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SINGLE USAGE OF CERASURGE PRO DELIVERS 72- HOUR HYDRATION WITH BARRIER SUPPORT: A 72- HOUR RANDOMIZED, CONTROLLED STUDY ON DRY SKIN VOLUNTEERS

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ABSTRACT

Ceramides are vital lipid molecules necessary for preserving skin texture, moisture and barrier integrity in both males and females, keeping skin robust, smooth, and healthy. Fundamental role of ceramides in maintaining stratum corneum structure and function is universal across both genders, as biological mechanisms of skin barrier, physiology do not differ significantly between males and females. Lipid lamellae architecture and ceramide-dependent barrier repair processes operate identically regardless of gender, making ceramide-based interventions equally relevant and beneficial for all individuals. The body wash containing CeraSurge Pro, with a 5-ceramide complex, represents a novel approach to skin cleansing as a functional cleanser that actively restores skin barrier and moisture balance while removing impurities. Unlike conventional surfactant-based washes that may deplete essential lipids, this ceramide rich formulation deposits biomimetic lipid layers on the skin, offering measurable hydration and barrier support even after rinsing. This study, evaluated safety and efficacy of the ceramide-based body wash in enhancing skin moisturization and barrier function compared to untreated control in 33 healthy Indian females (aged 18-40) with dry forearm skin. Single application to designated forearm site was assessed over 72 hours using subject self-evaluation, dermatological evaluation, tewametry (transepidermal water loss, TEWL), and corneometry (skin hydration). Results demonstrated statistically significant

improvements in skin hydration with increased moisture levels and reduced TEWL, indicating enhanced barrier function. Subject self-evaluation reported high user satisfaction with improved skin softness and comfort. No adverse effects were observed confirming formulation safety. These findings suggest that body wash containing CeraSurge Pro is a promising intervention for dry skin.

KEYWORDS: Skin hydration; TEWL; Barrier repair; Ceramides; Body wash; Long-lasting moisturization

INTRODUCTION

The integrity of the skin is fundamental to overall cutaneous health, serving as a shield against detrimental environmental factors, pathogens, and excessive water loss while maintaining optimal hydration levels. The stratum corneum (SC) and the epidermis's outermost layer, is primarily responsible for this barrier function, along with the intercellular lipids particularly the ceramides playing a central role in its structure and efficacy. Ceramides which constitute approximately 50% of the SC lipids, form a lamellar arrangement that regulates transepidermal water loss (TEWL) and prevent dehydration.[1,2] Disruptions in ceramide level or composition is commonly associated with dry skin conditions such as xerosis and atopic dermatitis, leading to elevated TEWL, reduced skin capacitance and symptoms like roughness, scaling, and discomfort. For instance, studies have shown that ceramide deficiencies correlate with impaired barrier permeability, exacerbating moisture loss thereby increasing the susceptibility to irritants.[3]

Topical interventions incorporating ceramides have emerged as a promising strategy to restore skin barrier function. Clinical evidence indicate that ceramide containing formulations, such as creams and cleansers can replenish depleted lipids, thereby improve hydration and reduce TEWL. In patients with compromised barriers like those with eczema, the ceramides skin care regimens have demonstrated significant improvements in skin permeability and symptom relief.[4] Moreover, synergistic effects of specific ceramides (ceramides EOP and NP) have been observed in enhancing hydration and barrier integrity in irritated skin models.[5,6] The body wash containing CeraSurge™ Pro embodies this innovation. Enriched with ceramides it has been engineered to restore the skin's barrier while cleansing and depositing a thin biomimetic film that retains moisture and improves barrier function over time. CeraSurge™ Pro a 5- ceramide complex comprises Ceramide EOP,

Ceramide NP, Ceramide NS, Ceramide AS and Ceramide AP, each mimicking the natural lipid lamellae structure of healthy skin and contributing to optimal barrier restoration.[7,8]

However, traditional cleansers often containing harsh surfactants remove natural lipids potentially worsening dryness. This underscores the need for mild, lipid replenishing body washes that provide immediate yet sustained benefits without compromising the barrier.[8,9] In particular, the five ceramides mentioned earlier, confer distinct benefits, Ceramide NP supports moisture retention and barrier repair, Ceramide NS and Ceramide NP ratios correlate strongly with TEWL and skin texture, while Ceramide EOP and AS contribute to barrier homeostasis and atopic skin resilience.[7,10] This long-lasting "leave-behind" effect distinguishes it from conventional body washes, positioning it as a next-generation therapeutic cleanser.

