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KAFFE BUENO

KAFFOIL® BROCHURE



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Corporation™

KAFFOIL®

The New Argan Oil - Upcycled Active Coffee Lipid

PRODUCT NAME	PRODUCT CODES	INCI NAME	FORM
KAFFOIL®	01002	Coffea Arabica Seed Oil	Liquid
KAFFOIL-R®	01003	Coffea Arabica Seed Oil	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.

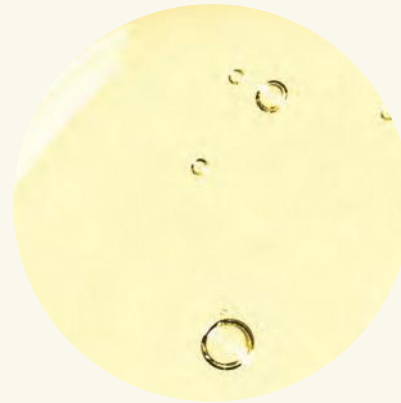
02. BENEFITS

Personal Care Benefits:

- Anti-ageing¹
- SPF Boosting²
- Skin Barrier Enhancing¹
- Antioxidant Activity¹
- Increases Hair Shine³
- Prevention & Repairs Split Ends³

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 O ₂ / kg oil	≤ 6
ACID VALUE (KOH)	mg KOH / g	≤ 15
SAPONIFICATION VALUE	mg KOH / g	150 - 210
UNSAAPONIFIABLE 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%

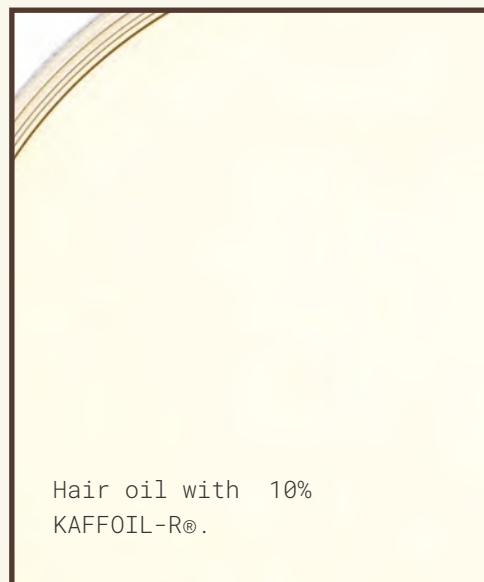
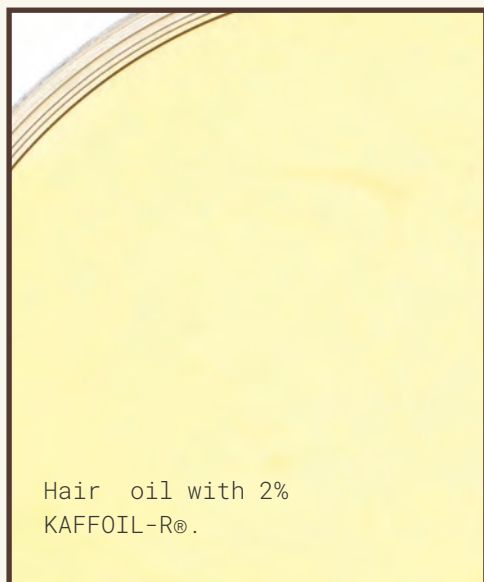
ACTIVE CONTENT (%): 15%

RECOMMENDED DOSAGE (%): 0.5% - 100%

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



KAFFOIL® VERSIONS & FORMULATIONS





hair oil
Active Oil Made from
Upcycled Coffee Grounds
active: kaffoil ♻️
upcycled ♻️
repair
strengthen
shine
KAFFE
BUENO

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.

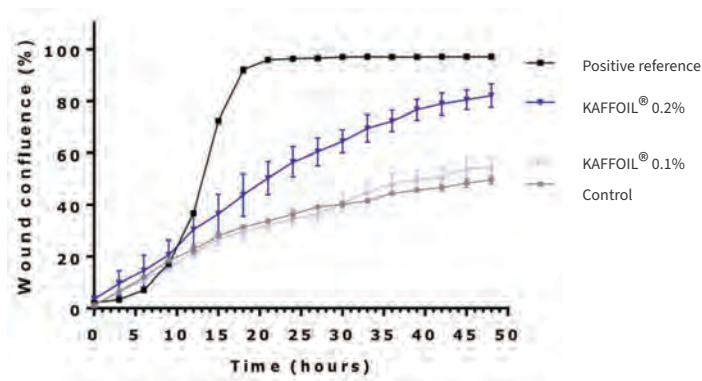


FIGURE 2

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).

