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Original Research Article

Efficacy of Venusia max cream and lotion on skin hydration, barrier function and consumer perception: a 72-hour interventional study

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ABSTRACT

Background: Adequate skin hydration is essential for maintaining epidermal barrier integrity and preventing dryness and irritation in normal to dry skin. This study evaluated the effects of Venusia max cream and Venusia max lotion on skin hydration, transepidermal water loss (TEWL), and consumer perception in healthy adults with normal to dry skin.
Methods: This single-center, non-randomized, within-subject, controlled interventional study enrolled healthy volunteers aged 18-55 years with normal to dry skin. Venusia max cream and Venusia max lotion were applied to designated test sites, with untreated sites serving as controls. Skin hydration was measured using the MoistureMeter-D, and TEWL was assessed using a closed-chamber VapoMeter at baseline and 15 minutes, 12, 24, 48, and 72 hours post-application. Consumer perception and safety were evaluated at 72 hours.
Results: Thirty-four participants (mean age 29.21±8.63 years; 82.4% female) were analyzed. Both formulations produced rapid increases in skin hydration within 15 minutes. Venusia max cream showed sustained numerical improvements at 72 hours (+0.98 and +1.13 with M25 and S15 probes; p=0.073 and p=0.054). Venusia max lotion demonstrated significant hydration improvements at multiple time points, including 72 hours (+3.15 and +3.77; both p=0.001). TEWL decreased with both formulations, with significant reductions up to 48 hours for the cream and at 12 hours for the lotion (p=0.001). Consumer satisfaction and tolerability were high, with no adverse events reported.
Conclusions: Venusia max cream and lotion provided rapid hydration, supported epidermal barrier function, and were well tolerated, supporting their use in routine care of normal to dry skin.

Keywords: Skin hydration, Transepidermal water loss, Moisturizer, Barrier function, Consumer perception

INTRODUCTION

Skin barrier dysfunction represents a key contributory pathophysiological mechanism underlying many dermatological conditions, ranging from mild xerosis to severe inflammatory disorders. The stratum corneum, which is the outermost epidermal layer, serves as the primary interface between the skin and external environment, regulating transepidermal water loss (TEWL) while preventing the penetration of irritants, allergens, and pathogens.[1] Barrier compromise manifests clinically as increased TEWL, along with alterations in stratum corneum lipid organization and corneocyte cohesion, which creates a pathway chronic skin disease.[1] In healthy individuals, age-related decline in lipid synthesis, cumulative environmental exposures, and inherited variations in epidermal lipid metabolism can independently compromise barrier integrity.[1] Hence, therapeutic strategies aimed at restoring and maintaining skin hydration have become cornerstone for dermatologic interventions.

Moisturizers are important for managing xerosis and supporting barrier function. Their formulations are designed to increase water content in the stratum corneum through three principal mechanisms: occlusion (reducing

TEWL through formation of a hydrophobic surface film), humectancy (attracting and binding water molecules from the dermis and environment), and barrier repair (providing exogenous lipids and other components that restore stratum corneum structure).[2]

Venusia max cream and Venusia max lotion are commercially available moisturizers containing combinations of humectants, emollients, and occlusive agents intended to support skin hydration.[3,4] However, published controlled studies evaluating their biophysical effects using objective instrumental measurements remain limited. It is also important that there is an integration of objective biophysical measurements with subjective consumer assessments to provide a more comprehensive evaluation of moisturizer performance. This is because improvements in instrumental parameters do not always directly correlate with perceived clinical benefit in clinical practice.

Therefore, this study was designed with three primary objectives: to evaluate skin hydration in deeper layers using the MoistureMeter-D (MMD) probe after application of Venusia max cream and Venusia max lotion on the volar forearms and upper outer arms, compared to baseline and a control site, up to 72 hours post-application; to evaluate TEWL after application of Venusia max cream and Venusia max lotion on the volar forearms and upper outer arms, compared to baseline and a control site, up to 72 hours post-application; and to evaluate the in-use tolerance of Venusia max cream and Venusia max lotion.

METHODS

Study design and setting

This was a single-center, non-randomized, within-subject, controlled interventional study conducted between 07 July 2025 and 14 August 2025. The study evaluated the skin hydration effectiveness of two moisturizing products (Venusia max lotion and Venusia max cream, Dr. Reddy's Laboratories Ltd., Hyderabad, India) compared with baseline (initial state) and untreated control sites, with assessments conducted upto 72 hours post-application.