Non-invasive biophysical techniques are essential for objectively quantifying these effects. Corneometry measures skin capacitance as a proxy for hydration, a significant increase in the capacitance shows that the product has a strong moisturizing effect, while tewametry assesses TEWL to evaluate skin barrier functions. These methods provide reliable, reproducible data in clinical studies, enabling precise comparisons between treated and un-treated sites. The current study evaluates the safety and efficacy of a Body wash containing CeraSurge™ Pro (a 5-ceramide complex) in healthy females with dry forearm skin, using a combination of subjective self-evaluations, dermatological assessments, corneometry and tewametry over 72 hours. By comparing treated vs untreated controls, this research aims to contribute to understanding the importance of ceramide enriched cleanser body wash in daily skincare routines for management of dry skin.[11,12] There is still a need for targeted ceramide cleanser technology for people with eczema, atopic dermatitis, urticaria, psoriasis, and generally dry or sensitive skin due to a persistent market gap marked by low consumer knowledge of ceramide subclasses and poor penetration of ceramide-based washes in populations with barrier-compromised skin.[13-15]

Unlike the conventional body washes that may strip skin lipids and disrupt the barrier. The Body wash containing CeraSurge™ Pro comprises a blend of skin-identical ceramide complex, designed to mimic the skin's natural lipid lamellae system. This composition helps replenish the barrier while cleansing, rather than removing essential moisture. The formulation also includes hydrating humectants and gentle surfactants to support extended moisture retention and minimize irritation. Such a biomimetic approach aims to provide long-

lasting moisturization and improved barrier function even after rinsing, making it particularly suitable for individuals with dryness prone or sensitive skin.[7,10]

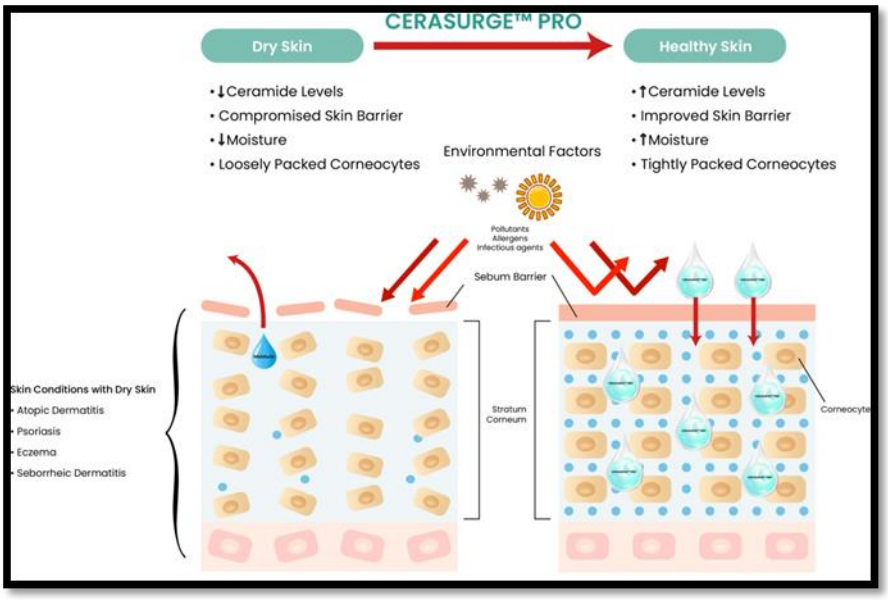

Fig. 1: Mechanism of CeraSurge™ Pro action in skin barrier resolution.

