KAFFAGE™

Upcycled Multi-Functional Active Biopolymer Extract

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

01. PRODUCT DESCRIPTION

KAFFAGE™ is an upcycled ambiphilic biopolymer derived from coffee.

Its polyphenolic composition brings an unmatched multi-functionality and performance.

Thanks to KAFFAGE™'s high contents of hydroxinnamic acids which enable a high antioxidant activity, plus prevents UV-induced glycation in human cells.

KAFFAGE™ absorbs UV light in the UVA, UVB, and UVC wavelenghts, making it a natural SPF booster.

Its natural emulsifying properties makes it easy to formulate with, while its antimicrobial properties reduces the need for preservatives.

02. BENEFITS

- 100% Upcycled
- 100% Enviornment friendly
- 100% Natural
- 100% Traceable
- 100% Vegan
- Reduces wrinkles
- UVA, UVB, UVC absorption - SPF boosting
- High antioxidant activity
- Helps mimic skin tone
- Skin microbiome friendly
- Preservative boosting

03. RECOMMENDED APPLICATIONS

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

04. SPECIFICATIONS

PARAMETERS/UNITS	SPECIFICATIONS			
PRODUCT CODE	03001	03001-2	03002	03002-2
COLOUR INTENSITY (0.1% ABSORBANCE AT 610 NM)	0.40 - 0.55	0.25 - 0.55	0.35 - 0.45	0.35 - 0.45
COLOUR BY CIE LAB (L VALUE)	35 - 40	35 - 55	45 - 55	45 - 55
TINCTORIAL POWER (0.1% ABSORBANCE AT 560 NM)	0.5 - 0.7	0.2 - 0.5	0.3 - 0.5	0.3 - 0.5
TOTAL PHENOLICS CONTENT (GALLIC ACID EQUIVALENTS)	> 10000	> 4000	> 5000	> 2000
PH (1% SOLUTION IN WATER)	7-9	7-9	7-9	7-9
LOSS ON DRYING	< 5%	< 5%	< 5%	< 5%
DENSITY	0.55-065G/ML	1.0-1.15G/ML	0.55-0.65G/ML	0.55-0.65G/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

WATER	ETHANOL	GLYCEROL
100	100	100

Active content %: TBD

EFFICACY DATA

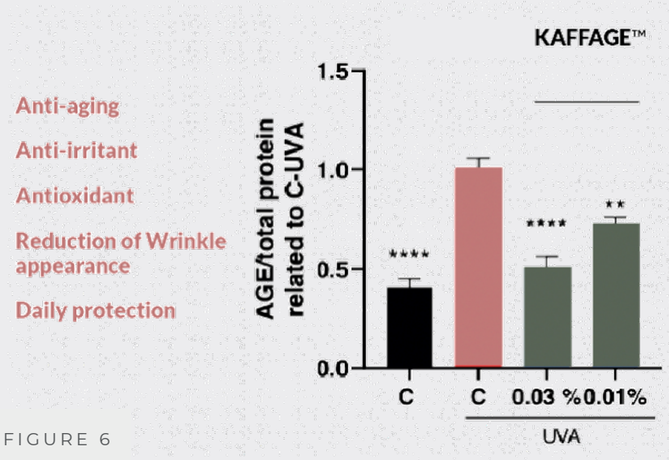


FIGURE 6

The in vitro exposure of human keratinocytes (HaCaT) to KAFFAGE™ at a 0.01-0.03% concentration for 24 hours does not affect the cell viability and is extremely well tolerated. Although small, the 0.01-0.03% concentration was sufficient to prevent the damaging effects of UVA exposure for 3 hours and 30 minutes (20 J/cm2) in vitro. The relative presence of glycated proteins due to UVA radiation for more than 3 hours was reduced by 49.6% by the presence of 0.03% KAFFAGE™ and reduced by 28.3% by the presence of 0.01% KAFFAGE™ in human skin cells in vitro. The presence of 0.03% KAFFAGE™ resulted in levels of glycated proteins (AGEs) equal to non-UV-irradiated cells. KAFFAGE™ (0.03% concentration) neutralized the damaging effects of UV exposure in skin cells in vitro. The presence of 0.03% KAFFAGE™ prevented the ageing process due to the exposure to UVA for more than 3 hrs on skin cells in vitro.

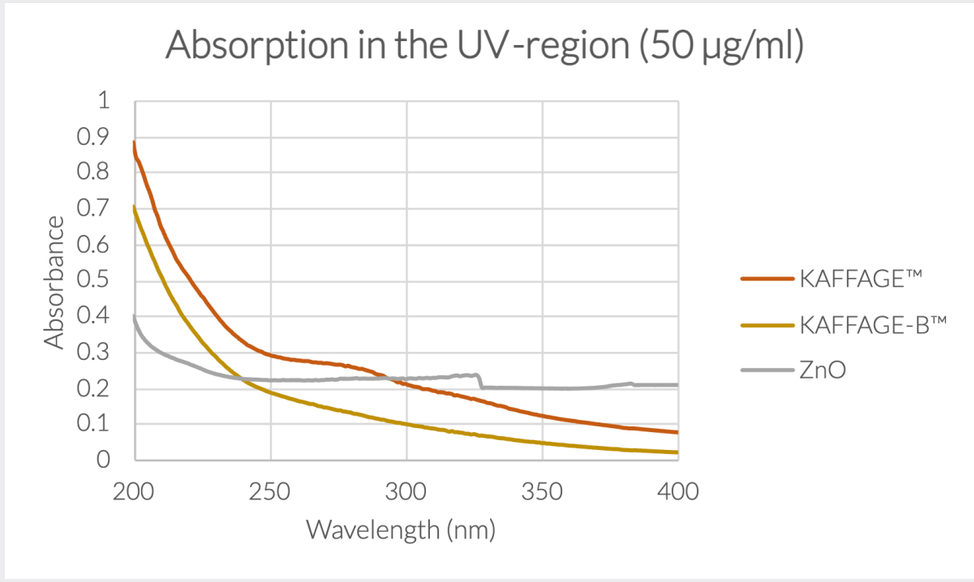
CONCLUSION (See Figure 6):
The in vitro treatment of human keratinocytes (HaCaT) with KAFFAGE™ at 0.01% and 0.03% for 24 hours prevents significantly the accumulation of UVA-induced glycated species.

Claims: Prevents UV-Induced Advanced Glycation End-Products, Anti-Ageing, Reduction of Wrinkle Appearance, Daily Protection

MODE OF ACTION:

KAFFAGE™ absorbs the UV radiation
UVA induces glycation but the KAFFAGE™ molecules act as alternative target to the skin proteins for the sugars
Sugars/proteins interact with the KAFFAGE™ molecules and thus do not react with the proteins.

FIGURE 7



KAFFAGE™ absorbs light in the UV-region, making it a natural sunblocker. Here different versions of KAFFAGE™, KAFFAGE™ and KAFFAGE-B™, were compared to Zinc Oxide (ZnO).

It is clear that in the UV-B region (280-315nm) both KAFFAGE-B™ performed worse than both ZnO and KAFFAGE™. However in the UV-A region (315-380nm) there was an obvious increase in effect of the ZnO which can be observed in Figure 7. Overall, ZnO performed better than both KAFFAGE™ and KAFFAGE-B™.