Participants

Healthy volunteers aged 18-55 years with normal to dry skin (confirmed by clinical evaluation) and healthy test sites were included in the study. Exclusion criteria included pregnant or lactating women, individuals with known allergy to cosmetic products, those with skin disorders that could interfere with study assessment, chronic illness which may influence the skin sensitivity (skin problems like atopic dermatitis, psoriasis, eczema or diseases like hypothyroidism, anaemia, hormonal problems, or patients on anti-cholesterol drugs), recent systemic/topical treatments interfering with outcomes (e.g., topical steroids within 1 month), cutaneous conditions on test sites (e.g., scars, moles), or any condition deemed non-compliant by the investigator.

Test products

Two moisturizing cosmetic products were evaluated.

Venusia max lotion (Batch No: BZD5120, manufactured June 2025, expiry May 2027). Key ingredients include hyaluronic acid, aloe butter, shea butter, mango butter, cocoa butter, glycerine, and dimethicone.

Venusia max cream (Batch No: BZD5121, manufactured June 2025, expiry May 2027). Key ingredients include hyaluronic acid, aloe butter, shea butter, mango butter, cocoa butter, and glycerine.

Products were provided by Dr. Reddy's Laboratories Ltd., Hyderabad, India. The test products were tested for efficacy by an independent third party (C.L.A.I.M.S Pvt. Ltd., India).

Test conditions

All instrumental assessments were performed under controlled environmental conditions, with ambient temperature maintained at 20-22 °C and relative humidity at 40-60%. Participants underwent a standardized acclimatization period of approximately 45 minutes before each assessment.

Test sites and product application

Instrumental assessment sites

Fifteen test sites measuring 2×2 cm² were marked on each participant: twelve sites (sites 1-12) on the volar forearms and three sites (sites 13-15) on the upper outer arms. Occlusion was applied to the forearm site, whereas upper arm sites remained un-occluded (Table 1).

Approximately 0.03 g of the assigned product was applied to designated test sites using a standardized massage technique for 30 seconds. Control sites received no product application but were otherwise handled identically. Occlusion was applied immediately after application to forearm sites and maintained until the respective assessment time points.

The application matrix comprised cream, lotion, and control sites assessed at 15 minutes, 12-, 24-, 48-, and 72-hours post-application (Figures 1 and 2).

Consumer use for perception assessment

For consumer feedback evaluation, participants applied approximately 0.2 g of the cream to the right hand and 0.2 g of the lotion to the left hand during scheduled study-centre visits, using the same standardized 30-second

massage technique. This assessment was conducted independently of the instrumental evaluation.

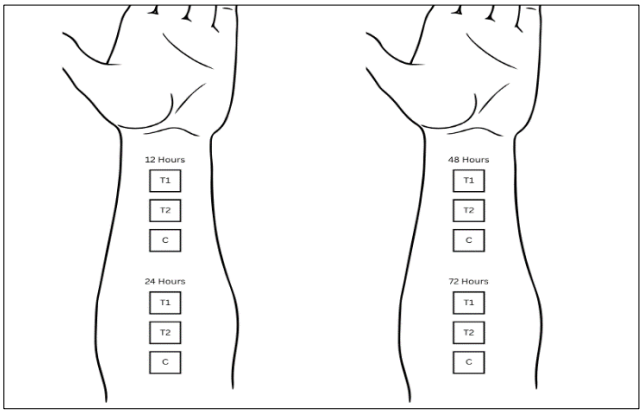

Figure 1: Changes in skin hydration over time. Application sites on the volar forearm showing T1 (test product 1: Venusia lotion), T2 (test product 2: Venusia cream), and C (control).

Mean change from baseline in skin hydration measured using probes M25 (2.5-5 mm depth) and S15 (1.5-3 mm depth) at different time points following product application.

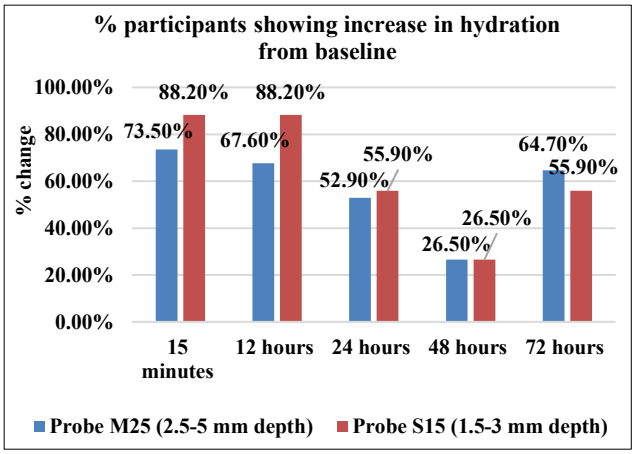

Figure 2: Proportion of participants demonstrating improvement over time.