This diagram illustrates the transition from compromised to healthy skin through ceramide replenishment. In dry skin conditions (left), reduced ceramide levels lead to a compromised barrier with loosely packed corneocytes, increased transepidermal water loss (TEWL), and susceptibility to environment irritants and allergens. This barrier dysfunction is characteristic of atopic dermatitis, psoriasis, eczema, and seborrheic dermatitis. When ceramides are topically applied or endogenously restored (center), they integrate into the stratum corneum's lipid matrix, forming organized lamellar structures between corneocytes. The replenished barrier (right) exhibits increased ceramide levels, tightly packed corneocytes, improved moisture retention, and enhanced protection against external aggressors. The sebum barrier works synergistically with the lipid matrix to maintain optimal skin hydration and barrier integrity. This mechanism underlies the therapeutic efficacy of ceramide-containing formulations in managing inflammatory skin conditions.

The formulation's five ceramides work together to replicate the precise ratio of ceramides found in the skin. Such a biomimetic approach aims to provide long-lasting moisturization and improved barrier function even after rinsing, making it particularly suitable for individuals with dryness-prone or sensitive skin including those with atopic skin, eczema, psoriasis or frequent urticaria. Therefore, the present study evaluated the 72-hour hydration

and barrier repair efficacy of Body wash containing CeraSurge™ Pro using in-vivo, corneometry and TEWL assessments in healthy adult volunteers.

MATERIALS AND METHODS

The study was a single-center, controlled, in-vivo clinical study conducted at Mascot Spincontrol India Pvt. Ltd, Mumbai, India to evaluate the moisturization and barrier-repair benefits of Body wash containing CeraSurge™ Pro over a period of 72 hours. The Declaration of Helsinki, ICH E6(R2) rules, ICMR ethical standards, and Good Clinical Practice (GCP) recommendations were all adhered to in this investigation. The Test product A was Body wash containing CeraSurge™ Pro in a liquid state, supplied in a PET bottle. The product was applied once on site to randomized 3x3 cm^2 areas on the forearms, with one site treated whereas the other serving as an untreated control. Application involved splashing water on marked areas, applying the product back and forth five times to form lather, rinsing and patting dry.

The evaluations included

- **Subject-Self Evaluation (SSE):** Questionnaires assessing product efficacy (hydration, softness), physical characteristics (non-stickiness) acceptability (no itching) on a 4-point scale (1= Completely Agree to 4= Completely Disagree)
- **Dermatological Evaluation:** Assessment of clinical (erythema, oedema, dryness, scaling, peeling) and functional signs (itching, tingling) on a 0-3 scale (0=None to 3= Severe) by a registered dermatologists at all checkpoints.
- **Corneometry:** Measured skin capacitance using corneometer CM 825 to evaluate hydration.
- **Tewametry:** Assessed TEWL using Tewameter TM 300 to evaluate barrier function.

Inclusion and Exclusion Criteria

Inclusion Criteria

To be eligible to participate in the study, the subjects must meet all the inclusion requirements, unless otherwise noted:

- Indian female subjects 18-40 years of age
- Healthy individuals with no infectious or evolutive pathology interfering with the study.
- Skin should be healthy on forearms (free of eczema, wounds, inflammatory scars)
- Dry skin specifically on forearms

Exclusion Criteria

Subjects would be refrained from participating if the following criteria were met.

- Pregnant, breastfeeding or stopped breast feeding in the past three months.
- Refusal to sign the consent form
- Participation is any other study liable to interfere with the present study.
- Known diabetes, asthma, thyroid issues, epilepsy, or hypersensitivity.
- Chronic treatments (e.g. anti-inflammatories, antihistamines, corticosteroids)
- Diagnosed allergy to cosmetic compounds.
- Surgery under general anesthesia (> 1 hour) in past 6 months.
- Changed in cosmetic habits in 14 days prior to study.
- Applied any cosmetic products 48 hours prior on the would be studied areas.
- Specifics: Beginning or altering hormonal treatment within the last three months; taking oral or local retinoids within the last six months; receiving beauty treatments or engaging in water activities within the last week; consuming alcohol, caffeine, spicy foods, smoking, sports, wiping forearms, wearing jewelry on the wrist, being exposed to UV light, taking care of the skin, applying a surfactant product to the forearms, or washing forearms.