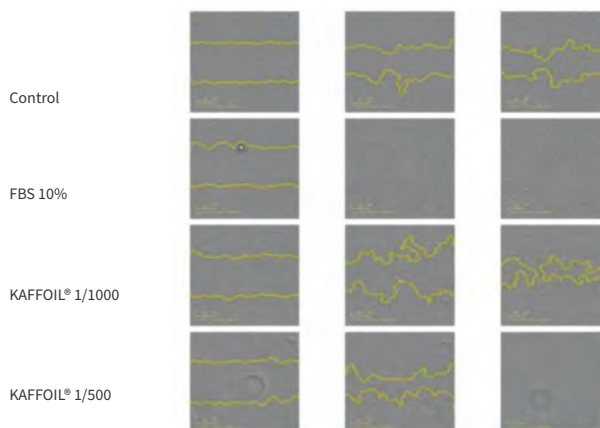


FIGURE 3

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®.

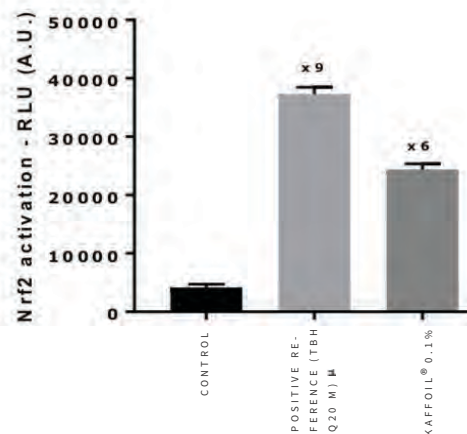
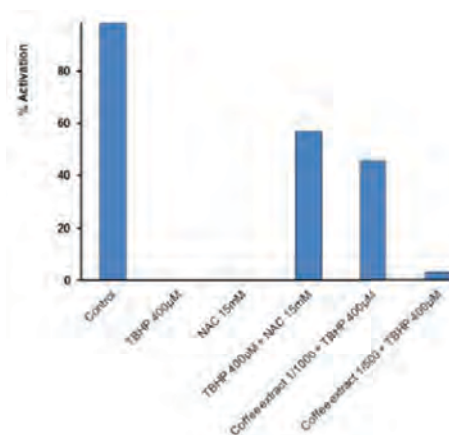


FIGURE 4

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 VIVO³

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.

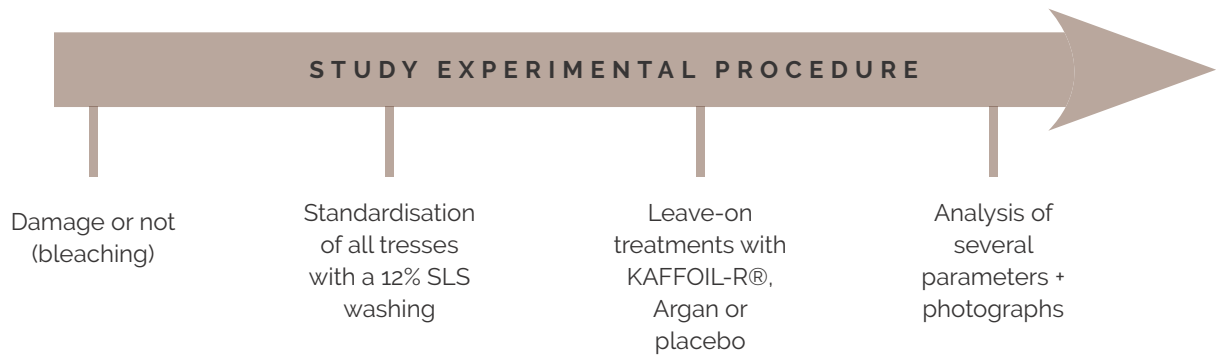
INGREDIENT (INCI NAME)	NO - 3	NO - 4
COFFEA ARABICA SEED OIL (KAFFOIL - R)	2	5
SHEA BUTTER ETHYL ESTERS	1.5	1.5
POLYCITRONELLOL ACETATE, UNDECANE AND TRIDECANE	5.5	5.4
POLYCITRONELLOL ACETATE	2.8	2.6

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 scoring 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.