Percentage of participants showing increased skin hydration measured using probes M25 (2.5-5 mm depth) and S15 (1.5-3 mm depth) at different time points following product application.

Assessment schedule

Baseline assessments included forearm cleansing, acclimatization, site marking, baseline measurements using MoistureMeter D (M25 and S15 probes) and VapoMeter, followed by product application and occlusion.

At 15 minutes post-application, MoistureMeter D measurements were obtained from unoccluded upper arm sites only. At 12, 24, 48, and 72 hours post-application, occlusion was removed from designated sites, instrumental measurements were repeated, and clinical evaluations for skin tolerance were performed. Consumer feedback questionnaires were administered at the 72-hour visit.

Outcome measures

Primary endpoints

Skin hydration

Skin hydration was measured using the MoistureMeter D, which determines tissue water content based on dielectric constant derived from high-frequency electromagnetic waves (300 MHz). Two probes were used: the M25 probe (2.5-5 mm depth) and the S15 probe (1.5-3 mm depth). Measurements were performed at baseline, 15 minutes, and at 12, 24, 48, and 72 hours post-application.

Transepidermal water loss

TEWL was assessed using the VapoMeter, a closed-chamber device that calculates TEWL from the linear increase in relative humidity after skin contact. Lower values indicate reduced water loss and improved barrier function. Measurements were obtained at baseline and at 12, 24, 48, and 72 hours post-application; the 15-minute time point was not assessed for TEWL.

Secondary endpoints

Consumer feedback

Participant perception of product performance and tolerability was assessed at 72 hours using a structured questionnaire evaluating moisturization effectiveness, duration of effect, skin softness and suppleness, product texture, spreadability (rated on a 1-5 scale from bad to excellent), and absorption (rated on a 1-5 scale from poor to excellent).

Safety and tolerability

Safety assessments included clinical skin examination at each visit, documentation of adverse events, and evaluation of subjective skin intolerance symptoms such as pricking, tingling, itching, or burning.

Statistical analysis

Statistical analyses were performed using statistical package for the social sciences (SPSS) version 30.0. Continuous variables were summarized using descriptive statistics (mean, standard deviation, and range). Mean differences of continuous variables like MoistureMeter D readings and VapoMeter readings were estimated by paired student 't' test. Readings obtained at control site for any particular timepoint were subtracted from readings obtained at test sites to give control corrected readings. Percentage increase in hydration was calculated from baseline. Percentage of participants showing increase in hydration was determined. Given the exploratory nature of

the study, no adjustment for multiple comparisons was applied.

Ethical considerations

The trial was approved on 04 June 2025 by the independent ethics committee (re-registration number: ECR/245/lndt/ MH/2015/RR-22). The study was carried out in compliance with the protocol, Indian Council for Medical Research (ICMR) guidelines (2017), The International Council for Harmonization (ICH) of technical requirements for pharmaceuticals for human use, E6 (R3) guideline for good clinical practice (2016), and good clinical laboratory practices. Written informed consent was obtained from all participants before enrollment in the study.

RESULTS

Out of the 36 participants, data from 34 participants who completed the study were included in the analysis.

Demographic and baseline characteristics

The mean age was 29.21±8.63 years (range: 18-49 years). The study population was predominantly female (82.4%, n=28) with 17.6% (n=6) male participants. Baseline skin type assessment showed normal skin in 52.9% (n=18) and dry skin in 47.1% (n=16) of the participants.

Results for venusia max cream

Skin hydration (MoistureMeter-D)

Skin hydration was measured using MoistureMeter-D with two probes evaluating more superficial (S15) and deeper (M25) tissue hydration. Results are summarized in Table 2.

At 15 minutes post-application, statistically significant increases in hydration were observed with both probes. Increased hydration relative to baseline was observed in 73.5% of participants using the M25 probe and 88.2% using the S15 probe.

At 12 hours, hydration measured with the S15 probe remained significantly higher than baseline, while changes measured with the M25 probe did not reach statistical significance. At 24 hours, no statistically significant differences from baseline were observed for either probe. At 48 hours, mean hydration values measured by both probes were significantly lower than baseline. At 72 hours, mean hydration values were higher than baseline, however, these differences did not reach statistical significance.

