

 **BERACA**



**BERACARE ARS
BODY SYSTEM**


active
**Performance
Systems**



BERACA presents a wide portfolio composed of fixed oils, butters, scrubs, clays and actives sustainably sourced from the Brazilian biodiversity. The ingredients come from extractive communities throughout Brazil and are manufactured to connect our biodiversity with thousands of consumers around the world. Through a relationship marked by transparency, traceability and innovation, Beraca contributes directly to regional development and environmental preservation.



GENERAL INFORMATION

Product code: BA34210B

Related codes: BA34210BA00, BA34210BB05, BA34210BB46, BA34210BD19, BA34210BX15, BA34210BX18, BA34210BX36, BA34210BX45

Previous code: CTA-C042

COSMETIC USE

Beracare ARS Body System is a natural complex that acts in the preservation of hydration and revitalization of the skin. We indicate the use of this raw material for the manufacture of various daily skin care products mainly aimed at regeneration, nutrition and softness of the skin, for example: creams, lotions, soaps, oils, after sun lotions and cellulite creams.

EFFICACY EVALUATION

INTRODUCTION

The skin is the largest organ of the human body. It has three layers, the epidermis, the dermis and subcutaneous tissue and consists of a skin barrier responsible for protecting and coating the skin and to provide sensory functions such as thermoregulation, among other functions.

The stratum corneum is the first layer of the epidermis, being formed by cells called corneocytes, connected by a complex lipid matrix (Figure 1). This layer is approximately 10 to 20% of water, and the percentage of moisture depends on the balance between the supply of water to skin and the loss thereof through evaporation. The loss of water depends on the quantity of layers of corneocytes. The greater the number of layers, the greater the path to be followed by the water, the lower the evaporation.

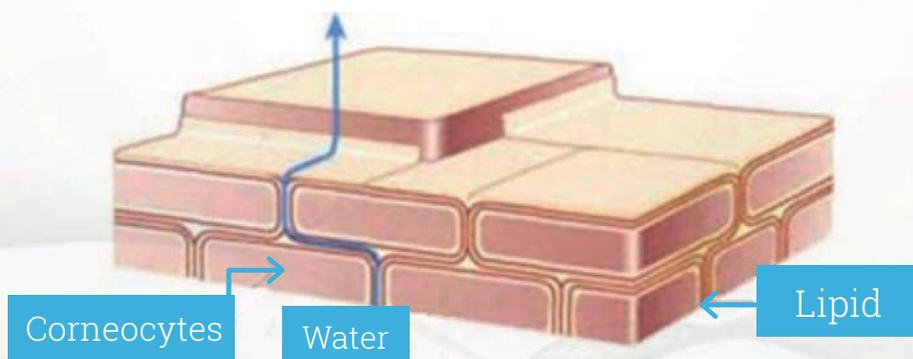


Figure 1. Schematic representation of the stratum corneum, the corneocytes and illustrating the lipid layer between them.

One of the detrimental factors to the skin is dehydration. Some external factors may influence dehydration of the skin, such as low atmospheric humidity, pollution, extreme temperatures and the use of abrasive skin products. The degree of loss of water depends on the intensity of exposure to those factors.

Dehydrated skin has a dry appearance, without firmness, elasticity or vigor. The use of cosmetic ingredients can prevent this loss by two mechanisms: forming an occlusive barrier to minimize evaporation and/or by moisturizing of the stratum corneum, the main barrier of skin, via the water contained in cosmetic formulations.

Beraca's **Beracare ARS Body System** is an exclusive complex that contains actives of *açai*, passion fruit, *babaçu* and rice bran oils that combine to provide the properties:

- Presence of bioactives: flavonoids, lauric acid, omega 6 and gamma-oryzanol;
- Promotes regeneration, nutrition, revitalization of the skin;
- Provides moisturizing benefits.

In this context, Beraca investigated the potential of the **Beracare ARS Body System** for the preservation of skin hydration.

