Rinse-Off Moisturization

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Tradename: AC PolyJackharides

Code: 20963

CAS #: 7732-18-5 & 93333-78-9

Test Request Form #: 6907

Lot #: N200807O

Sponsor: *Active Concepts, LLC; 107 Technology Drive Lincolnton, NC 28092*
Study Director: *Maureen Drumwright*
Principal Investigator: *Kara Rivera*

Test Performed:
Moisturization Study: Rinse-Off

Introduction

Dehydrated skin is more prone to various forms of UV damage. Hydration can reduce the appearance of fine lines and wrinkles by improving skin elasticity. Proper skin hydration can also reduce breakouts by regulating the oil production of skin. Skin that is properly hydrated can appear healthier and more youthful in appearance.

Accordingly, a rinse off moisturization study was conducted to assess the immediate and short-term skin hydrating properties of **AC PolyJackharides** in a body wash formulation.

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 site once and hydration is measured at four time increments within a 24-hour period.

Materials

A. **Equipment:** DermaLab Skin Combo (Hydration Probe)
B. **Products:** Base Body Wash (Table 1)
C. **Software:** Excel Analysis ToolPak (Microsoft)

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Table 1. Ingredient List (INCI Names) of Base Body Wash

Base Body Wash
Water
Sodium Lauryl Sulfoacetate
Sodium Methyl 2-Sulfolaurate (and) Disodium 2-Sulfolaurate
Cocamidopropyl Betaine
Leuconostoc/Radish Root Ferment Filtrate

Methods

Ten volunteers between the ages of 23 and 45, who were known to be free of any skin pathologies with Fitzpatrick skin types I to III, participated in this study (Table 2).

Table 2. The Fitzpatrick Classification of Skin Types Chart[1]

Fitzpatrick Skin Type Descriptions*	
Skin Type	Description
I	Always burns, never tans
II	Burns easily, tans minimally
III	Burns moderately, tans to light brown
IV	Burns minimally, tans to moderate brown
V	Rarely burns, tans to dark
VI	Never burns, least sensitive to changes
*Adapted from The Surgeon General's Call to Action to Prevent Skin Cancer	

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 treatment to their volar forearm once during the 24-hour test period. After treatment application, each test site was rinsed with warm water and patted dry with a paper towel. Moisture measurements were recorded at four time increments after the application and rinse-off of test materials. The skin test site conditions and treatments are described below (Table 3).

Table 3. 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 Body Wash	Base Body Wash
3	5.0% **AC PolyJackharides**	5.0% **AC PolyJackharides** in Base Body Wash

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An average of three consecutive moisture measurements per condition at each time point was recorded and expressed as micro-Siemens (µS) for each volunteer. Data are displayed as averages from all volunteers and analyzed using t-tests with statistical significance accepted at $p \leq 0.05$. The percent change in moisture was calculated for each test site at every timepoint relative to Baseline values, using the following equation:

$$Percent\ Change\ (\%) = \frac{Skin\ Moisture_{Measurement\ Time} - Skin\ Moisture_{Baseline}}{Skin\ Moisture_{Baseline}} \times 100$$

Results

The data obtained from this study met criteria for a valid study as the Untreated Control and Base Body Wash performed as anticipated. Application of 5.0% **AC PolyJackharides** once in a 24-hour period demonstrated effective immediate and short-term skin hydrating properties by enhancing moisturization throughout the study duration.

