KAFFE BUENO

# PERSONAL CARE PRODUCT CATALOGUE

Certified B Corporation

## UNLOCKING COFFEE'S HEALTH POTENTIAL

**Kaffe Bueno** is a Danish bioscience company upcycling coffee by-products into active and functional ingredients for Personal Care, Nutraceuticals, and Functional Food & Beverage.

Our **vision** is to transform the way people perceive coffee; from looking at it as their caffeine fix, to looking at it as a sustainable health elixir.

Our **mission** is to unlock coffee's health potential, where harmful emissions are minimised and coffee's by-product usability is maximised. By extending coffee's economical life, we will be able to give back to the people we owe its existence; farmers.


# TABLE OF CONTENTS

# KAFFOIL®

**The New Argan Oil - Upcycled Active Coffee Lipid**

| PRODUCT NAME | PRODUCT CODES | INCI NAME | FORM |
|---|---|---|---|
| KAFFOIL®<br>KAFFOIL-R® | 01002<br>01003 | Coffea Arabica Seed Oil<br>Coffea Arabica Seed Oil | Liquid<br>Liquid |

## 01. PRODUCT DESCRIPTION

KAFFOIL® is the first upcycled lipophilic extract derived from coffee's by-product.

No petrochemicals are used to extract it. The non-intrusive environmentally friendly extraction process allows for a holistic extraction and preservation of the whole spectrum of bioactive molecules.

This positions KAFFOIL® as a valuable ingredient in cosmetic formulations.

KAFFOIL-R® is a sustainable alternative to Argan oil. It increases hair shine, promotes anti-breakage and helps to repair chemically damaged hair.

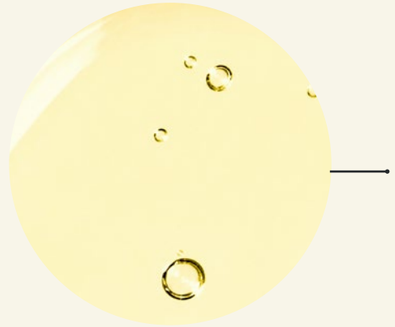
## 02. BENEFITS

**Personal Care Benefits:**

- Anti-ageing[1]
- SPF Boosting[2]
- Skin Barrier Enhancing [1]
- Antioxidant Activity[1]
- Increases Hair Shine[3]
- Prevention & Repairs Split Ends[3]

**Formulation Benefits:**

- Acts as an Emollient



KAFFOIL®
in a shampoo

## 03. RECOMMENDED APPLICATION

- Serums & Face Oils
- Shampoos, Conditioners & Scalp Revitalisers
- Hand Creams & Lotions
- Soaps & Cleansing Gels
- Sunscreens
- Night & Day Creams
- Body Lotions, Creams & Oils

# SPECIFICATIONS

| PARAMETER | UNIT | SPECIFICATION |
|---|---|---|
| PALMITIC ACID | % | 30 – 40 |
| STEARIC ACID | % | 7 – 10 |
| OLEIC ACID | % | 8 – 11 |
| LINOLEIC ACID | % | 42 - 47 |
| LINOLENIC ACID | % | 1 - 2 |
| TOTAL TOCOPHEROLS | mg/kg | 750-1500 |
| PEROXIDE VALUE | mEq O2/kg oil | ≤ 6 |
| ACID VALUE (KOH) | mg KOH/g | ≤ 15 |
| SAPONIFICATION VALUE | mg KOH/g | 150 - 210 |
| UNSAPONIFIABLE MATTER | g/kg | 9 - 15 |
| FLASH POINT | °C | > 160 |
| WATER CONTENT | % | ≤ 0.35 |
| SPECIFIC GRAVITY | 20°C/WATER AT 20°C | 0.90 - 0.95 |
| TOTAL PLATE COUNT 30°C | CFU/g | ≤ 10 |
| YEASTS AND MOULDS | CFU/g | ≤ 10 |
| STAPHYLOCOCCUS AUREUS | CFU/g | ND |
| ESCHERICHIA COLI | CFU/g | ND |

**HLB-VALUE*:** 5-6

**SOLUBILITY (% G PRODUCT/G SOLVENT):**

| WATER | ETHANOL | GLYCEROL |
|---|---|---|
| IMMISCIBLE | IMMISCIBLE | 100% |

**ACTIVE CONTENT (%):** 15%

**RECOMMENDED DOSAGE (%):** 0.5% - 100%

* HYDROPHILLIC-LIPOPHILLIC BALANCE. AT 5-6 COMPOUNDS ARE MORE SUITABLE AS WATER-IN-OIL EMULSIFIERS.

# KAFFOIL® VERSIONS & FORMULATIONS

KAFFOIL®: rich aroma of freshly brewed coffee, brown, viscous.

KAFFOIL-R®: slight tones of roasted coffee, bright and reddish brown, lightly viscous, lighter texture.

Hair  oil with 2% KAFFOIL-R®.

Hair oil with  10% KAFFOIL-R®.

# EFFICACY DATA

## SKIN REPAIR - IN VITRO

In order to evaluate the impact of KAFFOIL® on wound confluence, a series of experiments were conducted using keratinocyte cell lines (HaCaT). The cell lines were cultivated under controlled conditions of 37°C and 5% CO2 for a duration of 48 hours.

Wound confluence, defined as the proportion of the original wound area covered by migrating cells within a specified time period, was assessed. The cells were subjected to treatment with KAFFOIL® at concentrations of 0.1% and 0.2%. Additionally, a positive reference was included in the form of a 10% Fetal Bovine Serum (FBS) solution.

Upon completion of the 48-hour incubation period, no discernible disparity in wound confluence was observed between the KAFFOIL® 0.1% treatment group and the control. However, the KAFFOIL® 0.2% treatment yielded twice the amount of wound confluence in comparison to the control, resulting in a value of 80% as opposed to 40%.[1]

**Claims:**

Improves the Skin Barrier and Supports Skin Repair

## ANTIOXIDANT

### IMPROVEMENT OF ANTIOXIDANT DEFENCE BY INDUCTION OF NRF2

To assess the impact of KAFFOIL® on antioxidant defense, keratinocyte cell lines (HaCaT-ARE-Luc) were cultivated under controlled conditions (37°C, CO2 incubator) for a period of 6 hours. The cells were exposed to increasing concentrations of the oxidizing agent dithiothreitol (DTT). During oxidative stress, the production of transcription factors such as nuclear factor erythroid 2-related factor 2 (Nrf2) is triggered, which in turn regulates the antioxidant defense system. In this assay, the level of Nrf2 production can be correlated with the relative light units (RLU) generated by the luciferase enzyme. The cells were subjected to a 0.1% treatment of KAFFOIL®, while 0.02 mM tert-butyl-hydroquinone (TBHQ) served as the positive reference.

Following the 6-hour incubation period, it was observed that the cells treated with 0.1% KAFFOIL® exhibited a Nrf2 production level that was 6 times higher compared to the control group.[2]

Additionally, to test the effect of KAFFOIL® on antioxidant defence, the intracellular accumulation of reactive oxygen species (ROS) was measured. HaCaT were preincubated with test substances before exposure to the oxidant tert-butyl-hydroperoxide (TTHP). In this assay the ROS production can be correlated to the change in fluorescence. The cells underwent 0.1% KAFFOIL® and 0.2% KAFFOIL® treatment, while 15 mM N-acetyl cysteine (NAC) was the positive reference.