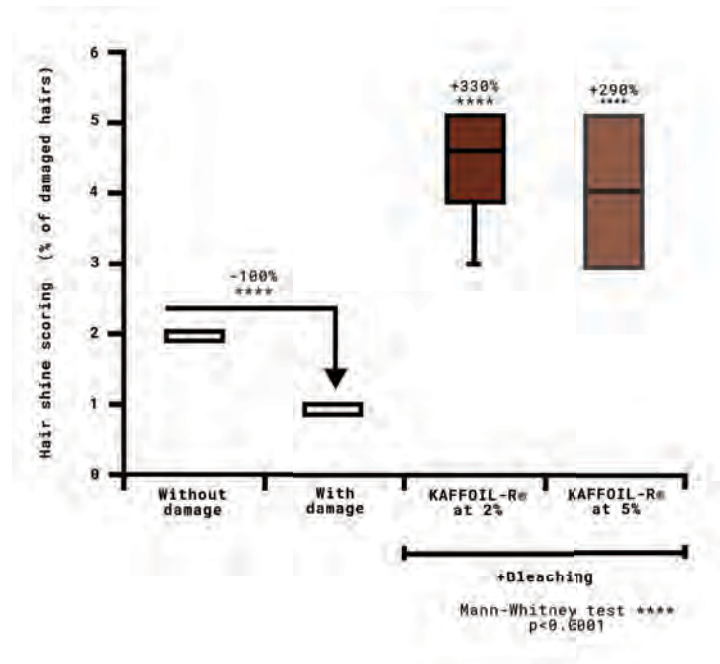


FIGURE 5: Mean results of the straight hair after single product application.

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.

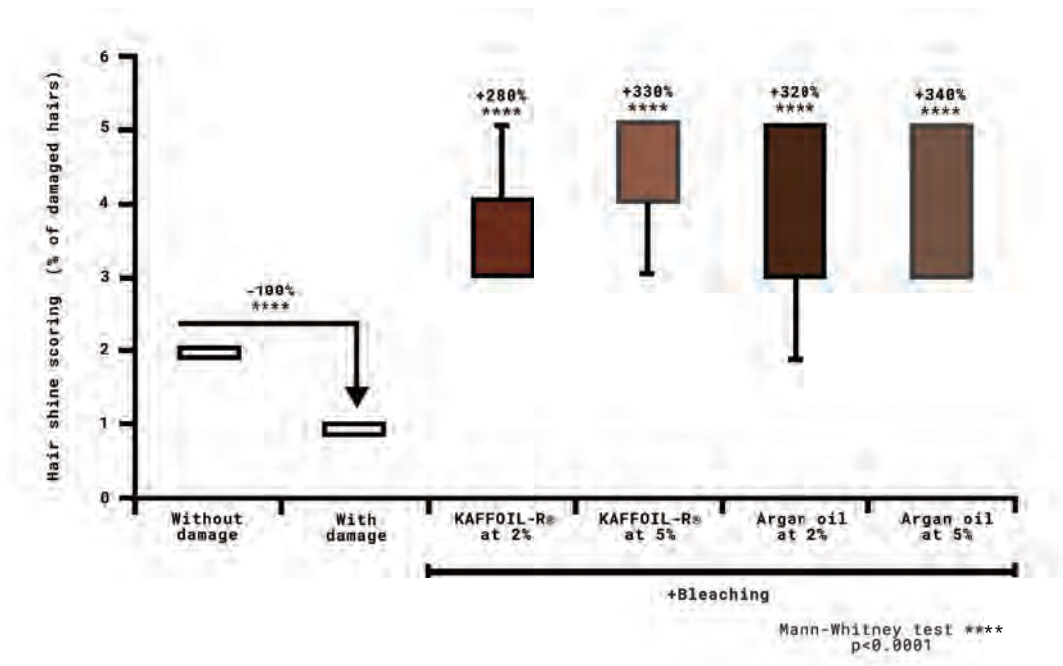


FIGURE 6: Mean results of the Brazilian hair after single product application.