TEWL measurements (VapoMeter)

VapoMeter readings indicated a significant reduction in TEWL for upto 48 hours, after which no further significant changes were observed (Table 2). At 72 hours, 70.6% of participants (n=24) showed a decrease in TEWL compared with baseline; however, this change was not statistically significant.

Consumer feedback

Participant feedback after 72 hours of product use demonstrated high levels of satisfaction across assessed parameters (Table 3). All participants reported positive ratings for overall moisturization, skin softness and suppleness, texture, spreadability, and absorption. The majority of participants (88.2%) rated the moisturizing effect as long-lasting, while a small proportion (11.8%) reported neutral responses for this attribute. No formal statistical comparisons were performed for questionnaire outcomes.

Safety and tolerability

No adverse events or signs of skin intolerance, including pricking, tingling, itching, or burning, were reported during the 72-hour assessment period.

Results for Venusia max lotion

Skin hydration (MoistureMeter-D)

Venusia max lotion demonstrated significant increases in skin hydration at multiple time points as measured by both probes (Table 4). At 15 minutes and 12 hours post-application, hydration values measured with both the S15 and M25 probes were significantly increased compared with baseline. At 24 hours, hydration remained significantly higher than baseline for both probes. At 48 hours, changes from baseline were not statistically significant. At 72 hours, statistically significant increases in hydration were again observed with both probes, with increased hydration relative to baseline observed in 85.3% (M25) and 88.2% (S15) of participants.

TEWL measurements (VapoMeter)

TEWL measurements showed a statistically significant reduction from baseline at 12 hours post-application (Table 4). At subsequent time points (24, 48, and 72 hours), mean TEWL values did not differ significantly from baseline. The proportion of participants exhibiting reduced TEWL declined progressively over time.

Consumer feedback

Consumer perception assessed at 72 hours demonstrated favorable evaluations across all questionnaire domains (Table 5). All participants reported positive ratings for moisturization, skin softness, texture, and absorption. Nearly all participants (97.1%) reported a long-lasting moisturizing effect, with one participant providing a neutral response. Spreadability was rated as good to excellent by the majority of participants.

Table 1: The product application matrix.

Sites	Site of application	Product	Time point	Occlusion
1, 2, 3	Volar forearms	Cream, lotion, control	12 hours	Yes
4, 5, 6	Volar forearms	Cream, lotion, control	24 hours	Yes
7, 8, 9	Volar forearms	Cream, lotion, control	48 hours	Yes
10, 11, 12	Volar forearms	Cream, lotion, control	72 hours	Yes
13, 14, 15	Upper outer arm	Cream, lotion, control	15 minutes	No

Sites denote designated test areas. Sites 1-12 (volar forearms) were used for occluded evaluations at 12-72 hours, while sites 13-15 (upper outer arm) were used for the non-occluded 15-minute assessment. Each set of three sites included Venusia max cream, Venusia max lotion, and an untreated control site

Table 2: Skin hydration and TEWL measurements of Venusia max cream upto 72 hours (n=34).

Time points	Probe M25 (2.5-5 mm depth)	Probe S15 (1.5-3 mm depth)	TEWL (VapoMeter)
15 minutes			
Mean change±SD (p value)	+1.25±2.15 (0.001*)	+2.14±1.96 (0.001*)	—
% change from baseline	+92.6%	+281.6%	—
% participants showing increase in hydration from baseline	73.5% (n=25)	88.2% (n=30)	—
12 hours			
Mean change±SD (p value)	+0.72±2.39 (0.088)	+1.61±2.04 (0.001*)	-0.58±1.23 (0.009*)
Change from baseline	+10.5%	+42.0%	4.14 times decrease
% participants showing increase in hydration from baseline	67.6% (n=23)	88.2% (n=30)	70.6% (n=24)
24 hours			
Mean change±SD (p value)	+0.22±1.58 (0.422)	+0.06±2.28 (0.879)	-0.58±1.38 (0.019)
Change from baseline	+11.7%	+2.4%	2.52 times decrease
% participants showing increase in hydration from baseline	52.9% (n=18)	55.9% (n=19)	73.5% (n=25)
48 hours			
Mean change±SD (p value)	-1.27±2.14 (0.001*)	-1.75±3.04 (0.001*)	-1.09±1.44 (0.001*)
Change from baseline	-20.1%	-50.9%	2.06 times decrease
% participants showing increase in hydration from baseline	26.5% (n=9)	26.5% (n=9)	82.4% (n=28)
72 hours			
Mean change±SD (p value)	+0.98±3.09 (0.073)	+1.13±3.31 (0.054)	-0.38±2.55 (0.391)
Change from baseline	+49.5%	+46.1%	1.23 times decrease
% participants showing increase in hydration from baseline	64.7% (n=22)	55.9% (n=19)	70.6% (n=24)