The relative ROS activation was lower in the cells treated 0.1% KAFFOIL® (50%) and 0.2% KAFFOIL® (5%) compared to the control (100%)[3].

**Claims:**

Antioxidant by Induction of NRF2 Pathway, Antioxidant by Reduction of ROS and Anti-ageing



**FIGURE 1**

Wound confluence of HaCaT cells in Dulbeccos Modified Eagles Medium. Tested conditions: without additions (control), 0.1% KAFFOIL®, 0.2% KAFFOIL® and Fetal Bovin Serum.

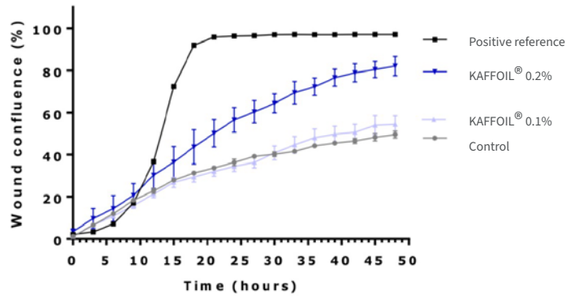



**FIGURE 2**

Representative photos of wound confluence of HaCaT cells in Dulbeccos Modified Eagles Medium at 0-24-48h. Yellow line indicates the border between cells and no cells. Test conditions: without additions (control), 0.1% KAFFOIL®, 0.2% KAFFOIL® and 10% Fetal Bovin Serum (FBS).

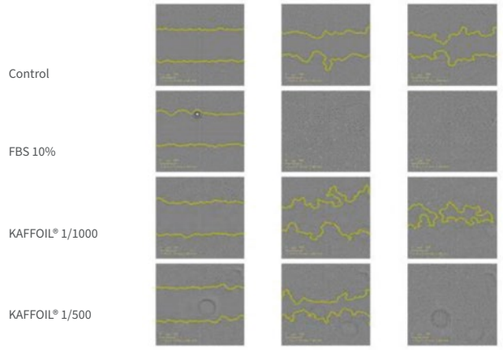



**FIGURE 3**

Nrf2 activation expressed in relative RLU. Data is normalized according to the control. HaCaT-ARE-Luc cells exposed to DTT for 6 hrs. Test conditions: no antioxidant (control), 0.02 mM TBHQ (positive reference) and 0.1% KAFFOIL®.

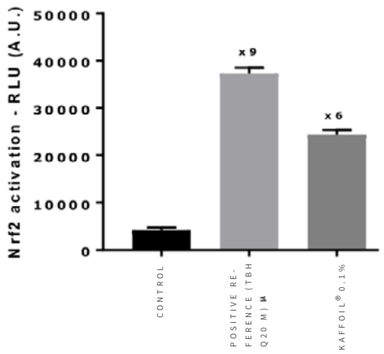
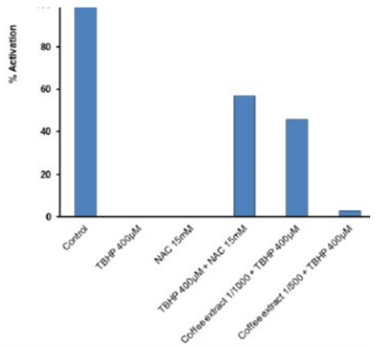



**FIGURE 4**

Relative ROS oxidation of HaCaT cell in Dulbeccos Modified Eagles Medium with 10% PBS. Test conditions: no antioxidant (control), 0.1% KAFFOIL®, 0.2% KAFFOIL® and 15 mM NAC (positive reference).



# HAIR CARE - EX VIVO[3]

To assess the ex vivo impact of KAFFOIL-R® on hair shine, hair breakage, and split ends in brown straight and Brazilian damaged hair, two formulations containing KAFFOIL-R® at concentrations of 2% and 5% were employed. The control group utilised argan oil as a substitute for KAFFOIL-R®. These formulations were applied once.

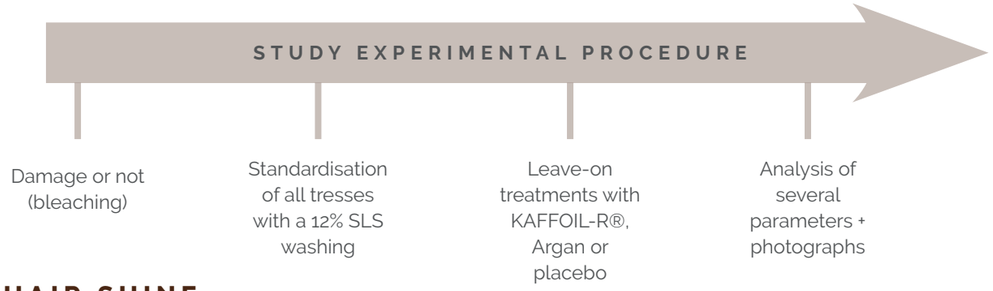
| INGREDIENT (INCI NAME) | NO-3 | NO-4 |
|---|---|---|
| COFFEA ARABICA SEED OIL (KAFFOIL - R) | 2 | 5 |
| SHEA BUTTER ETHYL ESTERS | 15 | 15 |
| POLYCITRONELLOL ACETATE, UNDECANE AND TRIDECANE | 55 | 54 |
| POLYCITRONELLOL ACETATE | 28 | 26 |

**Hair damage:** The hair was bleached for 1 hour, thus it was chemically damaged.

**7 conditions:**

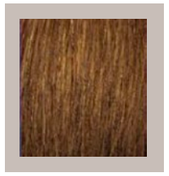
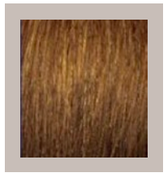
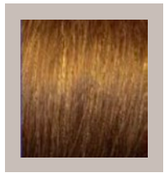
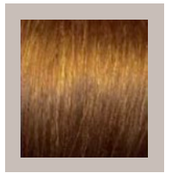
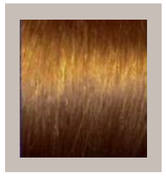
- Untreated Non Damaged Hair
- Untreated + Damaged Hair
- One Control Placebo + Damaged Hair
- One Formulation With KAFFOIL-R® at Two Concentrations (2% and 5%) + Damaged Hair
- One Formulation With Argan Oil at Two Concentrations (2% and 5%) + Damaged Hair

**Claims:** Repairs Split-ends, Anti-breakage and Increased Hair Shine.




## HAIR SHINE

Sensorial evaluation and scorage by one expert in standardised lighting and position of hair tresses

| SCORE | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| HAIR SHINE | NONE | LOW | AVERAGE | HIGH | VERY HIGH |
| EXAMPLE |  |  |  |  |  |



## STRAIGHT HAIR TRESSES

All formulations led to an increase in hair shine compared to the untreated damaged hair. No difference between the hairs treated with the KAFFOIL-R® and argan oil formulations was found.