PROTOCOL

This comparative study was a single-blind study conducted for 72 hours post the single application of the product. For intra-group (time-based) comparisons, subjects were used as their own reference; however, they were not used for inter-group (product vs control) analysis. Randomization of treatment-site was software generated.

- To assess the effectiveness, acceptability, and features of body wash containing CeraSurge™ Pro to an untreated control site in the form of a, randomized, prospective, single blind comparative clinical trial.
- The study was carried out at a single location
- The study included 33 healthy Indian female subjects with sound forearm skin aging 18-40 years
- The test product A was applied once to one forearm site (3x3 cm^2) while the other untreated site served as a control for 72 hours.
- Efficacy and acceptability assessments were conducted at T+30 minutes, T+4 hours, T+8 hours, T+12 hours, T+24 hours, T+48 hours and T+72 hours, with the product characteristics assessed at T+30 minutes.

- Subjects under the supervision of a Clinical Research Associate (CRA), at Mascot Spincontrol filled out self-evaluation questionnaires that assessed acceptance, product attributes (such as texture and ease of application) and efficacy (changes in the condition).
- Adverse events (such as skin irritation) reported by trial participants was used to track safety.
- With a significance threshold fixed at 5%, statistical analysis was carried out using (software to be specified: SigmaStat 3.5 and PAST 4.03). The normality of data distributions was first assessed using Shapiro-Wilk test. For inter-group comparisons (treated vs untreated), a two-tailed independent samples t-test was used when data were normally distributed, and the Mann-Whitney test was used otherwise. For intra-group comparisons over time, paired t-tests were performed.

RESULTS AND DISCUSSION

Dermatological Evaluation

Based on the Dermatological Evaluation for Cosmetic Acceptability, it was observed that there was no visible occurrence of Erythema, Scaling, Dryness, Peeling, Itching and Tingling at any given time point for Test Product A.

Corneometry

Table 1: The following table summarizes the mean and the standard deviation of capacitance observed using a Corneometer.

			RAW VALUES							
			T0	T+ 30 minutes after product application	T+4 hours after product application	T+8 hours after product application	T+12 hours after product application	T+24 hours after product application	T+48 hours after product application	T+72 hours after product application
Capacitance	Product A	N	33	33	33	33	33	33	33	33
		Mean	24.69	43.57	39.93	37.50	34.45	31.35	29.69	27.28
		Standard deviation	3.11	4.07	4.13	3.93	3.81	3.34	2.88	3.67
		Significant at 5 % (T0 vs Tn)		Yes	Yes	Yes	Yes	Yes	Yes	Yes
		p=		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
		Test		Student Paired t-test	Student Paired t-test	Student Paired t-test	Student Paired t-test	Wilcoxon	Student Paired t-test	Student Paired t-test
	Untreated Control	N	33	33	33	33	33	33	33	33
		Mean	24.04	24.12	24.14	24.09	24.15	24.12	24.10	24.13
		Standard deviation	2.80	2.74	2.80	2.80	2.76	2.74	2.82	2.85
		Significant at 5 % (T0 vs Tn)		No	No	No	No	No	No	No
		p=		0.1784	0.1037	0.5158	0.1363	0.1685	0.2707	0.1552
		Test		Student Paired t-test	Student Paired t-test	Student Paired t-test	Student Paired t-test	Student Paired t-test	Student Paired t-test	Student Paired t-test

Yes: Significant difference in favor of the product
No: No significant difference
Yes*: Significant difference in disfavor of the product

Table 2: The following table presents the mean and the standard deviations of the evolutions (Tn-T0)

			EVOLUTION OF THE PARAMETERS (Tn-T0)						
			T+ 30 minutes after product application - T0	T+4 hours after product application - T0	T+8 hours after product application - T0	T+12 hours after product application - T0	T+24 hours after product application - T0	T+48 hours after product application - T0	T+72 hours after product application - T0
Capacitance	Product A	Mean	18.87	15.23	12.80	9.75	6.65	5.00	2.58
		Standard deviation	*4.60*	*3.94*	*3.56*	*3.70*	*3.04*	*2.17*	*2.15*
	Untreated Control	Mean	0.08	0.10	0.04	0.11	0.08	0.05	0.09
		Standard deviation	*0.34*	*0.33*	*0.39*	*0.40*	*0.32*	*0.28*	*0.37*

Table 3: The following table summarizes the average percentages of the variation (Tn-T0)/T0.