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 compared to that of Brazilian hair tresses.

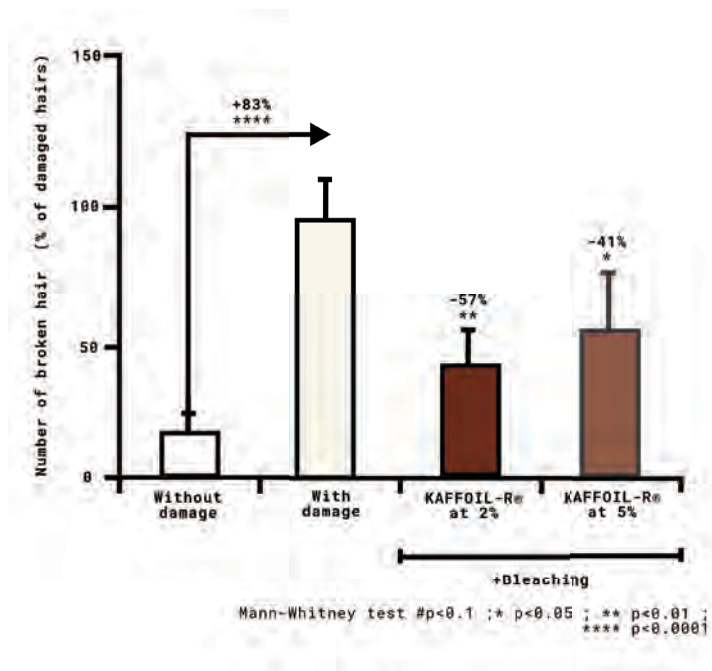


FIGURE 7: Average amount of broken hairs per straight hair tress.

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.

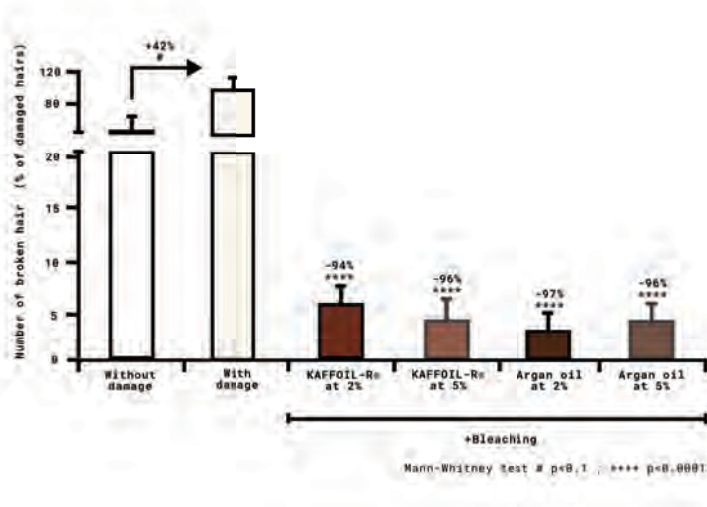


FIGURE 8: Average amount of broken hairs per Brazilian hair tress.

SPLIT ENDS

Hair split ends were assessed 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.

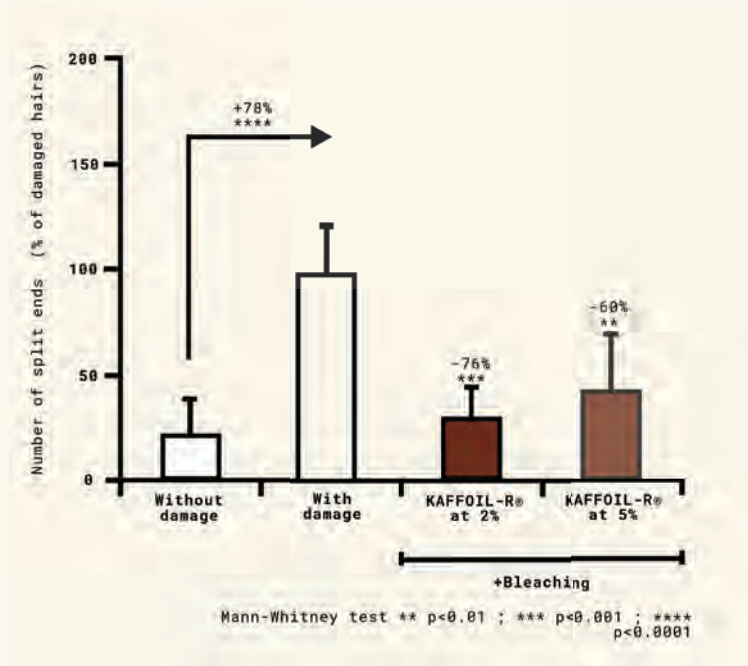


FIGURE 9: Average split end per straight hair tress.