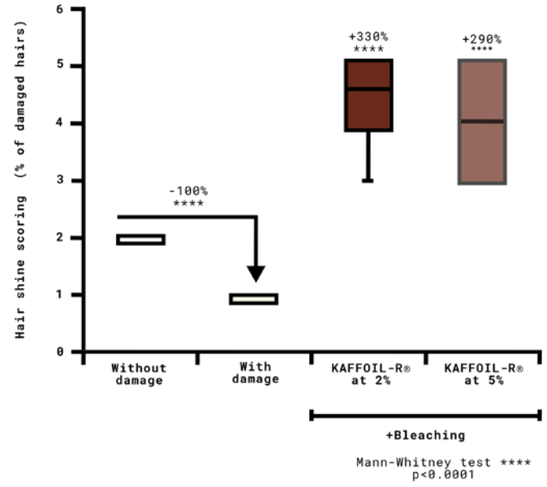



**FIGURE 5:** Mean results of the straight hair after single product application.

## BRAZILIAN HAIR TRESSES

KAFFOIL-R® 5% significantly increased Brazilian hair shine by 330% after bleaching procedure. No difference between the hairs treated with the KAFFOIL-R® and argan oil formulations was found.

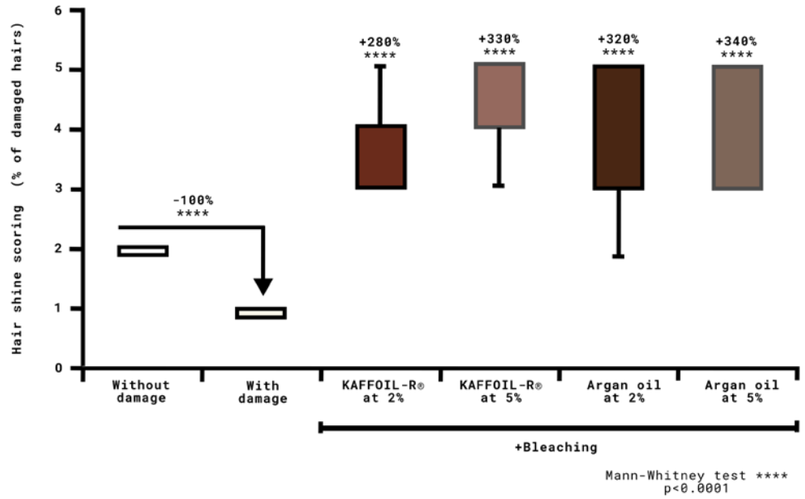



FIGURE 6: Mean results of the Brazilian hair after single product application.

## HAIR BREAKAGE

The hair breakage was evaluated after 5000 brush strokes. The amount of broken hairs per hair tress were counted.

### STRAIGHT HAIR TRESSES

KAFFOIL-R® showed similar efficacy in straight hair tresses compareed to that of Brazilian hair tresses.

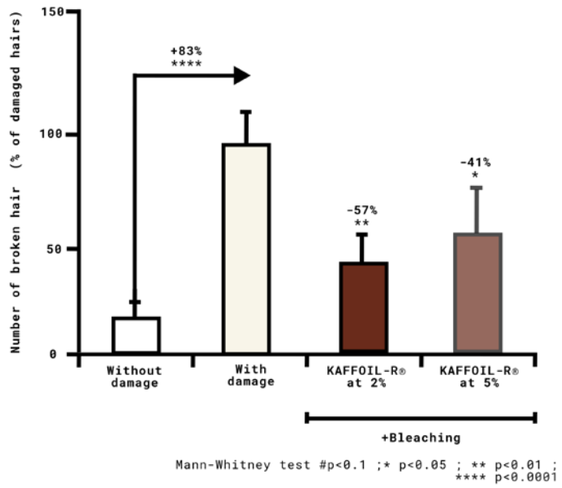



**FIGURE 7:** Average amount of broken hairs per straight hair tress.

### BRAZILIAN HAIR TRESSES

Combing resulted in a higher occurrence of broken hairs in Brazilian hair compared to straight hair, which was consistent for both undamaged and damaged hair. However, all formulations effectively reduced hair breakage in damaged hair. Notably, no discernible difference was observed between the effects of the KAFFOIL-R® and argan oil formulations on the treated hairs.

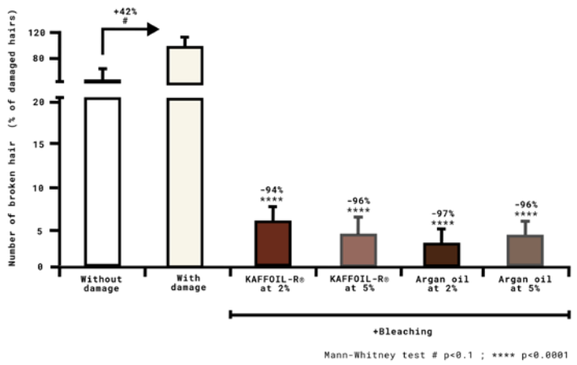



**FIGURE 8:** Average amount of broken hairs per Brazilian hair tress.



## SPLIT ENDS

Hair split ends were accessed after the previously mentioned combing procedure.

### STRAIGHT HAIR TRESSES

All formulations exhibited effective preventive action against the formation of split ends. Notably, KAFFOIL-R® demonstrated comparable efficacy in repairing straight hair to that observed in Brazilian hair.

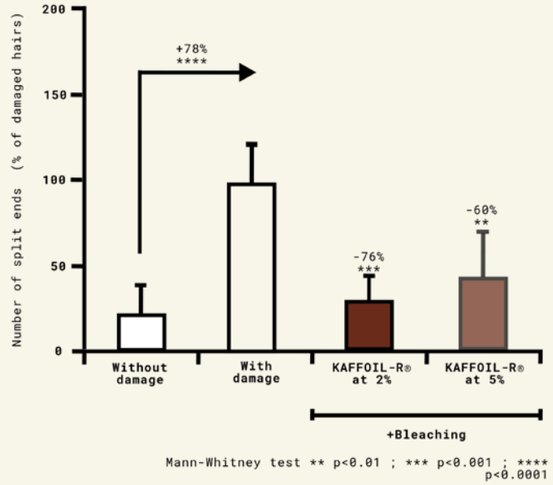



**FIGURE 9:** Average split end per straight hair tress.

## BRAZILIAN HAIR TRESSES

All formulations exhibited effective preventive measures against the formation of split ends. Remarkably, there was no discernible distinction between the results obtained from the application of KAFFOIL-R® and argan oil formulations. In the case of Brazilian hair, KAFFOIL-R® demonstrated an impressive dose-response pattern in repairing damage, resulting in a reduction of up to 94% in split ends following a bleaching procedure.

