug eggs using 500-ml capacity polyethylene hand sprayers that used a hand action trigger to spray the product. The cone sprayer at the end of the nozzle was adjusted to the finest mist possible. By squeezing the hand trigger twice we were able to get approximately 2 ml of the product. After application, egg degradation or mortality was observed.

4. Results

The Bed Bug Terminator caused very rapid degradation of the bed bug egg in our tests.

The bed bug egg assays 40% of the bed bug egg in 30 seconds of being sprayed (Table 1) the percentage of eggs that reached significant degradation by 60 seconds rose to 80%, and 90% by 90 seconds.

Table 1. Percent of bed bug eggs that had rapid degradation after being sprayed with Bed Bug Terminator.

Treatment	n	Percent of degradation after spray application (seconds)						
		0	15	30	45	60	75	90
Bed Bug Terminator	5	0	20	40	50	80	80	90
Control	1	0	0	0	0	0	0	0

The bed bug eggs were recorded at 12 and 24 hours after the spray application of the Bed Bug Terminator. There was no other significant degradation in the eggs during this time.

5. Discussion

The Bed Bug Terminator solution acts as an insecticidal soap which is what appears to cause degradation to the structure of the bed bugs egg. The product is penetrating the wax layer and leaking through the micropyle to damage the yolk and the nucleus. This solution is capable of causing extreme degradation of the egg; however the product does not have any residual ability as we found in our testing.