



Microbe Investigations AG

LS25-02442

Report date: October 17, 2025

Customer: OMNICHE CONSUMER RODUCTS CO

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Microbe Investigations AG (MIS) is a spin-off company of ETH Zürich

MIS provides microbiological testing services primarily for industrial customers assessing the characteristics of developmental products. MIS also provides a depth of expertise in fundamental aspects of microbiology gained throughout many years of world-leading research. Target customers are primarily companies working with antimicrobial treatments on textiles, plastics, and coatings.

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Test Report Overview

General Info	Name	Contact	Key Account Manager
Customer	OMNICHE CONSUMER PRODUCTS CO	WILLIAM GLAAB	-
Distributor	OMNICHE CONSUMER PRODUCTS CO	-	-
Brand customer	MAYDAY	-	-
Brand label	-	Application at	-
Reason for testing	Customer Quality Validation (CQV)	Application by	Not specified
Email	BILL@OMNICHE CO	Scale	-

Test methods carried out in this report: Direct Spray test according to OCSSPP 810.3900: Laboratory Product Performance Testing Methods for Bedbugs Pesticide Products.

1. **Aims of the Test:** To evaluate the knockdown, kill and mortality of the product against Bedbugs *Cimex lectularius*.
2. **Reference guidance:** OCSSPP 810.3900: Laboratory Product Performance Testing Methods for Bedbugs Pesticide Products.
3. **Test results:** 100% Mortality at 24 hours
4. **Test summary / comments:**

In the Test Method "Direct spray test against Bedbugs *Cimex lectularius*" the Sample "MAYDAY'S FURNITURE & BEDDING SPRAY, QCLN202506-10" showed 100% knocked down less than 10 minutes and 100% Mortality at 24 hours after spray against bedbugs *Cimex lectularius*.

Test Product Details

Name: MAYDAY'S FURNITURE & BEDDING SPRAY

Sample ID: QCLN202506-10

Formulation: The Ready-To-Use product is a liquid suspension.

Active ingredient (as declared by the sponsor):

- Not Available

Test Details

SCOPE: The test is conducted to evaluate the efficacy of a biocidal product when applied directly onto bedbugs, measuring parameters such as immediate knockdown and mortality rates over a set time-period.

MATERIAL AND METHODS

1. MATERIAL

1.1 Target species: *Cimex lectularius*, 10 nymphs and 10 adults' bedbugs in an equal sex ratio.

1.2 Application rate: Ready-To-Use product, sprayed 3 pumps from 6 inch distance.

2. METHOD

2.1 Description:

Bedbugs are introduced into the glass container. The product is directly sprayed onto the bedbugs. The knockdown effect and mortality are recorded.

2.2 Replicates: 5 independent replicates are performed.

2.3 Testing conditions:

- Temperature: $25 \pm 1^\circ\text{C}$
- Relative humidity: 50-80%

2.4 Definitions:

- Mortality: It refers to death of the individual bedbug. A dead bedbug is a bedbug that does not move, even when poked or probed.
- Knockdown: refers to a bed bug that is rendered incapable of coordinated movement or unable to right itself following exposure to a pesticide product.
- KT50: is the time needed to knockdown 50% of a test population following exposure to a specific dose of insecticide treatment.
- KT90: is the time needed to knockdown 90% of a test population following exposure to a specific dose of insecticide treatment.

2.5 Test Equipment: 16-ounce squat plastic cup with a screened bottom.

2.6 Bedbugs rearing, handling, and maintenance:

Bedbugs are reared in the laboratory and maintained at temperatures of $22 \pm 4^\circ\text{C}$, with a relative humidity of 40-60%, and a photoperiod ranging from L:D 12:12 h to L:D 16:8 h. Bedbugs are fed on human host.

2.7 Procedure:

- Placed the bedbugs in a clean, non-porous test arena.
- Allowed them to acclimate for 10-15 minutes before testing.
- Using the spray, applied the Bed bug repellent, Ready-To-Use product directly to the bedbugs. (3 pumps from 6-inch distance).
- Shaked well before each spray. Sprayed evenly and thoroughly.
- Observed and recorded the number of bedbugs knocked down within 1-10 minutes after application.
- After the initial knockdown period, transferred the bedbugs to a separate observation dish.
- Mortality is recorded 24 hours post-application.
- **Controls:** Set up a control group of bedbugs that received no spray. Observed and recorded knockdown, mortality in the control group to ensure any effects are due to the test product.

2.8 Knockdown Percentage: Calculate the percentage of bedbugs knocked down at each recorded time point. Compare the knockdown between treated and control groups.