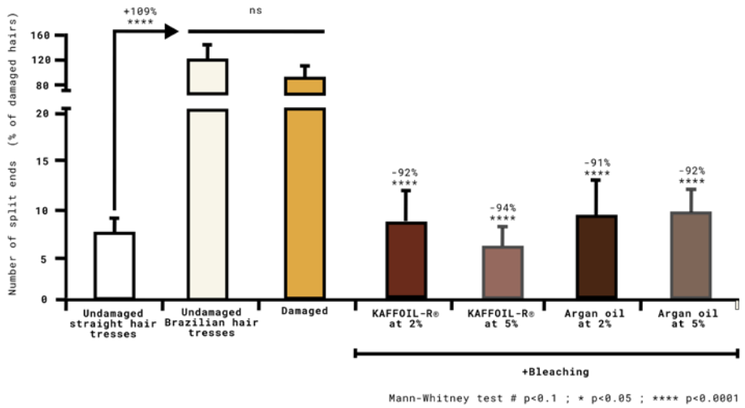



**FIGURE 10:** Average split end per Brazilian hair tress


## SUMMARY

- KAFFOIL-R® 2% and 5% have shown that they can increase Brazilian hair shine and strength.
- KAFFOIL-R® 2% and 5% were able to repair the damages caused by bleaching Brazilian hair.
- KAFFOIL-R® showed similar efficacy to argan oil.
- KAFFOIL-R® repair both Brazilian and Straight hair types. .

# SPECIFICATIONS

| PARAMETER | UNIT | SPECIFICATION |
|---|---|---|
| MOISTURE | g/100g | <5 |
| MOULDS | CFU/g | < 100 |
| YEASTS | CFU/g | < 100 |
| STAPHYLOCOCCUS AUREUS | CFU/g | < 10 |
| ESCHERICHIA COLI | CFU/g | < 10 |
| SALMONELLA SPP. | IN 25 g | NOT DETECTED |

KAFFIBRE® consists of 15-20% water-soluble and 80-85% water-insoluble fibres.

Exfoliating, or the removal of dead skin cells from the outer layer of the skin, can be done mechanically or chemically. The main mechanism of exfoliation by KAFFIBRE® is mechanical, with the firm particles of KAFFIBRE® scrubbing the skin. Furthermore, KAFFIBRE® still contains some caffeine (1%), which is proposed to have anti-cellulite properties[2]. Caffeine has shown to reduce the accumulation of fat in cells[3].



# REFERENCES

[1] Delgado-Arias, S., et al., (2019). Evaluation of the antioxidant and physical properties of an exfoliating cream developed from coffee grounds. Journal of Food Process Engineering. 43(5)

[2] Own data

[3] Herman, A. & Herman, A.P., (2012). Caffein's mechanisms of action and its cosmetic us. Skin Pharmacol Physiol. 26(1):8-14

# KAFFAGE®

**Upcycled Multi-Functional Active Biopolymer Extract**

| PRODUCT NAME | PRODUCT CODES | INCI NAME | FORM |
|---|---|---|---|
| KAFFAGE® | 03001-1 | Coffea Arabica Seed Extract | Powder |
| KAFFAGE-D® | 03001-2 | Glycerine, Coffea Arabica Seed Extract | Liquid |
| KAFFAGE-B® | 03002-1 | Coffea Arabica Seed Extract | Powder |
| KAFFAGE-BD® | 03002-2 | Glycerine, Coffea Arabica Seed Extract | Liquid |



## 01. PRODUCT DESCRIPTION

KAFFAGE® is an innovative amphiphilic biopolymer derived from upcycled defatted coffee by-products. Its unique composition, enriched with polyphenolic groups, provides unparalleled multi-functionality and exceptional performance.

With its abundant hydroxycinnamic acids, KAFFAGE® offers remarkable antioxidant activity and effectively prevents UV-induced glycation in human cells[1]. Moreover, it acts as a natural SPF booster by absorbing UV light, including UV-B rays known to cause sunburn[2].

The natural brown color of KAFFAGE® and the yellow to brown shade of KAFFAGE-B™ contribute to their ability to mimic various skin tones, reducing the reliance on conventional color compounds like iron oxides.

Furthermore, KAFFAGE® exhibits high water solubility along with emulsifying and thickening properties, facilitating effortless formulation. Its inherent antimicrobial properties also reduce the necessity for additional preservatives[1,3].

## 02. BENEFITS

**Personal Care Benefits:**

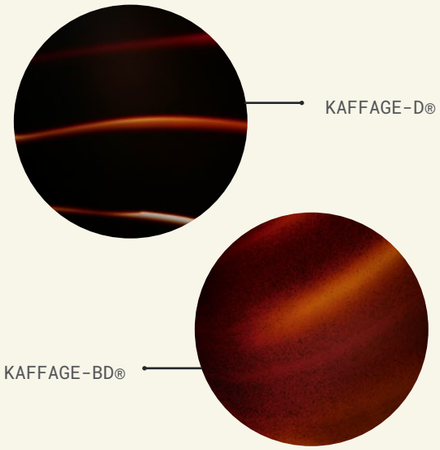
- Antiglycation[1]
- Antioxidant
- Skin Microbiome Friendly
- SPF Booster [2]

**Formulation Benefits:**

- Emulsifying
- Highly Water Soluble
- Mimics Wide Range of Skin Tones
- Preservative Boosting
- Thickening Effect


## 03. RECOMMENDED APPLICATIONS

- Skin Care
- BB/CC Creams
- Body Care
- Foundations
- Self-tanners



# SPECIFICATIONS

| PARAMETER | KAFFAGE® 03001-1 | KAFFAGE-D® 03001-2 | KAFFAGE-B® 03002-1 | KAFFAGE-BD® 03002-2 |
|---|---|---|---|---|
| COLOUR INTENSITY (0.1% ABSORBANCE @610 NM) | 0.40-0.7 | 0.2-0.3 | 0.1-0.35 | 0.05-0.15 |
| COLOUR BY CIE LAB (L VALUE) | 35-40 | 15-25 | 45-55 | 20-30 |
| TINCTORIAL POWER (0.1% ABSORBANCE @560 NM) | 0.5-0.8 | 0.2-0.3 | 0.1-0.35 | 0.05-0.15 |
| TOTAL PHENOLICS CONTENT (GALLIC ACID EQUIVALENTS) | >40000 mg/kg | >8000 mg/kg | >20000 mg/kg | >4000 mg/kg |
| pH (1% SOLUTION IN WATER) | 7-9 | 7-9 | 7-9 | 7-9 |
| LOSS ON DRYING | <5% | <5% | <5% | <5% |
| DENSITY | 0.55-0.65 g/ml | 1.0-1.15 g/ml | 0.55-0.65 g/ml | 1.0-1.15 g/ml |
| TOTAL PLATE COUNT 30°C | ≤ 10 | ≤ 10 | ≤ 10 | ≤ 10 |
| YEASTS AND MOULDS | ≤ 10 | ≤ 10 | ≤ 10 | ≤ 10 |
| ESCHERICHIA COLI | ND | ND | ND | ND |
| STAPHYLOCOCCUS AUREUS | ND | ND | ND | ND |

**SOLUBILITY (% G PRODUCT/G SOLVENT):**

| WATER | ETHANOL | GLYCEROL |
|---|---|---|
| 100% | 40% | 70% |

**ACTIVE CONTENT (%):** TBD

**RECOMMENDED DOSAGE (%):** 1 - 6%

# EFFICACY DATA

## SKIN CARE - IN VITRO

To test the detoxifying and protective effects of KAFFAGE®, human keratinocytes (HaCaT) were exposed to UVA-light and the formed advanced glycation end-products (AGEs) were measured. These AGEs are formed under oxidative stress and have been linked to several chronic diseases, such as diabetes. Thus, inhibition of glycation has a preventive potential. The cells were for 24 hrs with 0.01% and 0.03% KAFFAGE®, this was enough to prevent damaging effects of UVA exposure (20 J/cm2) for 3.5 hrs. After 3 hrs exposure, cells treated with 0.03% and 0.01% KAFFAGE®, respectively 49.6% and 28.3%, than the control. The amount of AGEs in the 0.03% KAFFAGE® treated cells was comparable to the amount in unexposed cells.