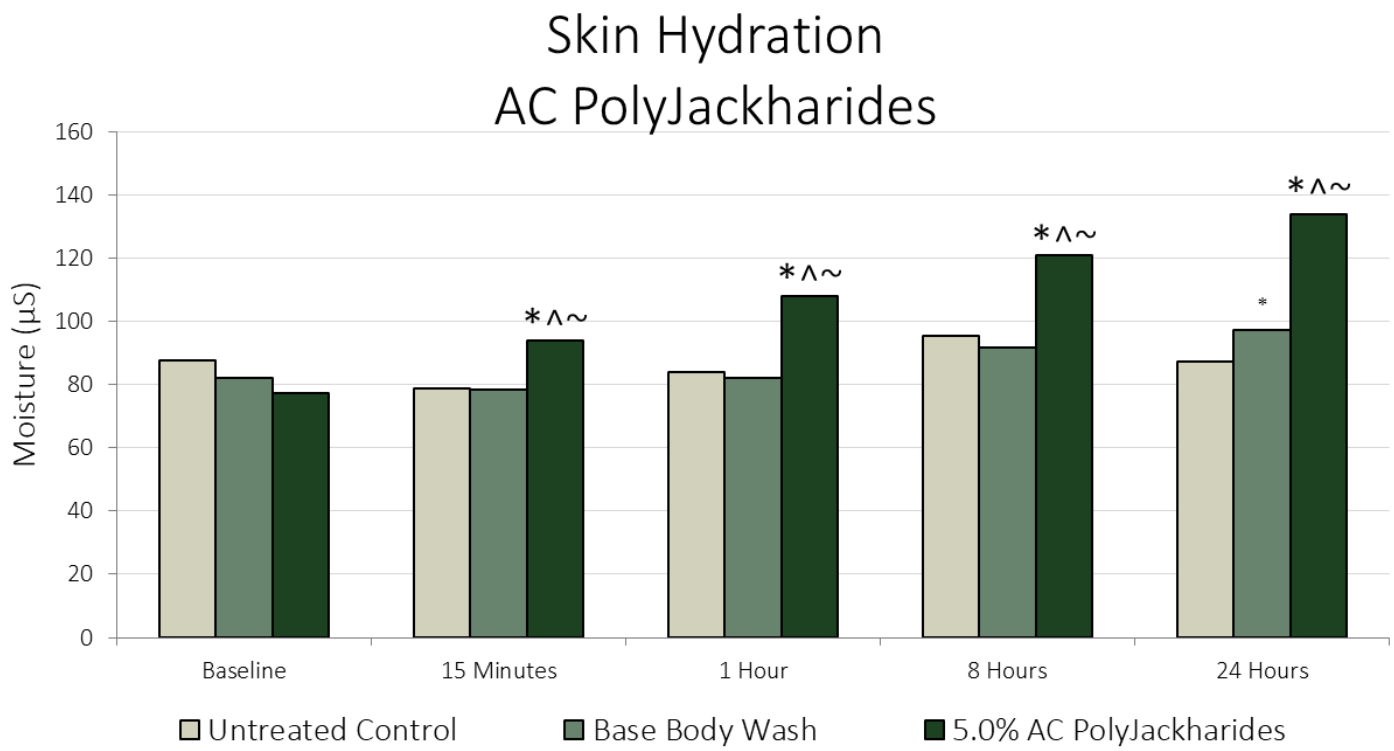

Figure 1. Skin Hydration Overtime. * indicates significance ($p \leq 0.05$) compared to Baseline values. ^ indicates significance ($p \leq 0.05$) compared to Untreated Control within the same timepoint. ~ indicates significance ($p \leq 0.05$) compared to Base Body Wash within the same timepoint.

Table 4. P-values from t-test Analyses of Moisture Levels from Baseline to 8 Hours and 24 Hours After Application. * indicates significance ($p \leq 0.05$) compared to Baseline values.

	Untreated Control	Base Body Wash	5.0% **AC PolyJackharides**
8 Hours After Application	0.473	0.109	< 0.001*
24 Hours After Application	0.972	0.017*	< 0.001*

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Table 5. T-test Analysis of Moisture Levels 24 Hours After Application. ^ indicates significance ($p \leq 0.05$) compared to Untreated Control within the same timepoint. ~ indicates significance ($p \leq 0.05$) compared to Base Body Wash within the same timepoint.

