Triangle Test

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Tradename: Phytofuse Rejuvenate®

Code: 16882

CAS #: 93384-40-8

Test Request Form #: 13479

Lot #: 93384-40-8

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Study Director: *Daniel Shill*
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Test Performed:
Triangle Test

Introduction

Cosmetic products are designed to elicit various sensory effects during application, in addition to the traditional physical beauty attributes and benefits. The ability to discern the sensory effects between multiple products is of great importance to how consumers perceive products.

Accordingly, a Triangle Test was conducted to evaluate if there is a detectable difference when **Phytofuse Rejuvenate® ABG** is added to a personal care product.

Study Principle

Sensory Tests allow for the measurement, analysis, and interpretation of human responses to various stimuli. Triangle Tests are conducted to determine if there is a perceivable difference between samples.

Materials

A. **Products**: Base Lotion (Cetaphil® Moisturizing Cream for All Skin Types)

Methods

10 volunteers aged 22 - 53 who were known to be free of any skin pathologies participated in this study. Three randomly determined test sites were identified on the volar forearm. The skin test site conditions and treatments are described below (Table 2). The Base Lotion utilized in this study was Cetaphil® Moisturizing Cream for All Skin Types. Each participant applied 0.2 g of each condition to the respective test sites with separate fingers. Participants were instructed to note any perceived noticeable sensory differences or effects between conditions. Participant feedback was recorded including any sensory comments as well as the product sample participants indicated to have a sensory difference. Lastly, participants were instructed to identify which of the three treatments contained **Phytofuse Rejuvenate® ABG** and responses were recorded.

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Table 1. Descriptions of the Conditions and Treatments for each Skin Test Site

Skin Test Site	Condition	Treatment / Test Article Application Description
1	Base Lotion	Base Lotion
2	Base Lotion	Base Lotion
3	5.0% **Phytofuse Rejuvenate® ABG**	5.0% **Phytofuse Rejuvenate® ABG** in Base Lotion

Based on the correct or incorrect identification of the lotion containing 5.0% **Phytofuse Rejuvenate® ABG**, a Chi-Square Test was used to determine whether a difference between the observed participant responses and the expected result is due to chance or a distinct relationship between the products. The null and alternative hypotheses were defined as:

$$H_0: null\ hypothesis:\ There\ will\ be\ no\ percieved\ difference\ between\ the\ lotions.$$
$$H_A: alternative\ hypothesis:\ There\ will\ be\ a\ percieved\ difference\ between\ the\ lotions$$

Based on the results from the Chi-Square analysis, the null hypothesis will be rejected and the alternative hypothesis is accepted if the X^2 value is greater than the critical value. Significance was accepted at $p < 0.05$.

Results

Applying 5.0% **Phytofuse Rejuvenate® ABG** elicited differential sensory effects compared to the Base Lotion.

Table 2. Chi-Square Results

	Correct Identification	Incorrect Identification
Observed	10	0
Expected	3.33	6.667
(Observed-Expected)^2/Expected	13.36003	6.667
X^2	20.027	
Critical Value (P=0.005, df=1)	3.841	

Discussion

As evidenced in this study, 5.0% **Phytofuse Rejuvenate® ABG** elicits a detectable sensory difference when compared to the Base Lotion alone. As shown in Table 2, ten out of ten participants correctly identified a perceivable difference between the Base Lotion and 5.0% **Phytofuse Rejuvenate® ABG**. The null hypothesis was rejected based on statistical analysis, indicating that the perceived difference between products were not due to chance but that there is a significant sensory difference (Table 2).

In conclusion, these results indicate **Phytofuse Rejuvenate® ABG** elicits perceived sensory effects during application when added to personal care products at recommended use levels.