TEWL=Transepidermal water loss; *indicates statistically significant (paired student's t-test); "+" indicates an increase from baseline in skin hydration values measured by M25 and S15 probes. For TEWL, negative (–) values indicate a reduction in transepidermal water loss, reflecting improvement in skin barrier function

Table 3: Consumer feedback of Venusia max cream (n=34).

Questionnaire	Agree/good, N (%)	Strongly agree/ excellent, N (%)	Total positive, %
Do you feel the test product moisturizes your skin well?	15 (44.1)	19 (55.9)	100.0
Do you feel the moisturizing effect of product is long lasting?	20 (58.8)	10 (29.4)	88.2*
Do you feel the test product makes your skin soft and supple?	23 (67.6)	11 (32.4)	100.0
Was the texture of the test product good?	24 (70.6)	10 (29.4)	100.0
How would you rate test product spreadability on the skin?	13 (38.2)	21 (61.8)	100.0

Continued.

Questionnaire	Agree/good, N (%)	Strongly agree/ excellent, N (%)	Total positive, %
How would you rate test product absorption on your skin?	17 (50.0)	17 (50.0)	100.0

*11.8% neither agreed nor disagreed regarding long-lasting effect

Table 4: Skin hydration and TEWL measurements of Venusia max lotion upto 72 hours (n=34).

Time point	Probe M25 (2.5-5 mm depth)	Probe S15 (1.5-3 mm depth)	TEWL (VapoMeter)
15 minutes			
Mean change±SD (p value)	+1.22±1.78 (0.001*)	+2.18±1.47 (0.001*)	-
% change from baseline	+174.3% (1.74 times increase)	+605.6% (6.06 times increase)	-
% participants showing increase in hydration from baseline	85.3% (n=29)	94.1% (n=32)	-
12 hours			
Mean change±SD (p value)	+0.91±1.46 (0.001*)	+1.21±1.94 (0.001*)	-0.87±1.28 (0.001*)
% change from baseline	+44.2%	+74.7%	1.81 times decrease
% participants showing increase in hydration from baseline	76.5% (n=26)	79.4% (n=27)	82.4% (n=28)
24 hours			
Mean change±SD (p value)	+1.77±2.37 (0.001*)	+2.11±2.64 (0.001*)	-0.13±1.86 (0.686)
% change from baseline	+384.8% (3.84 times increase)	+208.9% (2.09 increase)	-35.1%
% participants showing increase in hydration from baseline	73.5% (n=25)	76.5% (n=26)	58.8% (n=20)
48 hours			
Mean change±SD (p value)	-0.14±2.45 (0.741)	+0.61±2.33 (0.136)	-0.58±1.68 (0.052)
% change from baseline	-5.4%	+35.3%	4.83 times decrease
% participants showing increase in hydration from baseline	52.9% (n=18)	58.8% (n=20)	67.6% (n=23)
72 hours			
Mean change±SD (p value)	+3.15±3.86 (0.001*)	+3.77±3.25 (0.001*)	+0.44±2.96 (0.392)
% change from baseline	+236.8% (2.36 times increase)	+243.2% (2.43 times increase)	2.0 times increase
% participants showing increase in hydration from baseline	85.3% (n=29)	88.2% (n=30)	47.1% (n=16)

TEWL=Transepidermal water loss; *indicates statistically significant (student's t-test); "+" indicates an increase from baseline in skin hydration values measured by M25 and S15 probes. For TEWL, negative (–) values indicate a reduction in transepidermal water loss, reflecting improvement in skin barrier function

Table 5: Consumer feedback of Venusia max lotion at 72 hours (n=34).

Questionnaire	Agree/good, N (%)	Strongly agree/ excellent, N (%)	Total positive, %
Do you feel the test product moisturizes your skin well?	20 (58.8)	14 (41.2)	100.0
Do you feel the moisturizing effect of product is long lasting?	16 (47.1)	17 (50.0)	97.1*
Do you feel the test product makes your skin soft and supple?	22 (64.7)	12 (35.3)	100.0

Continued.

