

Tradename: AC Vegetable Ceramides G

Code: 16558G

CAS #: 56-81-5 & 308067-30-3

Test Request Form #: 10776

Lot #: 9395464

Sponsor: *Active Concepts, LLC; 107 Technology Drive Lincolnton, NC 28092*

Study Director: *Maureen Drumwright*

Principal Investigator: *Kayla Patterson*

Test Performed:

Moisturization Study

Introduction

The skin's structural and functional integrity is predominantly dependent on sufficient hydration levels given several enzymes maintaining homeostasis within the stratum corneum are hydrolytic and do not occur efficiently if water is below an acceptable threshold. Adequately hydrated skin is flexible, resistant to shearing forces, an effective protective barrier, and appears more youthful with a reduction in fine lines and wrinkles. Conversely, insufficiently hydrated skin is present in many skin diseases and exhibits a compromised protective barrier, feels dry, flaky, and rough, and is correlated with skin aging. Consequently, proper hydration maintains the skin's structural and functional integrity and contributes to the appearance of healthier looking skin.

Accordingly, a moisturization study was conducted to evaluate the skin hydrating properties of **AC Vegetable Ceramides G**.

Study Principle

Hydration measurements are made by placing a probe on the skin of preidentified test sites. The hydration probe evaluates conductance properties by alternating voltages in the upper layers of skin and provides a measurement of local hydration. The controls and test materials are applied to the skin test sites twice a day and hydration is measured weekly.

Materials

- A. Equipment:** DermaLab Skin Combo (Hydration Probe)
- B. Products:** Base Lotion (Cetaphil® Moisturizing Cream for All Skin Types)

Methods

Volunteers between the ages of 23 and 45, who were known to be free of any skin pathologies participated in this study.

Three randomly assigned test sites were identified on the volar forearm of participants and baseline moisture measurements were recorded. Following baseline measurements, participants applied 0.2 g of each test material on their volar forearms twice a day for four weeks. Moisture measurements were recorded once a week for four weeks. The skin test site conditions and treatments are described below (Table 1). The Base Lotion utilized in this study was Cetaphil® Moisturizing Cream for All Skin Types.

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

Skin Test Site	Condition	Treatment / Test Article Application Description
1	Untreated Control	None
2	Base Lotion	Base Lotion
3	2.0% AC Vegetable Ceramides G	2.0% AC Vegetable Ceramides G in Base Lotion

An average of three consecutive moisture measurements per condition at each time point was recorded and expressed as micro-Siemens (μS). The percent change in moisture was calculated for each test site at every timepoint relative to Baseline values, using the following equation:

$$\text{Percent Change (\%)} = \frac{\text{Skin Moisture}_{\text{Week}} - \text{Skin Moisture}_{\text{Baseline}}}{\text{Skin Moisture}_{\text{Baseline}}} \times 100$$

Results

The data obtained from this study met criteria for a valid study as the Untreated Control and Base Lotion performed as anticipated. Application of 2.0% **AC Vegetable Ceramides G** twice a day for four weeks demonstrated effective skin hydrating properties by enhancing moisturization throughout the study duration.