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.

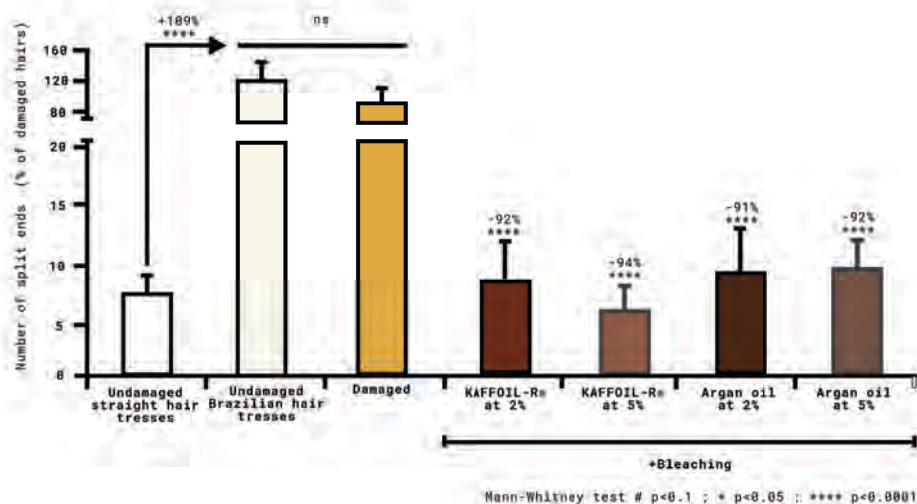
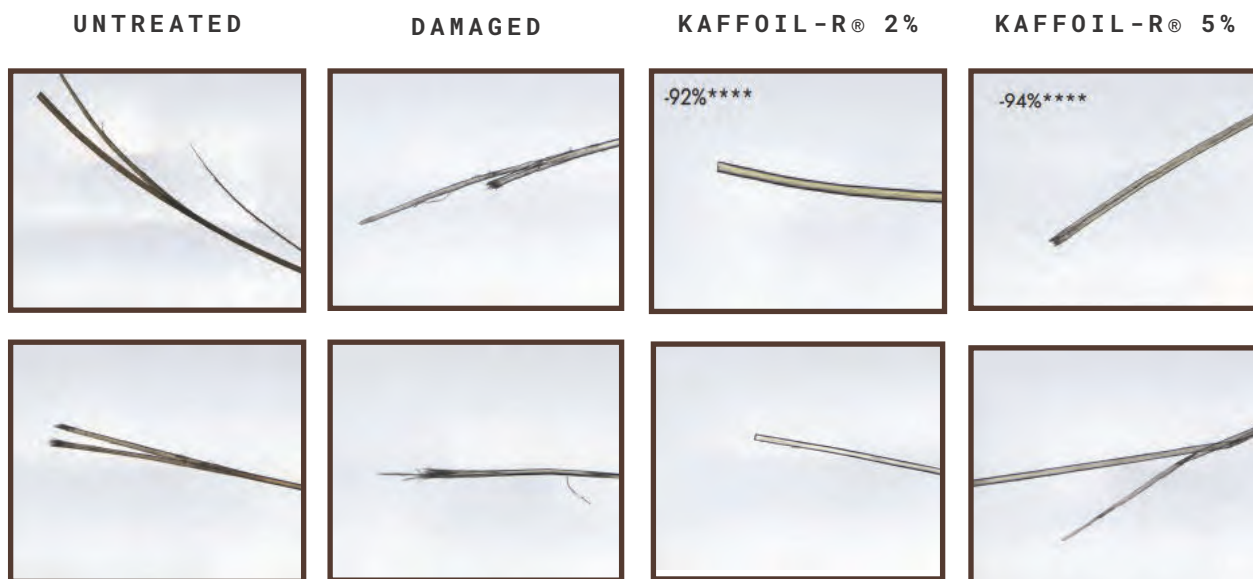