			Percentages of Variation* for Capacitance						
			T+ 30 minutes after product application - T0 / T0	T+4 hours after product application - T0 / T0	T+8 hours after product application - T0 / T0	T+12 hours after product application - T0 / T0	T+24 hours after product application - T0 / T0	T+48 hours after product application - T0 / T0	T+72 hours after product application - T0 / T0
Capacitance	Product A	Mean	76.42%	61.67%	51.84%	39.49%	26.94%	20.25%	10.45%
	Untreated Control	Mean	0.34%	0.40%	0.19%	0.45%	0.33%	0.23%	0.39%

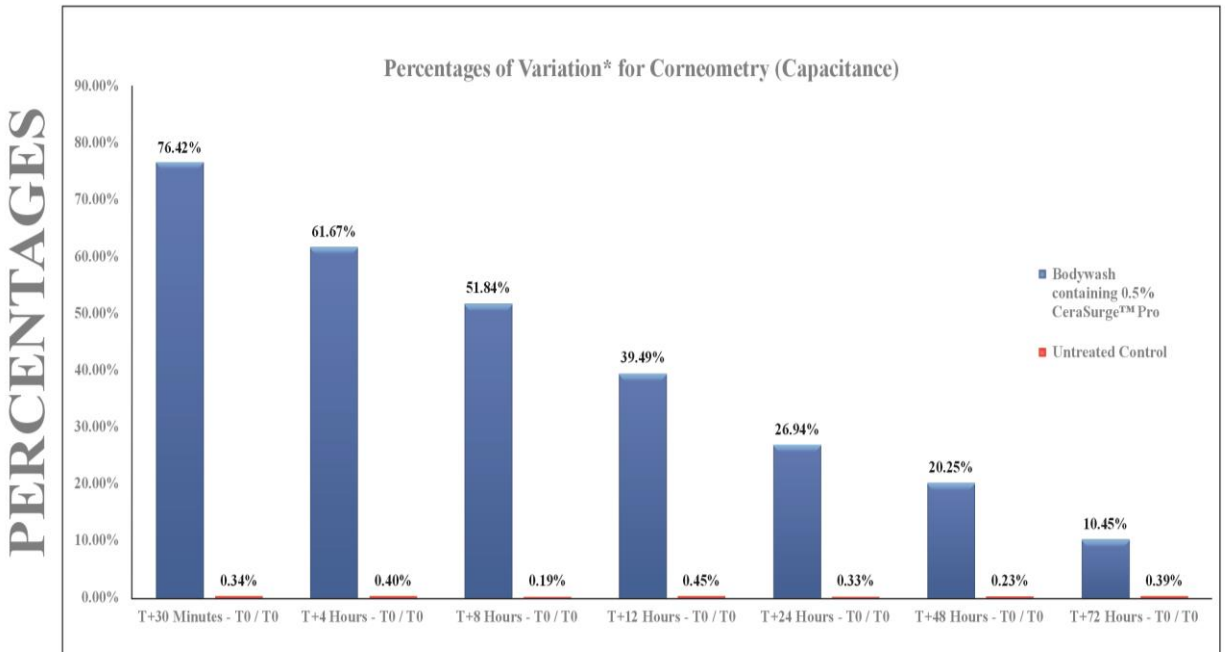

Fig. 2: Graphical representation of the statistical analysis.

Table 4: The following table presents the statistical results on the comparison of the studied parameter.

		COMPARISON FROM THE DIFFERENCES (Tn-T0)						
		T+ 30 minutes after product application	T+4 hours after product application	T+8 hours after product application	T+12 hours after product application	T+24 hours after product application	T+48 hours after product application	T+72 hours after product application
Capacitance	Significant at 5 %	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	p=	*<0.001*	*<0.001*	*<0.001*	*<0.001*	*<0.001*	*<0.001*	*<0.001*
	Test	Student t test (two-tailed)	Student t test (two-tailed)	Student t test (two-tailed)	Student t test (two-tailed)	Rank Sum Test	Student t test (two-tailed)	Rank Sum Test

Yes: Significant difference in favor of the product
No: No significant difference
Yes*: Significant difference in disfavor of the product

Tewametry

Table 5: The following table summarizes the means and standard deviations of the raw values of Trans epidermal water loss, observed on the randomized inner forearm using tewametry.