2.9 Mortality assessment: After each test bedbugs are transferred into a separate arena to monitor the mortality at the end of the 24 hours. The mortality rate is determined by calculating the percentage of bedbugs dead at 24hours of post-exposure.

Test Results

1. Evaluation parameters: The number of bedbugs knocked down at each interval of time.

Table 1: Number of bedbugs knocked down in the Control (without spray) & Treated (after spray) at each interval of time after spray.

Exposure time	Control (Without Spray)					Treated (Sprayed with MAYDAY'S FURNITURE & BEDDING SPRAY, QCLN202506-10)				
	Replicate 1	Replicate 2	Replicate 3	Replicate 4	Replicate 5	Replicate 1	Replicate 2	Replicate 3	Replicate 4	Replicate 5
0-1 minutes	00	00	00	00	00	04	05	03	05	04
1-2 minutes	00	00	00	00	00	03	03	04	02	03
2-3 minutes	00	00	00	00	00	02	01	02	03	05
3-4 minutes	00	00	00	00	00	03	02	01	01	02
4-5 minutes	00	00	00	00	00	02	03	02	01	03
5-6 minutes	00	00	00	00	00	04	03	03	03	01
6-7 minutes	00	00	00	00	00	02	03	03	04	02
7-8 minutes	00	00	00	00	00	00	00	02	01	00
8-9 minutes	00	00	00	00	00	00	00	00	00	00
9-10 minutes	00	00	00	00	00	00	00	00	00	00
Total knock down	00	00	00	00	00	20	20	20	20	20

The percentage knocked down is calculated by the number of bedbugs knocked down by Total number of bedbugs tested multiplied by 100.

The Time until 50% (KT50) and 90% (KT90) of the insects are knocked down are calculated.

Calculation: Percent knocked down

$$\% \text{ Knock down} = \frac{\text{Number of bedbugs knock down}}{\text{Total Number of Bedbugs tested}} \times 100$$

Table 2: The time until insects are knocked down

	Treated (Sprayed with MAYDAY'S FURNITURE & BEDDING SPRAY, QCLN202506-10)				
	Replicate 1	Replicate 2	Replicate 3	Replicate 4	Replicate 5
% KT50	3-4 minutes	3-4 minutes	3-4 minutes	2-3 minutes	2-3 minutes
% KT90	5-6 minutes	6-7 minutes	6-7 minutes	6-7 minutes	5-6 minutes

2. **Mortality:** Treatment mortality is calculated by summing the number of dead bedbugs across all replicates and then expressing this as a percentage of the total number of bedbugs in such replicates. Mortality in the control is calculated similarly:

$$\text{Treatment mortality (\%)} = \frac{\text{Number of treated bedbugs dead} \times 100}{\text{Total number of treated bedbugs}}$$

$$\text{Control mortality (\%)} = \frac{\text{Number of control bedbugs dead} \times 100}{\text{Total number of control bedbugs}}$$

- If the control mortality is <5%, no correction of test results is necessary.
- When control mortality is ≥5% and ≤20%, the test mortality should be corrected with the control mortality using Abbott's formula as follows:

$$\text{Corrected mortality} = \frac{(\% \text{test mortality} - \% \text{control mortality}) \times 100}{(100 - \% \text{control mortality})}$$

Table 3: Number of dead bedbugs in the Treated and the control 24 hours post-exposure

Mortality at 24 hours	Control (Without Spray)					Treated (Sprayed with MAYDAY'S FURNITURE & BEDDING SPRAY, QCLN202506-10)				
	Replicate 1	Replicate 2	Replicate 3	Replicate 4	Replicate 5	Replicate 1	Replicate 2	Replicate 3	Replicate 4	Replicate 5
No. of bedbugs dead	0	0	0	0	0	20	20	20	20	20
Average number of bedbugs dead	0.0					20				

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~~Treatment mortality (%) = 100%~~

Control mortality (%) = 0%

Since the control mortality is <5%, no correction of test results is necessary.

Mortality: 100% mortality was recorded in the treated replicates at the end of 24 hours.

Conclusion:

The sample "MAYDAY'S FURNITURE & BEDDING SPRAY, QCLN202506-10" demonstrated effective response in controlling *Cimex lectularius* bedbugs, with 100% knockdown achieved within just less than 10 minutes post-application and 100% mortality observed at 24 hours. These results indicate that "MAYDAY'S FURNITURE & BEDDING SPRAY, QCLN202506-10" is a rapid and potent insecticide against bedbug species, suggesting its potential suitability for applications where quick knockdown and sustained mortality are desired.