The treatment with 0.01% and 0.03% KAFFAGE® for 24 hrs, significantly reduced the formation of AGEs under UVA exposure.

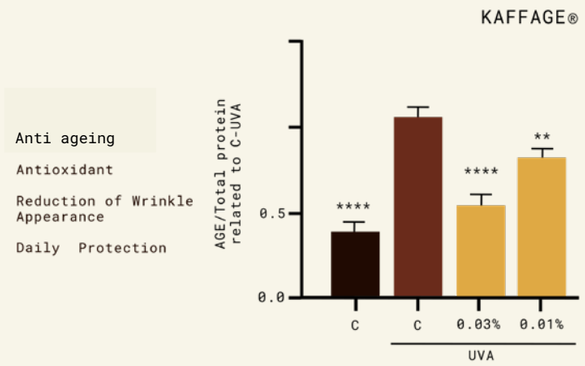



**FIGURE 11:** Advanced glycation end-products formed per total protein in HaCaT-cells after UVA exposure. Test conditions: no treatment (C), 0.03% KAFFAGE® , 0.01% KAFFAGE® .

**CLAIMS:**

By preventing UVA-induced glycation KAFFAGE helps preserve collagen and elastane.

**MODE OF ACTION:**

KAFFAGE® is an antioxidant that absorbs UV-light. This reduces the impact of UV-radiation on cells and its sugars and proteins, resulting is less formation of AGEs. The ability to absorb UV-light, makes KAFFAGE® a natural sun blocker. KAFFAGE® showed higher absorbance in all the UV-regions than the mineral sun blocker zinc oxide (ZnO), this was less in the UVA-region (315-380 nm) and more in the UVB-region (280-315 nm). KAFFAGE-B® did not absorb notable UVA and UVB radiation.



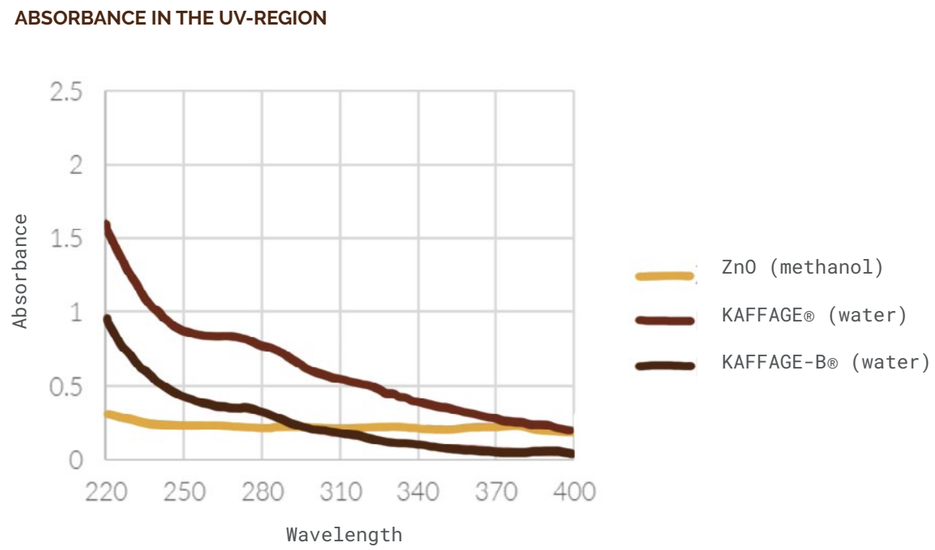



**FIGURE 12:** Absorption in the UV-region at 100 µg/mL for KAFFAGE®, KAFFAGE-B® and ZnO.

## SKIN CARE - IN VIVO

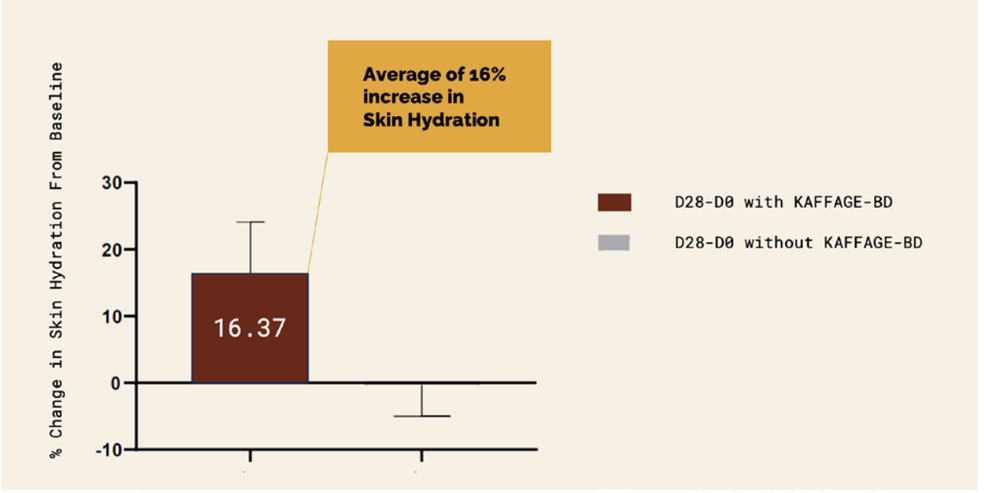



**FIGURE 13:** For Kaffage-BD®, the sample size for testing included 30 individuals using a formula with Kaffage-BD® and 20 without it. The testing method involved performing five repeated measurements on the cheek of each volunteer at various time points. The results demonstrated that after 28 days of use, the formula containing X% Kaffage-BD® showed an average of 16% increase in skin hydration compared to a BB cream without Kaffage-BD®.

## VISIA-CR IMAGING
## IMPROVEMENT IN APPEARANCE OF WRINKLES IN OCULAR REGION


FIGURE 14


FIGURE 15

**CLAIMS:**

KAFFAGE® improves fine lines, enhances hydration of the skin by 16%, and allows for a bettered appearance of hyperpigmentation.