			RAW VALUES							
			T0	T+ 30 minutes after product application	T+4 hours after product application	T+8 hours after product application	T+12 hours after product application	T+24 hours after product application	T+48 hours after product application	T+72 hours after product application
TEWAMETRY - (g/h/m2)	Product A	N	33	33	33	33	33	33	33	33
		Mean	10.57	8.39	8.69	9.01	9.28	9.42	9.69	9.75
		Standard deviation	*0.86*	*1.50*	*1.06*	*0.92*	*0.73*	*0.67*	*0.67*	*0.85*
		Significant at 5 % (T0 vs Tn)		Yes	Yes	Yes	Yes	Yes	Yes	Yes
		p=		*<0.001*	*<0.001*	*<0.001*	*<0.001*	*<0.001*	*<0.001*	*<0.001*
		Test		*Student Paired t-test*	*Student Paired t-test*	*Wilcoxon*	*Wilcoxon*	*Student Paired t-test*	*Wilcoxon*	*Student Paired t-test*
	Untreated Control	N	33	33	33	33	33	33	33	33
		Mean	10.69	10.67	10.67	10.68	10.66	10.66	10.67	10.68
		Standard deviation	*0.93*	*0.91*	*0.94*	*0.90*	*0.92*	*0.92*	*0.92*	*0.91*
		Significant at 5 % (T0 vs Tn)		No	No	No	No	No	No	No
		p=		*0.3400*	*0.5240*	*0.3290*	*0.1590*	*0.1165*	*0.2740*	*0.9700*
		Test		*Wilcoxon*	*Wilcoxon*	*Wilcoxon*	*Wilcoxon*	*Student Paired t-test*	*Wilcoxon*	*Wilcoxon*

Yes: Significant difference in favor of the product
No: No significant difference
Yes*: Significant difference in disfavor of the product

Table 6: The following table presents the mean and the standard deviations of the evolutions (Tn-T0).

			EVOLUTION OF THE PARAMETERS (Tn-T0)						
			T+ 30 minutes after product application - T0	T+4 hours after product application - T0	T+8 hours after product application - T0	T+12 hours after product application - T0	T+24 hours after product application - T0	T+48 hours after product application - T0	T+72 hours after product application - T0
TEWAMETRY- (g/h/m2)	Product A	Mean	-2.18	-1.88	-1.56	-1.29	-1.15	-0.88	-0.82
		Standard deviation	*1.54*	*1.08*	*1.26*	*1.00*	*0.70*	*0.69*	*0.66*
	Untreated Control	Mean	-0.02	-0.02	-0.02	-0.03	-0.04	-0.02	-0.01
		Standard deviation	*0.13*	*0.11*	*0.18*	*0.12*	*0.13*	*0.08*	*0.11*

Table 7: The following table summarizes the average percentages of the variation (Tn-T0)/T0.

			Percentages of Variation* for TEWAMETRY- (g/h/m2)						
			T+ 30 minutes after product application - T0 / T0	T+4 hours after product application - T0 / T0	T+8 hours after product application - T0 / T0	T+12 hours after product application - T0 / T0	T+24 hours after product application - T0 / T0	T+48 hours after product application - T0 / T0	T+72 hours after product application - T0 / T0
TEWAMETRY- (g/h/m2)	Product A	Mean	-20.58%	-17.80%	-14.74%	-12.21%	-10.89%	-8.29%	-7.80%
	Untreated Control	Mean	-0.23%	-0.20%	-0.14%	-0.28%	-0.34%	-0.23%	-0.11%