Questionnaire	Agree/good, N (%)	Strongly agree/ excellent, N (%)	Total positive, %
Was the texture of the test product good?	22 (64.7)	12 (35.3)	100.0
How would you rate test product spreadability on the skin?	11 (32.4)	22 (64.7)	97.1#
How would you rate test product absorption on your skin?	11 (32.4)	23 (67.6)	100.0

*2.9% of the participants neither agreed nor disagreed that moisturizing effect of Venusia max lotion is long lasting; #2.9% rated spreadability as satisfactory.

Safety and tolerability

No adverse events or subjective skin intolerance symptoms were reported during the study period.

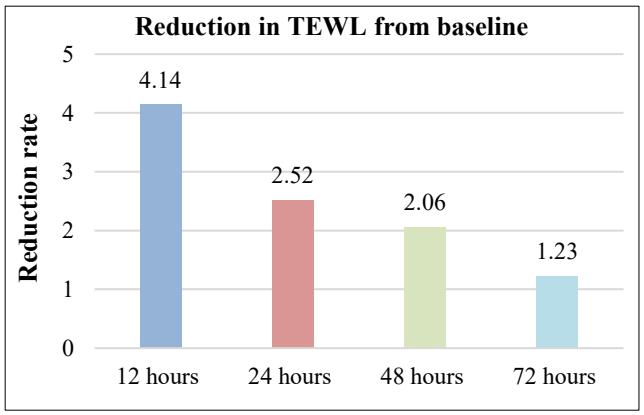

Figure 3: Changes in transepidermal water loss (TEWL) over time.

Mean change from baseline in transepidermal water loss (TEWL) measured using a VapoMeter across different time points following product application

DISCUSSION

In this controlled, within-subject evaluation, both Venusia max cream and Venusia max lotion demonstrated measurable effects on skin hydration and epidermal barrier dynamics, as reflected by instrumental assessments of skin hydration and TEWL. These findings are consistent with the established role of topical moisturizers in supporting stratum corneum hydration and modulating barrier function through combined humectant, emollient, and occlusive mechanisms.[2,5,6]

For Venusia max cream, statistically significant increases in tissue hydration were observed shortly after application, indicating a rapid onset of moisturization. Hydration responses varied across subsequent time points, with mean values remaining numerically higher than baseline at 72 hours, although statistical significance was not consistently maintained. These patterns are consistent with the known temporal behaviour of moisturizers, in which early increases in water content are followed by dynamic redistribution and gradual normalization over time. The formulation contains multiple humectant, emollient, and occlusive components, which together may contribute to both immediate and sustained hydration through water-binding and surface film-forming effects.[2,7]

Venusia max lotion demonstrated statistically significant increases in tissue hydration at multiple post-application time points, including sustained significance at 72 hours. This temporal profile suggests a consistent hydration response across early and later phases following application. Differences in magnitude and persistence of hydration effects between the cream and lotion formulations likely reflect variations in formulation composition and physicochemical properties, although direct comparative mechanistic conclusions cannot be drawn from the present study design.[7]

TEWL measurements are a validated, non-invasive biomarker of epidermal barrier integrity, quantifying passive water diffusion across the stratum corneum.[8] Both formulations produced reductions in TEWL, indicating modulation of water loss across the stratum corneum, with distinct temporal profiles. For Venusia max cream, significant TEWL reduction was observed upto 48 hours, while Venusia max lotion exhibited significant reduction at 12 hours. These temporal differences likely reflect distinct occlusive properties wherein cream-based formulations typically contain higher lipid concentrations from butter-based emollients (shea, mango, cocoa, and aloe butter), forming more durable hydrophobic films that slows down the water loss over extended periods.[2,9] The dimethicone component in the lotion helps to provide immediate occlusion through formation of a flexible, breathable film on the skin surface, which may account for the rapid but shorter-duration TEWL reduction observed with this formulation.[2,7]

The sustained hydration observed at 72 hours for both formulations, particularly for Venusia max lotion, may reflect effects beyond superficial stratum corneum hydration driven by key ingredients like hyaluronic acid (HA). Low-molecular-weight HA variants penetrate the epidermis and dermis, binding up to 1000 times their weight in water to hydrate viable layers and support extracellular matrix integrity.[10] The advantage includes enhanced collagen synthesis, reduced matrix metalloproteinases, and increased dermal elasticity.[11] In eczema (atopic dermatitis) and psoriasis, deeper skin layers are affected. Filaggrin mutations impair corneocyte hydration in eczema's suprabasal epidermis, while

psoriasis features hyperproliferative keratinocytes with disrupted tight junctions and aquaporin-3, causing dermal edema and inflammation. Moisturizers targeting these layers via HA/glycerin restore the epidermal-dermal function, complementing other topicals to repair the barrier and decrease the flares.[2,11,12]