## POST USE CONSUMER SATISFACTION SURVEY
## BB CREAM WITH KAFFAGE-BD®

**90%** of users felt their skin was more radiant, with a healthy-looking glow.

**93%** of users felt their skin was more moisturised.

**97%** agreed the treatment nourished their skin.




# REFERENCES

[1]Moreira, A.S., et al., (2012). Coffee melanoidins: structures, mechanisms of formation and potential health impacts. Food & Function. 3:903-915

[2] Own data

[3] Own data

# KAFFAIR®

**Upcycled Active for Hair & Scalp Care**

| PRODUCT NAME | PRODUCT CODES | INCI NAME | FORM |
|---|---|---|---|
| KAFFAIR® | 05001-1 | Coffea Arabica Seed Extract | Powder |
| KAFFAIR-D® | 05001-2 | Glycerine, Coffea Arabica Seed Extract | Liquid |
| KAFFAIR-B® | 05002-1 | Coffea Arabica Seed Extract | Powder |
| KAFFAIR-BD® | 05002-2 | Glycerine, Coffea Arabica Seed Extract | Liquid |

## 01. PRODUCT DESCRIPTION

KAFFAIR® is an innovative ingredient derived from upcycled coffee, set to revolutionize scalp and hair care with its scientific prowess.

Harnessing KAFFAIR®'s potential, this patent-pending treatment upregulates vital human growth factors (IGF1, VEGF, FGF7) to fortify cuticles and follicles, defending against hair loss[1].

KAFFAIR® also excels in purifying hair fibers, effectively removing environmental pollutants, thanks to its potent metal chelating properties[2].

With natural coffee-derived hues, KAFFAIR® preserves hair color while delivering remarkable benefits[3].

Experience the transformative power of KAFFAIR®, an advanced solution that elevates scalp and hair care with remarkable natural effectiveness.

## 02. BENEFITS

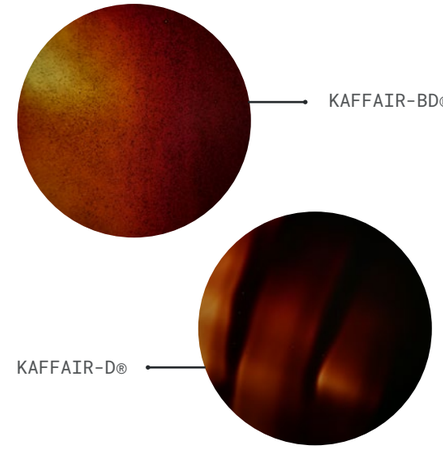
**Personal Care Benefits:**

- Antioxidants
- Anti-pollution
- Helps Prevent Hair Loss
- Strengthens Hair Follicles

**Formulation Benefits:**

- Emulsifying
- Highly Water Soluble
- Preservative Boosting
- Thickening Effect

**More data coming soon.**




## 03. RECOMMENDED APPLICATION

- Shampoos, Conditioners & Scalp Revitalisers
- Hair Masks & Treatments
- Scalp Oils & Serums Foundations

# SPECIFICATIONS

| PARAMETER | KAFFAIR® 05001-1 | KAFFAIR® 05001-2 | KAFFAIR® 05002-1 | KAFFAIR® 05002-2 |
|---|---|---|---|---|
| COLOUR INTENSITY (0.1% ABSORBANCE @610 NM) | 0.40-0.7 | 0.2-0.3 | 0.1-0.35 | 0.05-0.15 |
| COLOUR BY CIE LAB (L VALUE) | 35-40 | 15-25 | 45-55 | 20-30 |
| TINCTORIAL POWER (0.1% ABSORBANCE @560 NM) | 0.5-0.8 | 0.2-0.3 | 0.1-0.35 | 0.05-0.15 |
| TOTAL PHENOLICS CONTENT (GALLIC ACID EQUIVALENTS) | >40000 mg/kg | >8000 mg/kg | >20000 mg/kg | >4000 mg/kg |
| pH (1% SOLUTION IN WATER) | 7-9 | 7-9 | 7-9 | 7-9 |
| LOSS ON DRYING | <5% | <5% | <5% | <5% |
| DENSITY | 0.55-0.65 g/ml | 1.0-1.15 g/ml | 0.55-0.65 g/ml | 1.0-1.15 g/ml |
| TOTAL PLATE COUNT 30°C | ≤ 10 | ≤ 10 | ≤ 10 | ≤ 10 |
| YEASTS AND MOULDS | ≤ 10 | ≤ 10 | ≤ 10 | ≤ 10 |
| ESCHERICHIA COLI | ND | ND | ND | ND |
| STAPHYLOCOCCUS AUREUS | ND | ND | ND | ND |

**SOLUBILITY (% G PRODUCT/G SOLVENT):**

| WATER | ETHANOL | GLYCEROL |
|---|---|---|
| 100% | 40% | 70% |

**ACTIVE CONTENT (%):** TBD

**RECOMMENDED DOSAGE (%):** 1 - 6%

# EFFICACY DATA

## HAIR GROWTH - IN VITRO

### RESULTS

To evaluate the effect of KAFFAIR® on hair growth, the expression of several genes linked to hair growth in human follicle dermal papilla cells was accessed.

Results showed that treatment with 0.03% KAFFAIR® induced the expression of the vascular endothelial growth factor (VEGF) by 184.0 ± 27.4%. This gene promotes the growth of new blood vessels and can result in accelerated hair regrowth. KAFFAIR® at 0.3% and 0.03% induced the expression of insulin-like growth factor (IGF-1). IGF-1 helps regulate cell proliferation. The expression of keratinocyte growth factor (FGF7) was induced after 0.3% KAFFAIR® treatment by 89.0 ± 23.5%. FGF7 helps maintain hair health and is involved in all the steps of the hair growth cycle.

Androgenic alopecia, or male-pattern hair loss, is due to the shrinkage of hair follicles by genetic predisposition or hormonal stimulation. This hormonal stimulation is done by androgens, such as 5 α-dihydrotestosterone (DHT). DHT is synthesized from testosterone by 5 α-reductases. Three reductases (SRD5A1, SRD5A2, and SRD5A3) were monitored after KAFFAIR® treatment. Inhibitors of these genes are often used to prevent the conversion from testosterone to DHT and thus prevent shrinkage of hair follicles. No significant inhibition by KAFFAIR® was observed for these genes.