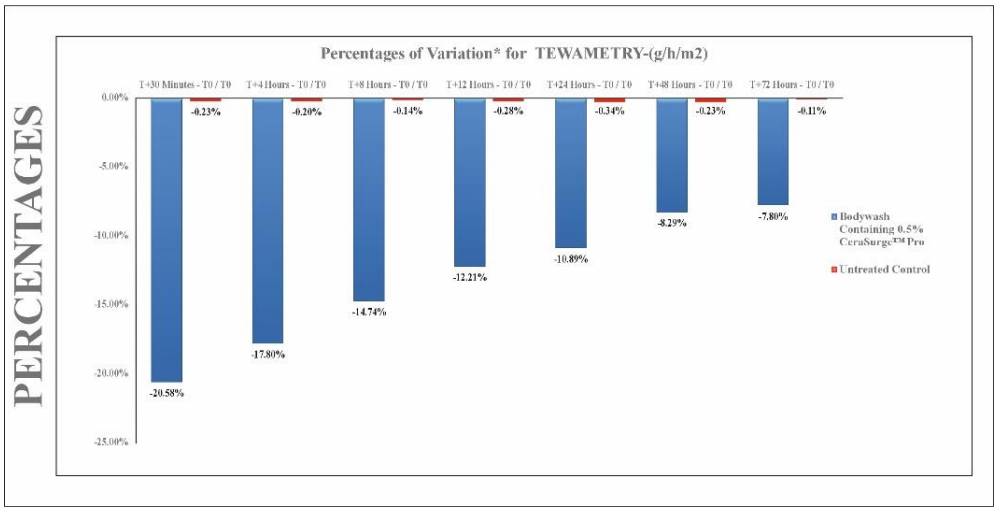

Fig. 3: Graphical representation of the statistical analysis.

Table 8: The following table presents the statistical results on the comparison of the studied parameter.

		COMPARISON FROM THE DIFFERENCES (Tn-T0)						
		T+ 30 minutes after product application	T+4 hours after product application	T+8 hours after product application	T+12 hours after product application	T+24 hours after product application	T+48 hours after product application	T+72 hours after product application
TEWAMETRY-(g/h/m2)	Significant at 5 %	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	p=	*<0.001*	*<0.001*	*<0.001*	*<0.001*	*<0.001*	*<0.001*	*<0.001*
	Test	Student t test (two-tailed)	Student t test (two-tailed)	Rank Sum Test	Rank Sum Test	Student t test (two-tailed)	Rank Sum Test	Student t test (two-tailed)

Yes: Significant difference in favor of the product
No: No significant difference
Yes*: Significant difference in disfavor of the product

The results of this study demonstrate, a single application of the body wash containing CeraSurge™ Pro, significantly enhanced skin moisturization and barrier function, with sustained effects that were observed 72 hours post application. Corneometry study revealed substantial increase in skin capacitance on treated sites, peaking at 76.42% at 30 minutes and maintaining 10.45% increase at 72 hours, indicating effective lipid replenishment and water retention. As Sugarman et.al states[16], the use of ceramide containing cleansers and moisturizers significantly reduces severity and incidence of dryness while improving skin barrier restoration. Similarly, tewametry showed significant reduction in TEWL, from 28.58% at 30 minutes to 7.80% at 72 hours, underscoring improved barrier integrity and reduced evaporative loss. According to Meckfessel and Brandt[17], ceramides play a key role in therapeutic agents for skin care, supporting the observations made in this study of barrier enhancement through lipid mimicry. These evident enhancements align with the prior studies made on ceramide formulation, where topical application have been demonstrated to maximize hydration and reduce TEWL in dry or compromised skin, as demonstrated by Kawahara et al,[18] in their oral ceramide trial, which also enhanced skin elasticity and skin hydration.

Subject evaluations further corroborated these findings, with high agreement rates (up to 100%) for perceived hydration, softness, and absence of irritation, reflecting strong user acceptability. According to Aich et al.'s[19] clinical examination of a topical ceramide lotion that preserved the skin moisture for up to 24 hours, studies have shown improved sensory qualities and compliance in ceramide enriched products for disorders including xerosis. The lack of adverse dermatological signs throughout the study period highlights the formulation's safety profile particularly beneficial for sensitive or dry skin populations, echoing findings

from Danby et al.[20] on emollients with ceramides improving barrier structure in older adults with dry skin.