	Untreated Control vs Base Body Wash	Untreated Control vs 5.0% AC PolyJackharides	Base Body Wash vs 5.0% AC PolyJackharides
P-value	0.293	< 0.001^	< 0.001~

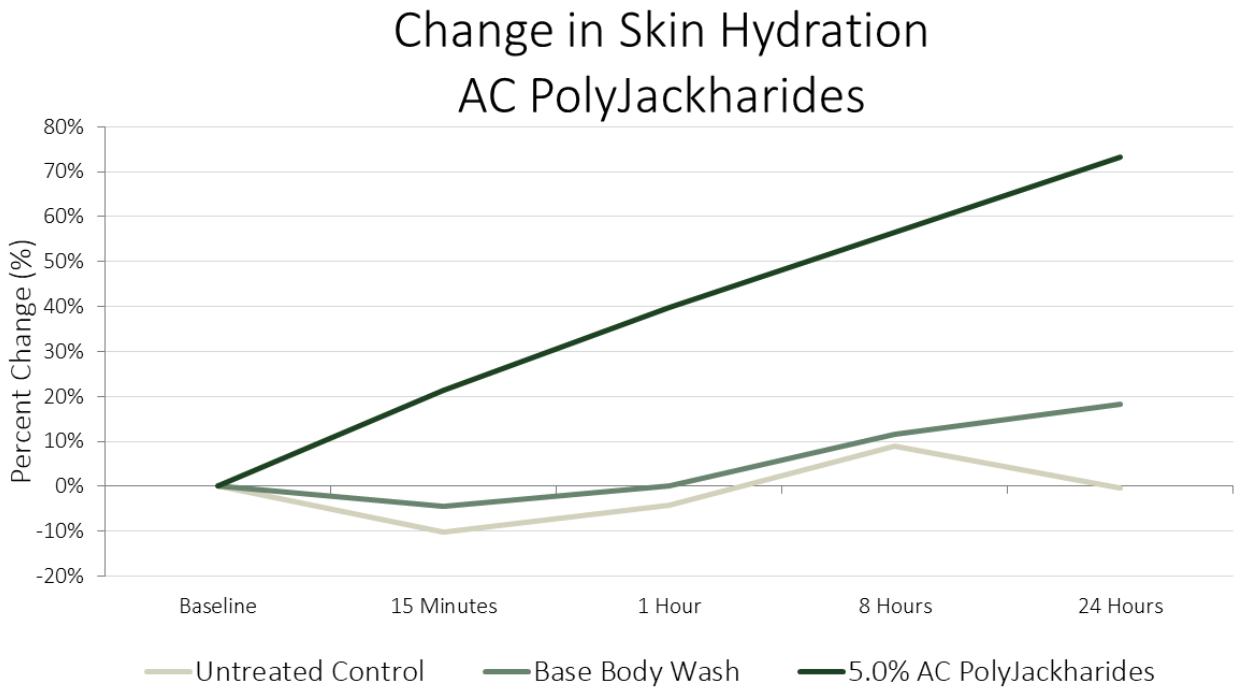

Figure 2. Percent Change in Skin Hydration Relative to Baseline Values

Discussion

The ability of **AC PolyJackharides** to enhance skin moisturization was assessed via hydration throughout 24 hours with one initial application followed by a rinse-off with warm water. 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 over 24 hours (Table 4). The Base Body Wash did not alter skin hydration eight hours after application, but slightly increased moisturization levels after 24 hours, indicating the Base Body Wash has a marginal skin hydrating effect (Figures 1, 2; Table 4). Conversely, applying 5.0% **AC PolyJackharides** once in a 24-hour period significantly augmented skin moisturization by 57% eight hours after application, and remained elevated 24 hours after application (Figures 1, 2; Table 4). These results demonstrate **AC PolyJackharides** has effective immediate and short-term skin hydration properties.

Similar results are shown when examining the collective effect between each condition. There is no difference in skin hydration between the Untreated Control and Base Body Wash 24 hours after application (Figure 1; Table 5). However, applying 5.0% **AC PolyJackharides** significantly increased hydration compared to the Untreated Control and Base Body Wash (Figure 1; Table 5). These results demonstrate **AC PolyJackharides** elicits acute skin moisturization with just one application.

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Taken together, these results indicate AC PolyJackharides increases skin moisturization immediately when added to personal care applications at recommended use levels. Collectively, AC PolyJackharides demonstrates immediate and short-term skin hydration properties which improves the skin's protective barrier function and contributes to the appearance of healthier looking skin.

References

1. Sharma AN, Patel BC. Laser Fitzpatrick Skin Type Recommendations. [Updated 2022 Mar 9]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK557626/