LABORATORY ASSESSMENT OF THE EFFICACY OF A FABRIC TREATMENT TO CONTROL HOUSE DUST MITES

PROBIOTIC TREATED CARPET

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1. PURPOSE

To assess effect of an impregnating treatment of fabric on development of house dust mites populations.

Trial is done by a deposit of dust mites on the fabrics impregnated or not with the specialities. The trial duration is 6 weeks, which corresponds to 2 development cycles of the mites.

2. HOUSE DUST MITES

The species choosen is *Dermatophagoïdes pteronyssinus* from a laboratory colony breeding in controlled conditions (23-25°C, 75% RH, dark).

The strain is from french institute I.N.R.A..

3. MATERIALS AND METHOD

The methodology is according to the french standard NF G 39-011 with the following variants.

The experimental unit is a small round arena (5 cm diameter), designed in order to allow air exchanges but not the escape of the mites.

The arena is containing :
- 0,5 g of food substrate (yeast + dust)
- a square of the fabric on the ‘floor’ of the arena

100 to 200 mites are settled into the arenas.

Mites used are sorted as the more actives by a smooth temperature gradient.

4 replicates are done, including for the Untreated Control batches (feathers without treatment).

The units are separated by batches in boxes with a salt solution to maintain relative humidity and stored in optimal breeding conditions.

4. ASSESSMENTS

The number of alive mites is counted after 3 and 6 weeks of incubation.

Death criteria is :
- are classified as ‘dead’ the mites unable to move
- are classified as ‘alive’ the mites able to move

Data will show the compared population’s evolution between the Treated and the Untreated during the 2 cycles of development.

Calculation of efficacy is explained on § 5.

Experimental units (received the 11th July) provided by BOYTEKS (Melikgazy – Turkey):

- untreated control : UNTREATED CARPET (same quality as treated but without treatment)
- treated sample : « PROBIOTIC TREATED CARPET »

Samples left are kept available 3 months for any further analysis.

5. RESULTS

5.1. Presentation:

The data are presented in the table next page.
The data are numbers of alive mites converted in % of death rates.

Calculation of efficacy is done with the POPULATION CONTROL COEFFICIENT

$$CP = \frac{\text{mites alive in Untreated - mites alive in Treated}}{\text{mites alive in Untreated}} \times 100$$

As it is a comparison between Treated and Untreated batches, the treatment would be all the more active as this coefficient would be closer to 100.

5.2. Comments:

In the conditions of this trial, with the sampels provided, the mites strain and methoodlogy used :

- the natural evolution of mites population in Untreated batches shows good development conditions (more than 900 mites obtained from the original 50).

- the sample gave a perfect (100%) control of the dust mites along the 2 development cycles period.

RAW DATA BOYTEKS 1529HDM5/0612

% REDUCTION OF HOUSE DUST MITES EXPOSED TO THE FABRICS

	replicate	mites alive	**% reduction**
UNTREATED CARPET	**1**	**911**	
	2	**856**	
	3	**887**	
	4	**923**	
	mean	**894,25**	**-**
PROBIOTIC TREATED CARPET	1	0	
	2	0	
	3	0	
	4	0	
	mean	0	**100,0**