OBJECTIVE

The objective of the study was to evaluate the maintenance of *in vivo* hydration of the skin, via Corneometry, after topical treatment of moisturizer containing 2.0% **Beracare ARS Body System**.

METHODS

1. Laboratory

The study was conducted in an independent laboratory, *Kosmoscience Ciência & Tecnologia Cosmética Ltda*. Study reference: BC009-08 - R0.

2. Experimental groups and treatments

The experimental groups and their respective treatments are listed in table 1 below.

Table 1. Products used in study protocol.

Experimental group	Treatment
PLACEBO	Moisturizer without Beracare ARS Body System
BERACARE ARS BODY SYSTEM	Moisturizer with 2% Beracare ARS Body System
CONTROL	Area without any product application

The products were stored at room temperature throughout the study.

3. Methodology

For the evaluation of skin hydration preservation, 30 female volunteers, aged between 18 and 60 years, who presented dry skin characteristics were selected.

The measurements were performed in an environment with controlled temperature (22 ± 2 ° C) and relative humidity ($55 \pm 5\%$), where three rectangles with dimensions 2.5 x 4.0 cm were marked on both forearms of the volunteers with the aid of a surgical pen, and in each area were applied about 20 μ L of test product. In the first rectangle no product was applied (**Control**); In the second rectangle the moisturizer without the active Beracare ARS Body System was applied (**Placebo**); In the third rectangle the moisturizer containing 2.0% active Beracare ARS Body System (**Beracare ARS Body System**) was applied.

Measurements were obtained by the **Corneometer**® 825 coupled to a *Multi Probe Adapter-MPA 5*, which carries the probe.

The difference in hydration values obtained from the **Beracare ARS Body System** and **Placebo** in relation to the **Control** were statistically compared using the unmatched bimodal Student's Test-t method, considering a 95% confidence interval.

3.1 Hydration kinetics

After the applications of the test products, the volunteers remained in the controlled environment for Corneometry measurements after 2h, 4h, 6h and 8h of study. Before each measurement, the excess product was removed using hydrophilic cotton.

The data obtained through the Corneometry analysis were evaluated using equations 1 and 2.

$$\Delta h = h_{ti} - h_{t0}$$

Equation 1. Difference in moisturizing between the reading of **control** and test products over time. Where: Δh = moisturizing difference, h_t = average of readings over time ti and h_{t0} = average of baseline measurements over time $t0$.

$$H_{ti} = \Delta h_{ti (product)} - \Delta h_{ti (control)}$$

Equation 2. Moisturizing calculation, H_{ti} = moisturizing the skin after ti application time; $\Delta h_{ti (control)}$ and $\Delta h_{ti (product)}$ = difference in moisturizing intensity of **control** for the products compared to baseline measurements in ti time, respectively.

3.2 Hydration after continuous use

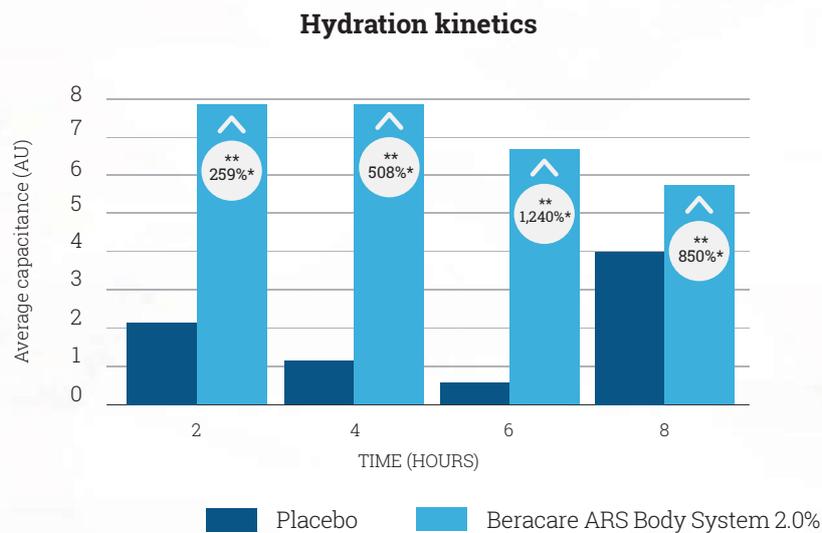
Measures of continuous use were obtained after 28 days of consecutive treatment. On the 29th day, without application of the product, the volunteers returned to the laboratory for further measures.