### CLAIMS:

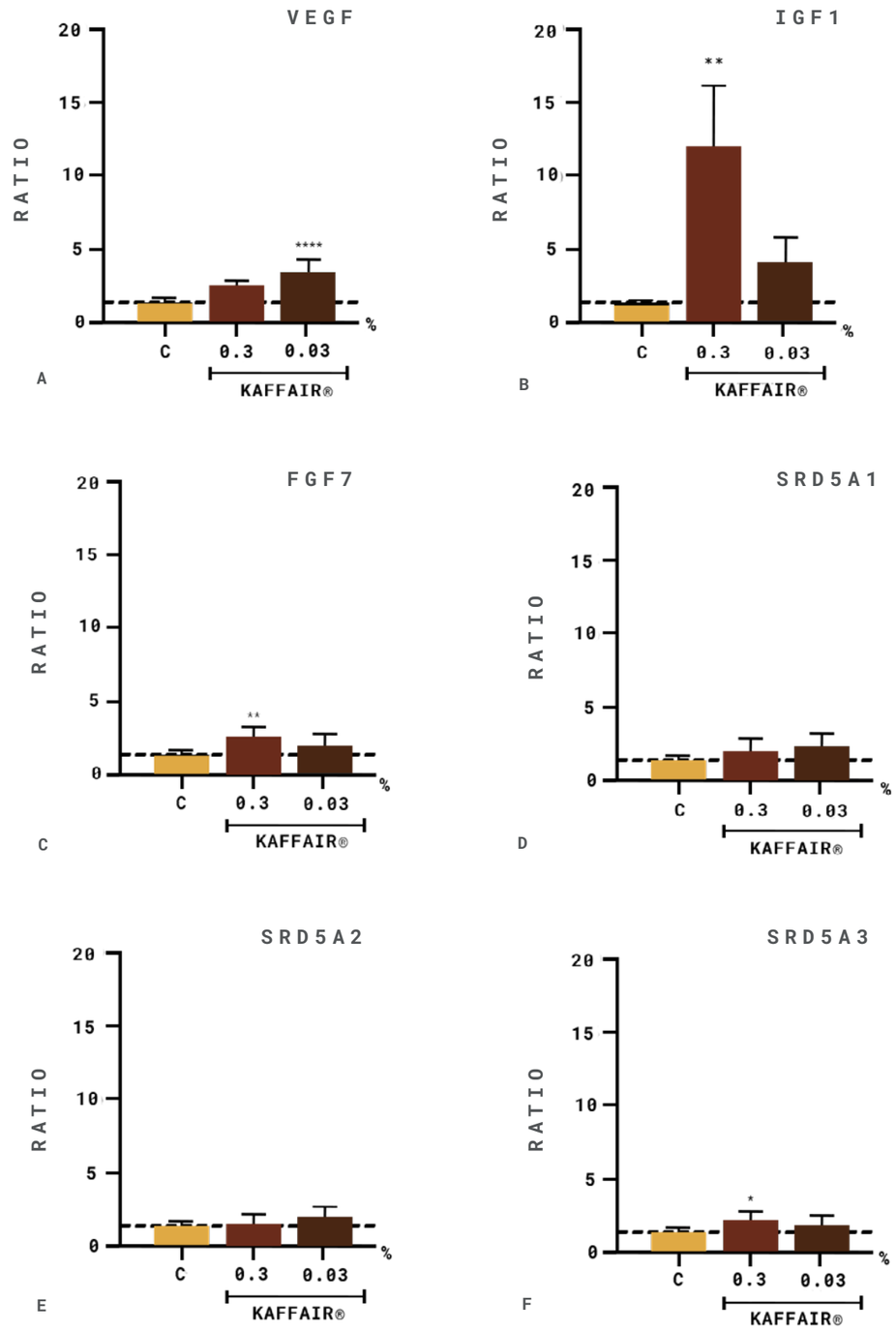
Improved hair health and promotes hair regrowth.

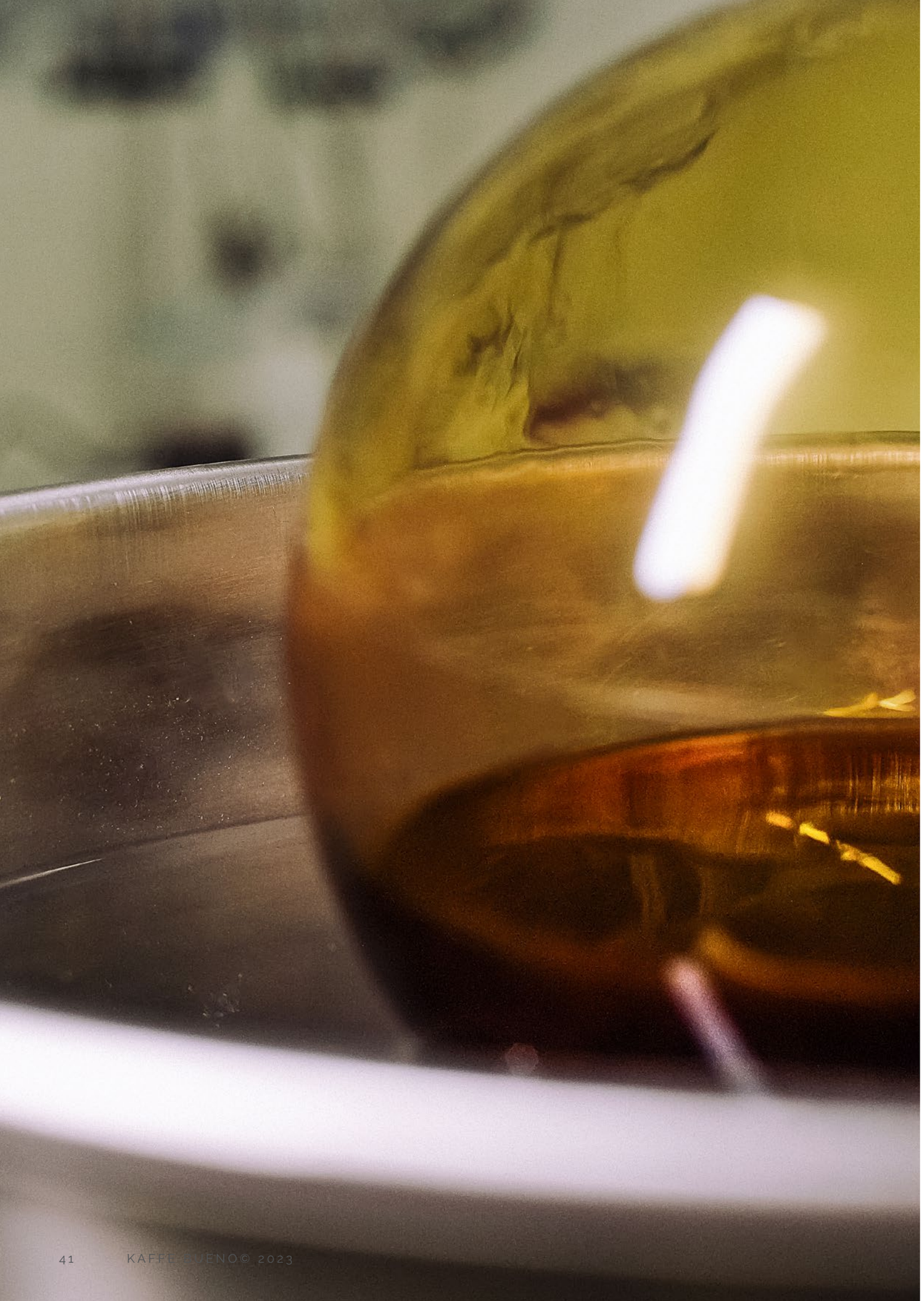
*In vivo studies ongoing throughout 2023

*In vivo studies ongoing throughout 2023

**FIGURE 13:** Expression of genes. Test conditions: no treatment (C), 0.3% KAFFAIR®, 0.03% KAFFAIR®. Data normalized according to control. A) VEGF expression B) IGF1 expression C) FGF7 expression D) SRD5A1 expression E) SRD5A2 expression F) SRD5A3 expression

FIGURE 13





# REFERENCES


[1] Own data (in collaboration with Bionos)

[2] Moreira, A.S., et al., (2012). Coffee melanoidins: structures, mechanisms of formation and potential health impacts. Food & Function. 3:903-915

[3] Own data

# KLEANSTANT®

**Sustainable Surfactant from Upcycled Coffee By-Product Lipids**

| PRODUCT NAME | PRODUCT CODES | INCI NAME | FORM |
|---|---|---|---|
| KLEANSTANT® | 01101 | Potassium Coffeeate | Liquid |

## 01. PRODUCT DESCRIPTION

KLEANSTANT® is a natural anionic surfactant derived from coffee by-products, containing potassium salts of palmitic and linoleic acids, along with polyphenols, tocopherols, and diterpene esters. It has cleansing, emulsifying, foaming, and antioxidative properties, and a moisturising effect[1]. It's sulphate and petroleum-free, naturally biodegradable, and enabling the reduction of the carbon footprint.