Skin Hydration AC Vegetable Ceramides G

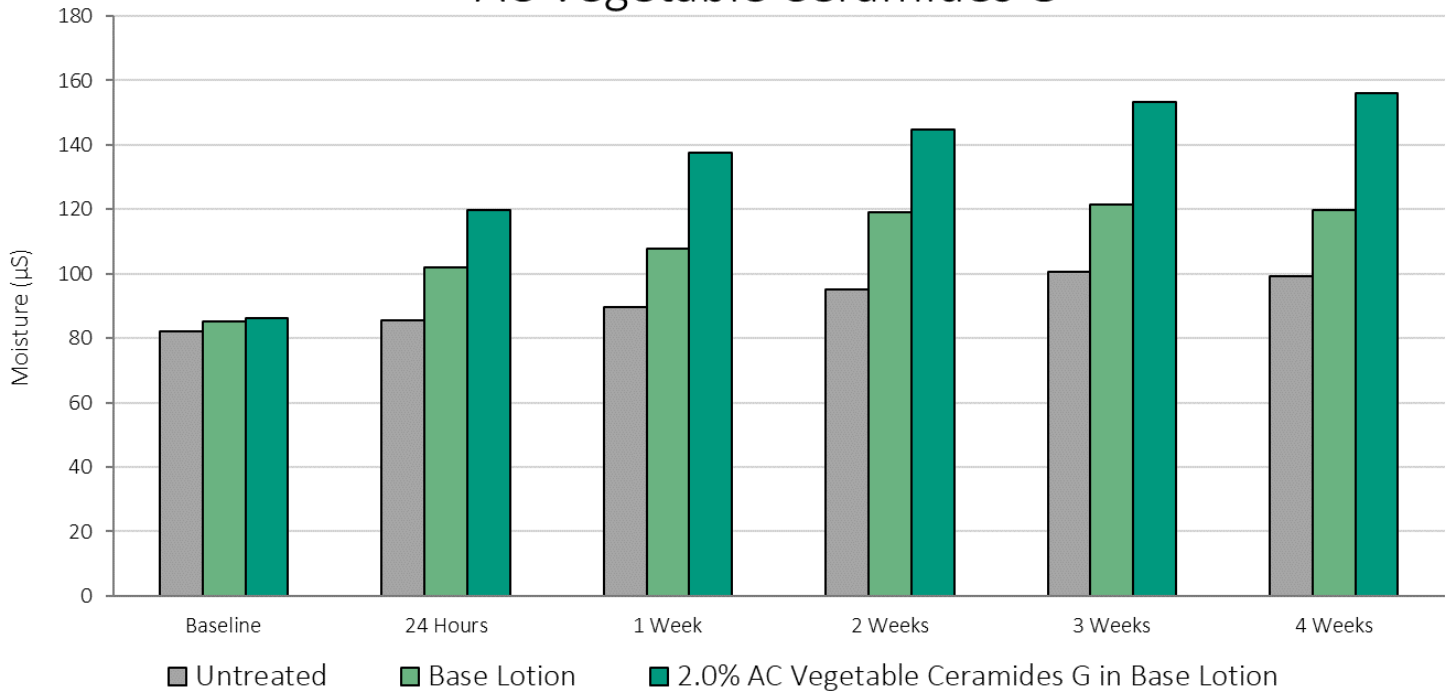


Figure 1. Skin Hydration Overtime

Table 2. T-test Analysis of Moisture Levels from Baseline to After Four Weeks of Application

	Untreated Control	Base Lotion	2.0% AC Vegetable Ceramides G
P-value	0.224	0.028	<0.001

Table 3. T-test Analysis of Moisture Levels After Four Weeks of Application

	Untreated Control vs Base Lotion	Untreated Control vs 2.0% AC Vegetable Ceramides G	Base Lotion vs 2.0% AC Vegetable Ceramides G
P-value	0.201	0.004	0.069