Advanced spectroscopic techniques show that effective moisturizers influence not only total water content but also the distribution of water-binding states within multiple stratum corneum depths. A confocal Raman microspectroscopy study demonstrated that moisturizers containing humectants such as glycerine can increase strongly bound water at 30-40% stratum corneum depth while decreasing weakly bound water, suggesting improved water retention capacity at deeper epidermal layers.[13] This shift in water-binding dynamics may contribute to the prolonged hydration observed in our study, as strongly bound water is less susceptible to evaporative loss. The formulations of both products used in this study incorporate multiple functional ingredients that work synergistically to provide deep moisturization and barrier support. In particular, glycerine, a low-molecular-weight humectant, is known to penetrate through the stratum corneum into the deeper epidermis where it facilitates the transport of water via aquaporin-3 channels.[14] By drawing moisture into these deeper layers, glycerine provides the deep hydration necessary for biochemical processes such as desquamation.

Beyond simple occlusive barrier formation, plant-based butter ingredients may preserve barrier integrity through multiple mechanisms. Aloe butter, derived from aloe vera, helps to soothe the skin and supports hydration through its polysaccharide content, which aids in water retention.[2,7] Shea butter acts as an effective emollient, helping to soften and smooth the skin while supporting barrier repair by promoting lipid lamellar organization and enhancing ceramide synthesis in keratinocytes, due to its rich fatty acid composition, including oleic and stearic acids.[2] Mango butter provides emollient properties that help to improve skin texture and suppleness, and supports moisture retention due to its triglyceride content.[15] Cocoa butter serves as an occlusive agent that helps to form a protective barrier on the skin surface, thereby supporting the reduction of TEWL and promoting sustained hydration.[16] This occlusion is critical in AD and psoriasis as it allows the underlying tissue to rehydrate by trapping water migrating from the dermis.

Objective biophysical findings in this study were accompanied by favorable subjective consumer evaluations. High satisfaction across parameters including moisturization, texture, spreadability, absorption, and skin softness indicates that instrumental changes in hydration and TEWL were associated with user-perceived benefits. Although no formal correlation analyses were performed between objective and subjective measures, the alignment of instrumental and perceptual outcomes supports the overall functional relevance of the observed effects.[17,18] Both formulations were well tolerated, with no reported adverse cutaneous reactions or intolerance symptoms during the study period, supporting their suitability for routine topical use in individuals with normal to dry skin.

From a consumer perspective, the observed improvements in skin hydration and barrier function translate to several practical, real-world benefits. Enhanced skin hydration contributes to improved skin appearance, including increased suppleness, reduced visible roughness, and a more healthy-looking complexion. The reduction in TEWL suggests improved barrier protection against environmental stressors such as low humidity, temperature fluctuations, and potential irritants, which may be particularly beneficial during seasonal changes or in climatically harsh conditions. Regular, long-term use of effective moisturizers has been associated with cumulative benefits including progressive improvements in skin texture and barrier resilience, reduced susceptibility to dryness-related discomfort such as tightness and itching, and potential prophylactic effects against xerosis and related conditions.[2] Furthermore, maintaining barrier integrity through consistent moisturization may support the skin's natural defence mechanisms and contribute to overall skin health maintenance.[12] The favourable tolerability profile and positive user experience observed in this study suggest that both formulations are suitable for incorporation into daily skincare routines, which is essential for achieving sustained benefits. However, controlled long-term studies would be necessary to formally characterize the extent and durability of these potential cumulative effects in diverse user populations.

A key strength of this study is its within-subject, controlled design, which reduced inter-individual variability. The integration of objective instrumental measurements with structured consumer assessments enabled evaluation of whether biophysical changes translated into subjectively perceived benefits under standardized conditions across multiple time points up to 72 hours. However, as the study was conducted in healthy adults with normal to dry skin, the findings may have limited generalizability to populations with barrier-compromised or inflammatory skin conditions. In addition, the short-term, exploratory nature of the study limits conclusions regarding long-term barrier modulation, and the formulation-based design did not permit isolation of ingredient-specific effects.