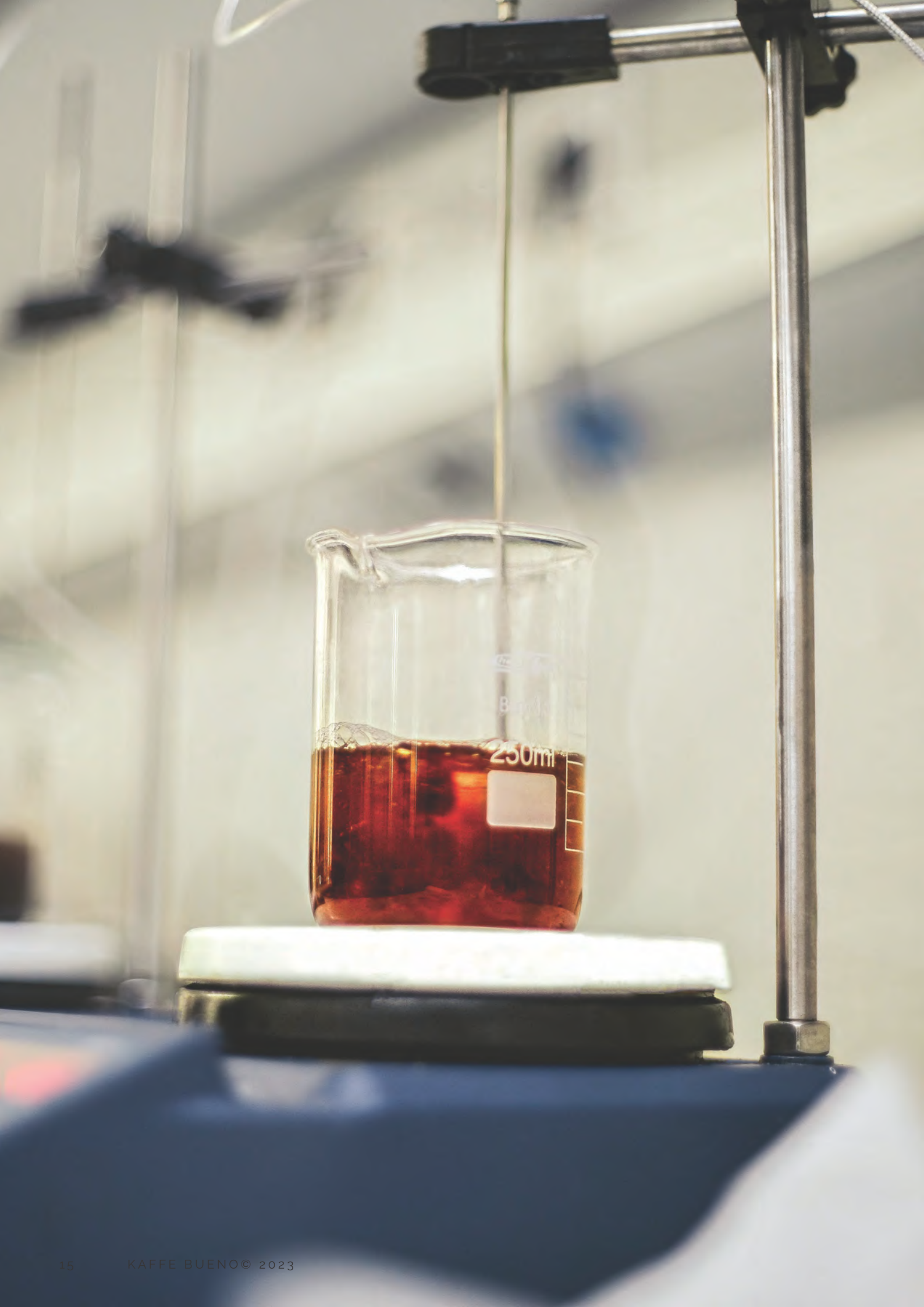
FIGURE 10: Average split end per Brazilian hair tress



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. .





REFERENCES

¹ Own data – in collaboration with innohealth Group

² Marto, J., et al., (2016). The green generation of sunscreens: Using coffee industrial sub-products. *Industrial Crops and Products*. 80:93-100

³ Own data – in collaboration with inovapotek

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