Change in Skin Hydration AC Vegetable Ceramides G

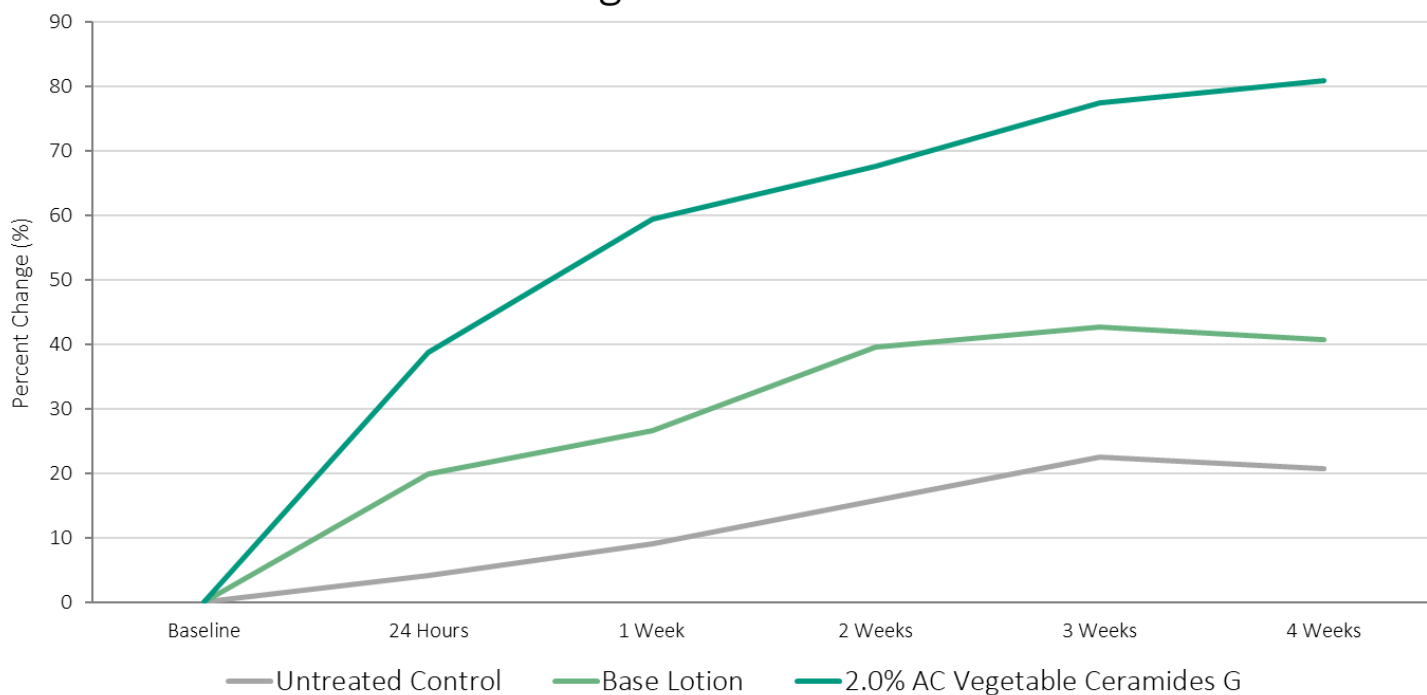


Figure 2. Percent Change in Skin Hydration Relative to Baseline Values

Discussion

The ability of **AC Vegetable Ceramides G** to skin moisturization was assessed via hydration throughout four weeks of twice daily application. As shown in Figure 1 and 2, skin moisture did not significantly change throughout the study with the Untreated Control test site, indicating consistent skin hydration throughout the four weeks (Table 2). Similarly, skin moisture was not significantly altered throughout the study with Base Lotion application, indicating the Base Lotion does not exert significant hydration on the skin (Figures 1, 2; Table 2). Conversely, applying 2.0% **AC Vegetable Ceramides G** twice a day for four weeks significantly augmented skin moisturization by 81% (Figures 1, 2; Table 2). These results demonstrate **AC Vegetable Ceramides G** has effective skin hydration properties.

Similar results are shown when examining the collective effect of each condition. There is a slight difference in skin hydration between the Untreated Control and Base Lotion after four weeks (Figure 1; Table 4). However, applying 2.0% **AC Vegetable Ceramides G** significantly increased hydration compared to the Untreated Control and Base Lotion (Figure 1; Table 3). These results demonstrate **AC Vegetable Ceramides G** elicits skin moisturization with repeated applications.

Taken together, these results indicate **AC Vegetable Ceramides G** increases skin moisturization when added to personal care applications at recommended use levels. Collectively, **AC Vegetable Ceramides G** demonstrates skin hydration properties which improves the skin's protective barrier function and contributes to the appearance of healthier looking skin.