In order to evaluate the effect of continuous use of the products, the hydration values were compared statistically with the Student t-test, bimodal, unpaired, considering a 95% confidence interval.

RESULTS

1. Hydration kinetics

The higher the value of H_{it} , higher the moisturizing observed by use of the test product relative to **control**. Thus, the values obtained from equations 1 and 2 can be seen in Chart 1 below.



* Statistical significance $p < 0.05$ when compared to Placebo. ** Statistical significance $p < 0.05$ when compared to Control. *In vivo* evaluation results of moisturization kinetics, through corneometry, of Beracare ARS Body System active at 2.0% during 8 hours.

Graph 1. Results of the evaluation of the kinetics of *in vivo* hydration, by Corneometry, of the 2.0% Beracare ARS Body System vs Placebo formulation during a period of 8 hours.

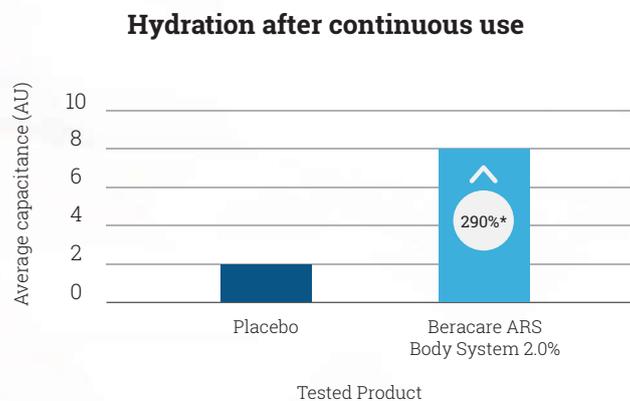
According to the results, the skin hydration promoted by the **Beracare ARS Body System** showed a significant difference in 2h, 4h, 6h and 8h after the application when compared to the **Control**. This indicates that the moisturizer with 2.0% Beracare ARS Body System is able to maintain hydration of the skin for at least 8 hours after its application.

Placebo presented no statistical difference in any of the evaluated times when compared to **Control**.

The **Beracare ARS Body System** and **Placebo** products were compared by the same statistical method and it was possible to show that the **Beracare ARS Body System** hydration kinetics are significantly higher than that promoted by **Placebo** at all evaluated times.

2. Hydration after continuous use

The mean hydration values measured after a continuous treatment of 28 days, using the test products, can be observed in graph 2.



* Statistical significance $p < 0.05$ when compared to Placebo.

In vivo evaluation results of skin moisturization activity, through corneometry, of Beracare ARS Body System active at 2.0% after 28 days of treatment.

Graph 2. Results of the evaluation of the *in vivo* hydration of the skin, by Corneometry, of the Beracare ARS Body System applied to 2.0%, after 28 days of treatment.

According to the data presented in Graph 2 and through statistical analysis, it can be verified that the hydration of the skin conferred by **Beracare ARS Body System** was statistically higher in the mean value of capacitance measured in the skin when compared to Placebo. This indicates that continued use of this product increases the level of skin hydration. **Placebo** treatment, after continuous use, did not present a significant difference in the capacitance values, without altering the basal hydration level of the skin.

CONCLUSION

Regarding the hydration kinetics of the skin, the application of the moisturizer containing the **Beracare ARS Body System** active at 2.0% conferred significant hydration, when compared to the **Control**. Its application imparted an increase in skin hydration and kept the skin moisturized for at least 8 hours after application.

