



BIOASSAY OF THE EFFICACY OF AN IMPREGNATED TEXTILE TO REPEL MOSQUITOES

VALIDATION TRIAL : REPELLENT EFFECT

Fabric: **100% cotton fabric**

TREATMENT : **GREENFIRST® treatment based on 2% PROFYL NK 10**

Before and after 10 house washings at 60°C



SPONSOR :

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BIOASSAY OF THE EFFICACY OF AN IMPREGNATED TEXTILE TO REPEL MOSQUITOES

1. PURPOSE

To assess repellency effect of an impregnated fabric towards adult mosquitoes.

2. MATERIALS AND METHOD

The procedure is to compare the behaviour of mosquitoes towards a blood-meal target (mouse) with and without the fabric under.

The mosquitoes are 2 to 5 days old females of *Aedes aegypti* (Bora-bora, ORSTOM / OMS strain).

Females were starved for 24 hours to be eager to bite.

The trials are done in 50cm x 50cm x 50cm cubicle cages containing :

- a mice maintained in a tight net cage (eyes are protected)
- around 50 *Aedes aegypti* females (this number is required for the statistical reliability but as the volume is only 0.125 m³, we have to keep in mind that there is a high 'pressure' of mosquitoes (400 par m³), which means that the trial is quite hard for the product).
- a 10cm x 10cm square of the fabric placed under the mouse cage.

The number of mosquitoes landed on the target and on the fabric are recorded along one hour of testing.

The data are then compared to a trial with an untreated fabric.

The experimenter will also note any knockdown effect on the insects.

2 replicates are done and the data are cumulated.

3. SAMPLES

- untreated control fabric (cotton)
- experimental sample : **A 0107/173**

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The samples left are kept available in the laboratory for 6 months for any further analysis.

4. RESULTS

CALCULATION OF THE EFFICACY :

Comparison between the number of mosquitoes landed on the treated and the untreated fabrics: gives the **intrinsic repellency** of the treated fabric.

$$\frac{\text{Number of mosquitoes landed on the Untreated Fabric} - \text{Number of mosquitoes landed on the Treated Fabric}}{\text{Number of mosquitoes landed on the Untreated Fabric}} \times 100$$

ANALYSIS:

In the conditions of this trial, with samples, insects strain and methodology used:

- the trial is validated as the data obtained for the untreated fabric has shown that mosquitoes are really eager to bite the mouse

- the data obtained for the treated and untreated fabrics are:

	Landed on the fabric		
	Rep 1	Rep 2	Total
Untreated control	48	43	91

	Landed on the fabric		
	Rep 1	Rep 2	Total
Before washes	5	3	8
	% of intrinsic repellency =		91,2%

	Landed on the fabric		
	Rep 1	Rep 2	Total
After 10 domestic Washes at 60°C	21	26	47
	% of intrinsic repellency =		48,4%

(rep = replicate)

Comments:

In the conditions of this trial, with samples, insects and methodology used:

The sample has proved a very good repellency against mosquitoes.

This repellency against mosquitoes remains after 10 domestic washes at 60°C.