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Eye Stimulation Test Using BIO-ALPOSOL

Client	GreenTech Biotechnology Environmental Co., LTD.	Report No.	SL92E9019-eye 1/2m
Client Address	3F, No.97, Jingye 1 st . Road, Taipei, Taiwan, ROC		
Specimen I.D.	GreenTech BIO-ALPOSOL	Date Received	June 3, 2003
Specimen I.D.	9019E01	Date Issued	July 7, 2003
Specimen description	fluid	Specimen collector:	<input checked="" type="checkbox"/> Research contract
Remarks :			
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2. The results in this report are valid only to the specimen sent by client.			
3. All report content is used as references, not for advertising, sales promotion and notarial purpose.			



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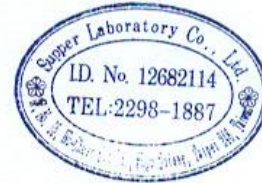
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Eye Stimulation Test Using BIO-ALPOSOL

Abstract

Rabbit's eye stimulation test was conducted with 3 of 2 kg-weight rabbits by using BIO-ALPOSOL chemical (provided by GreenTech Biotechnology Co., Ltd.). The left eye was used for tested eye by adding 0.1 mL of BIO-ALPOSOL solution and the right eye acted as blank control. The result indicate that there is no any local stimulating response after 6、24、48、72 hours and 7 days observation. The control group shows no adverse response too. Therefore, we can conclude that BIO-ALPOSOL show no adverse stimulating response on the tested animal eye.

Research Content



1. Objectives :

This test will evaluate whether there is any stimulating effect exerted by BIO-ALPOSOL on the rabbit' eye.

2. Specimen :

BIO-ALPOSOL chemical (in liquid form) is provided by GreenTech Biotechnology Environmental Co., LTD. Test volume is 0.1 mL.

3. Methods:

- (1) Animal: Three home-bred rabbits without any eye's damage or injury, especially for their cornea, were selected for this experiment, and the weight for each rabbit was about 2 kilograms
- (2) Dose selected: The original concentration of BIO-ALPOSOL solution was used for eye stimulation test. At the beginning of the experiment, the left eyelids of the home-bred rabbits were made to slightly open by two fingers. Then, 0.1mL of BIO-ALPOSOL solution was dropped into the left eye of tested rabbits, the right eye of the same rabbit was acted as blank control group. After BIO-ALPOSOL solution was given,

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the left eye of the home-bred rabbits were forced to close for 5~10 seconds, the local response on the eye of home-bred rabbit was checked and recorded after 6, 24, 48, 72 hours and again 7 days

- (3) Results: The results were recorded according to the criterions listed on Table 1. The stimuli partial values of stimulate response on the rabbits' cornea, iris and conjunctiva were observed and recorded. The sum of the stimuli partial values is considered as its stimulate response. If the average of its sum is ranged between scores 0~3, then it should be considered as non-stimulation, scores 4~8 as slight stimulation, 9~12 as moderate stimulation, and 13~16 as strong stimulation,

Table 1. The Evaluation Score for Eye Stimulate Responses

Stimulate Responses on Eye	Partial value
Cornea turbidity (on the most condensed area)	
No turbidity	0
Disseminated turbidity, but iris seen clearly	1
Semi-transparent area, but recognized easily, obscurity for iris	2
Gray color for semitransparent area, obscurity for iris, the size of iris can be seen clearly.	3
Obscurity for cornea, iris cannot be recognized due to turbidity	4
Iris	
Normal	0
Wrinkle were enhanced, blood congestion, swelling and there is slight blood congestion on the surrounding areas, the iris has response to light.	1
Bleeding, necrosis, no response for light (or any one of the above-mentioned response occurred)	2
Conjunctiva	
A. Blood congestion (eyelid cornea, bulbar conjunctiva)	
Normal blood vessels	
Blood vessel congestion and in bright red color	1
Blood vessel in deep red color, not easily recognized for blood	2



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vessels	
Disseminated blood congestion and tin deep purple	3
B. Edema	
No edema	0
Slightly edema (including eye flash)	1
Edema significantly, slightly opened for partial eyelid	2
Edema occurred from eyeball to eyelid and cause eyelid half close	3
Edema occurred from eyeball to eyelid and cause eyelid full close	4
C. Secretion	
No secretion	0
Little secretion	1
Wet or mucous of eyelid and eyelash due to much secretion	2
Wet or mucous on whole eye due to heavy secretion.	3

Total Score (highest score)



4. Results and Discussion:

Eyes are a kind of fragile organ for animal, it may cause congestion, edema or secretion production when exposure to stimulating agent. BIO-ALPOSOL chemical is used as detergent for air treatment. If so, this agent should be proved that it has no any stimulating effect for animals' eye. Three healthy home-bred rabbits were selected for this experiment, and the hand-operated electrical torch was used to check their eyes in order to make sure their eye have no damage or injury.

After that, the BIO-ALPOSOL solution was dropped into their left eye individually followed by eye's closed tightly for about 5~10 seconds, the local response on the eye of tested rabbits were examined and recorded after 6, 24, 48, 72 hours and again 7 days. Any immediate and delay responses was also recorded. The results of any adverse responses on cornea, iris and conjunctiva will be recorded, see Table 1.

The left eye of home-bred rabbits is acted as blank control group. The

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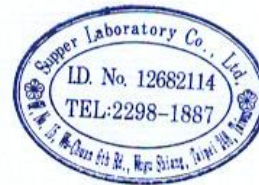


results showed that BIO-ALPOSOL solution in its original concentration have no any stimulating effect on cornea, iris and conjunctiva after 6, 24, 48, 72 hours and again 7 days, There were also no adverse response on the blank control (right eye). Their scores of eye stimuli were recorded as zero according to the evaluation criteria listed on Table 1. In conclusion, this experiment have showed that BIO-ALPOSOL solution in its original concentration have no any stimulation effect on home-bred rabbit' eye.

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Michael Lin

July 7, 2003



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