Limitations

The single-center design, small sample size, short study duration, and inclusion of only healthy adults may limit the generalizability of these findings.

CONCLUSION

In conclusion, both Venusia max cream and Venusia max lotion demonstrated rapid onset of skin hydration, measurable modulation of transepidermal water loss, favorable consumer perception, and good tolerability in

healthy adult participants. These findings support their use as effective moisturizers for maintaining skin hydration and supporting barrier function in individuals with normal to dry skin phenotypes. Further research in barrier-compromised populations and longer-duration protocols will help define their therapeutic potential in clinical dermatology.

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REFERENCES

1. Fluhr JW, Moore DJ, Lane ME, Lachmann N, Rawlings AV. Epidermal barrier function in dry, flaky and sensitive skin: A narrative review. J Eur Acad Dermatol Venereol. 2024;38(5):812-20.
2. Purnamawati S, Indrastuti N, Danarti R, Saefudin T. The role of moisturizers in addressing various kinds of dermatitis: A Review. Clin Med Res. 2017;15(3-4):75-87.
3. Gala MYN, Muchhala SS, Charugulla SN, Rathod R, Mane A, Pandit S, et al. Plant-based paraben-free moisturizer, Venusia Max Cream, is a nonirritant. CosmoDerma. 2022;2:25.
4. Gala MYN, Muchhala SS, Charugulla SN, Rathod R, Mane A, Pandit S, et al. Effects of Venusia Max Lotion on skin hydration and skin barrier in patients with dry skin. Cosmoderma. 2021;1:41.
5. Harwood A, Nassereddin A, Krishnamurthy K. Moisturizers. In: StatPearls. StatPearls Publishing; 2025.
6. Madnani N, Deo J, Dalal K, Benjamin B, Murthy VV, Hegde R, et al. Revitalizing the skin: Exploring the role of barrier repair moisturizers. J Cosmet Dermatol. 2024;23(5):1533-40.
7. Barnes TM, Mijaljica D, Townley JP, Spada F, Harrison IP. Vehicles for Drug Delivery and Cosmetic Moisturizers: Review and Comparison. Pharmaceutics. 2021;13(12):2012.
8. Alexander H, Brown S, Danby S, Flohr C. Research techniques made simple: transepidermal water loss measurement as a research tool. J Invest Dermatol. 2018;138(11):2295-300.
9. Lodén M. Effect of moisturizers on epidermal barrier function. Clin Dermatol. 2012;30(3):286-96.
10. Lain E, Mariwalla K, Zeichner J, Kirchner F, Ruvolo E, Draelos ZD. Clinical evaluation of next-generation, multi-weight hyaluronic acid plus antioxidant complex-based topical formulations with targeted delivery to enhance skin rejuvenation. J Clin Aesthetic Dermatol. 2024;17(4):12-6.
11. Chylińska N, Maciejczyk M. Hyaluronic acid and skin: Its role in aging and wound-healing processes. Gels. 2025;11(4):281.
12. Rajkumar J, Chandan N, Lio P, Shi V. The skin barrier and moisturization: Function, disruption, and mechanisms of repair. Skin Pharmacol Physiol. 2023;36(4):174-85.
13. Schleusener J, Salazar A, von Hagen J, Lademann J, Darvin ME. Retaining skin barrier function properties of the stratum corneum with components of the natural moisturizing factor-A randomized, placebo-controlled double-blind in vivo study. Molecules. 2021;26(6):1649.
14. Fluhr JW, Darlenski R, Surber C. Glycerol and the skin: holistic approach to its origin and functions. Br J Dermatol. 2008;159(1):23-34.
15. Mandawgade SD, Patravale VB. Formulation and evaluation of exotic fat based cosmeceuticals for skin repair. Indian J Pharm Sci. 2008;70(4):539-42.
16. Purushothaman VK, Wen TJ, Anne M, Kayarohanam S, Saleem TSM, Chellammal HSJ, et al. Cocoa butter as an effective moisturizer for topical cream. J Nat Remedies. 2025;25(2):391-401.
17. Nisbet SJ. Skin acceptability of a cosmetic moisturizer formulation in female subjects with sensitive skin. Clin Cosmet Investig Dermatol. 2018;11:213-7.
18. Xu S, Kwa M, Lohman ME, Evers-Meltzer R, Silverberg JI. Consumer preferences, product characteristics, and potentially allergenic ingredients in best-selling moisturizers. JAMA Dermatol. 2017;153(11):1099-105.

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