KLEANSTANT® offers an eco-friendly alternative for gentle personal care products, and its unique fatty acid composition and natural constituents found in coffee oil make it an excellent natural alternative to traditional surfactants, enabling formulators to create innovative personal care products that are both effective and eco-friendly.

## 02. BENEFITS

**Personal Care Benefits:**

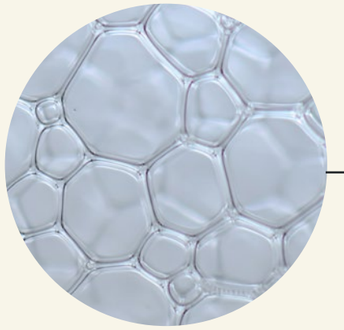
- Rich With Antioxidants
- Soft Feel
- Moisturising Effect[1]

**Formulation Benefits:**

- Acts as an Emollient
- Highly Soluble in Many Solutions
- Foaming
- Naturally Biodegradable
- Free From Sulphates & Petroleum

## 03. RECOMMENDED APPLICATIONS

- Soaps
- Shampoos
- Body Washes
- Cleansers



# SPECIFICATIONS

| PARAMETER | UNIT | SPECIFICATION |
|---|---|---|
| SURFACE TENSION AT 1% CONCENTRATION | MN/M | 35 – 40 |
| VISCOSITY | CP | 10 - 100 |
| FOAM TEST (ROSS-MILES) | MINUTES | 5 |
| TURBITY POINT | °C | 10 |
| PH, DIRECT | | 11,5 - 12 |
| TOTAL PLATE COUNT 30°C | CFU/G | ≤ 10 |
| YEASTS AND MOULDS | CFU/G | ≤ 10 |
| STAPHYLOCOCCUS AUREUS | CFU/G | ND |
| ESCHERICHIA COLI | CFU/G | ND |

**SOLUBILITY (% G PRODUCT/G SOLVENT):**

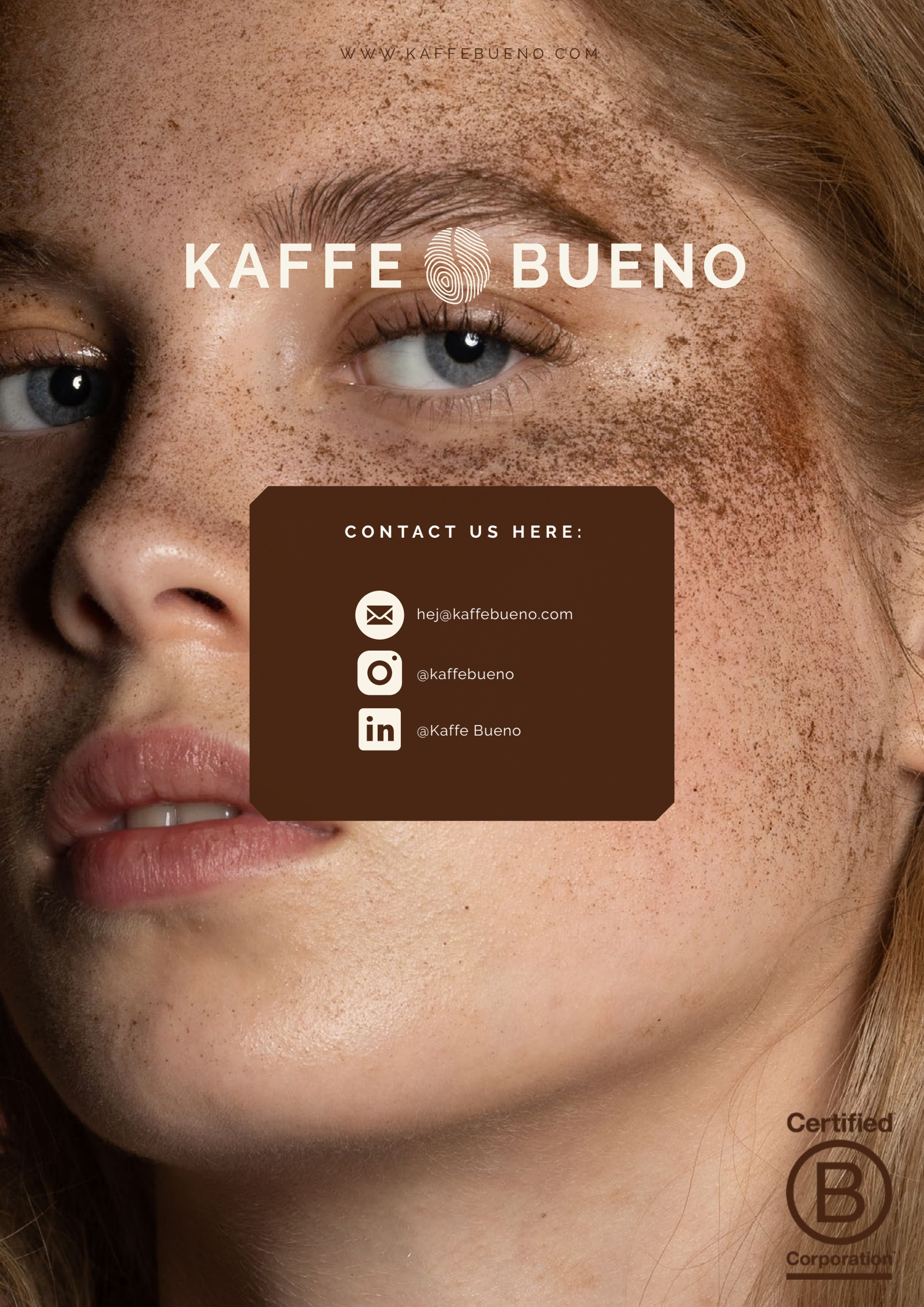
| WATER | ETHANOL | GLYCEROL |
|---|---|---|
| 100% | 100% | 100% |

**ACTIVE CONTENT (%):** 20%

**RECOMMENDED DOSAGE (%):** 1 - 40%

# REFERENCES

[1] Own data (in collaboration with Alfa Chemistry Lab)


WWW.KAFFEBUENO.COM
KAFFE BUENO
CONTACT US HERE:
hej@kaffebueno.com
@kaffebueno
@Kaffe Bueno
Certified
B
Corporation