Limitations include the focus on forearms, which may not fully represent whole body application, and the homogenous participant group (Females 18-40 years with dry skin), potentially restricting generalizability to other demographics and skin types as discussed by Kottner et al.[21] in their meta-analysis on TEWL in aged skin. Future study can explore chronic usage, diverse population, or comparisons with other active ingredients to further validate these outcomes. Overall, this body wash containing CeraSurge™ Pro offers a viable option for barrier repair and hydration maintenance, supporting its integration into routines for preventing and managing dry skin conditions, in line with Draelos's insights[22] on the science of cleansers in cosmetic dermatology.

CONCLUSION

The outcomes of this 72-hour randomized controlled experiment show that in healthy Indian females with dry forearms, a single application of Body Wash containing CeraSurge™ Pro greatly improves skin moisturization and fortifies barrier function. When compared to untreated controls, the study's instrumental measurements, such as Corneometry and Tewametry, showed significant increases in skin capacitance and significant decreases in Transepidermal Water Loss (TEWL). In addition to these objective benefits, dermatological examinations confirmed the formulation's efficacy, safety, and tolerance by demonstrating excellent cosmetic acceptability with no negative clinical or functional symptoms. The findings highlight how important ceramides are in repairing the stratum corneum's lipid matrix, which stops excessive water evaporation and maintains the integrity of the skin barrier over time.

The study used extensive Subject Self-Evaluation (SSE) in addition to instrumental assessments to gauge consumer-perceived advantages throughout the course of the 72-hour evaluation period. The product performed exceptionally well across important consumer-relevant features, according to the 33 female participants' structured input at various points in time. In terms of effectiveness advantages, the vast majority of participants (94–100%) stated that their skin felt soft, smooth, nourished, and moisturized at all time periods; 100% agreement was maintained for these crucial characteristics through T+48 hours. With 76–100% agreement, skin brightness demonstrated both immediate and long-lasting cosmetic advantages. The fact that 82% of participants at T+72 hours indicated a readiness to buy and

refer the product was especially remarkable, suggesting great customer satisfaction and advocacy potential beyond simple basic performance.

The sensory profile of the formulation obtained unanimous consumer acceptance, with 100% agreement at T+30 minutes that the product was non-sticky, lightweight, quick-absorbing, easily spreadable, and non-oily. These characteristics are important factors in determining product acceptance and ongoing use, and they directly address typical customer issues with moisturizing products. From a safety and tolerability standpoint, the product showed excellent results, with 100% of the 33 participants and all time points agreeing that it did not cause any burning, stinging, or itching feelings. The formulation's mild nature and suitability for regular use, especially on sensitive skin, are confirmed by the total lack of negative sensory experiences and dermatological findings that indicate no clinical evidence of irritation. Strong confirmation that the scientifically measurable enhancements in skin barrier function and moisturization translate into observable, palpable advantages that both meet and surpass customer expectations is provided by the convergence of objective instrumental data and subjective consumer-reported results.

Clinically, these findings are in favor of incorporating ceramide-enriched washes into regular skincare regimens, especially for people who are vulnerable to xerosis or environmental stresses that weaken the integrity of the skin barrier. This gentle body wash provides a lipid-replenishing substitute that supports proactive barrier preservation, potentially lowering the need for intense post-cleansing moisturizers and improving overall skin resilience, in contrast to traditional surfactants that may deplete natural lipids. In line with previous research on ceramide-dominant regimens that enhance hydration in healthy skin and repair permeability in degraded barrier conditions, the long-lasting effects shown even 72 hours after application point to cumulative advantages with repeated use.

While this study provides strong short-term evidence of efficacy, safety, and consumer acceptance, future research should investigate chronic application protocols to assess long-term benefits, include more demographic groups (such as men, older adults, or people of different ethnicities), and conduct comparative analyses with other barrier-repair actives to further optimize formulation strategies. In the end, this study advances customized dermatological approaches that prioritize barrier restoration by bolstering the evidence base for ceramide-based skincare and showcasing quantifiable benefits that correspond with

consumer needs. This promotes healthier skin outcomes and informs product development in the developing field of cosmetic dermatology.

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CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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