The application of **Placebo** did not confer significant hydration when compared to **Control**.

For continuous use, the moisturizer containing the **Beracare ARS Body System** active at 2.0% promoted a significant increase in the average values of hydration measured in the skin. This indicates that continued use of this product has increased the basal level of skin hydration.

Thus, **Beracare ARS Body System**, through its active composition as flavonoids, lauric acid, omega 6 and gamma-oryzanol has proven effective in promoting hydration of the skin. It is possible to realize benefits from a period of 2 hours after the first use until long term benefits, by continuous use. In this way, it has the potential to regenerate, nourish and revitalize dry skin.

ATTACHMENT

FORMULATIONS USED IN TESTS

PLACEBO MOISTURIZING	
INGREDIENTS	% w/w
<i>Aqua</i>	Up to 100%
<i>Dissodium EDTA</i>	0.01
<i>Cetearyl Alcohol</i>	4.00
<i>Carbopol 940</i>	5.00
<i>Aqua</i>	10.00
<i>Imidazolidinyl Urea</i>	0.30
<i>Fragrance</i>	0.50

MOISTURIZING WITH BERACARE ARS BODY SYSTEM AT 2.0%	
INGREDIENTS	% w/w
<i>Aqua</i>	Up to 100%
<i>Dissodium EDTA</i>	0.01
<i>Cetearyl Alcohol</i>	4.00
<i>Carbopol 940</i>	5.00
Beracare ARS Body System	2.00
<i>Aqua</i>	10.00
<i>Imidazolidinyl Urea</i>	0.30
<i>Fragrance</i>	0.50

PHYSICAL AND CHEMICAL PROPERTIES

ANALYSIS	UNITS	SPECIFICATIONS
Appearance	Visual	Liquid
Color	Visual	Yellow to greenish
Color (Lovibond)	-	$\leq 12.0R / \leq 70.0Y / \leq 1.0 B / \leq 1.0N$
Color (Gardner)	-	≤ 18.0
Specific gravity (20°C)	g/cm ³	0.890 – 0.935
Refractive index (20°C)	-	1.470 – 1.490
Acid value (as oleic acid)	%	≤ 5.0

MICROBIOLOGICAL ANALYSIS

Total bacteria h. m.	cfu/g	< 100
Fungus and yeasts	cfu/g	< 100

STORAGE INFORMATION

- **Conditions** → Dry, cool, airy place, away from light and heat and other sources in an environment with constant temperature not exceeding 25°C
- **Container** → Nitrogen blanketed

IMPORTANT OBSERVATIONS

- Considering that is a natural product, if the storage guidelines are not met, the physicochemical characteristics may vary, reducing the shelf life.
- After opening the product should be consumed as soon as possible. Contact with oxygen generates an oxidative process which could decrease the shelf-life of the product.
- Due to the particularity of each oil, it is not possible to establish an oxidative parameter for the period of exposure.
- Natural oil substances and waxes could settle during storage and develop a slight sedimentation at the bottom of the container. Please have this in mind when emptying the container.
- The above information has been developed with the methods and practices set out in AOCS (American Oil Chemists' Society).

REGULATORY INFORMATION

INCI name (PCPC)	CAS number
PASSIFLORA EDULIS SEED OIL	97676-26-1
ORYZA SATIVA (RICE) BRAN OIL	68553-81-1
EUTERPE OLERACEA FRUIT OIL	861902-11-6
ORBIGNYA OLEIFERA SEED OIL	91078-92-1
INCI name (COSING)	CAS number
PASSIFLORA EDULIS SEED OIL	97676-26-1
ORYZA SATIVA BRAN OIL	68553-81-1
EUTERPE OLERACEA FRUIT OIL	861902-11-6
ORBIGNYA OLEIFERA SEED OIL	91078-92-1



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