

COLHIBIN CB

Helps to delay the signs of time

06.2023

Rice gets a beauty boost

Like many traditional tips and folk remedies, rice (*Oryza sativa* L.) is one of the major cereal food crops in the world.

Rice is not just food; it's loaded with health-promoting bioactive components.

Rice protein has a higher nutritional value than other plant proteins such as wheat, corn and oat.¹

Rice is also beneficial for skin and hair

Rice is currently causing a stir on social networks, where rice water and rice powder are proving to be *must-haves* to help fight the signs of aging, reduce wrinkles & fine lines, and help smooth the skin.

Women in Asia have recycled the water in which rice is cooked for centuries to help strengthen their hair.

These reasons could encourage many brands to look to rice when concocting their future cosmetics.



with
Hydrolyzed Rice Protein



¹ Koo et al. 2007

Peptides help take beauty to the next level

Peptides have been a buzz word in skincare for the last decade, due to their anti-aging effects on skin.

Peptides are seen as one of the most potent skin actives in cosmetics that take skincare to the next level, by targeting very specific skin biological mechanisms.

In recent years, natural rice peptides with skin benefits beyond their pure nutritional value are on the rise.

COLHIBIN CB is a highly concentrated mixture of natural peptides, extracted from edible rice protein.



COLHIBIN CB helps to delay the signs of time

ID Card

INCI NAME (ACTIVE)	>	Hydrolyzed Rice Protein			>			
TECHNOLOGY	>	COLHIBIN CB is a highly concentrated mixture of natural peptides with low molecular weights, extracted from edible rice protein			>			
KEY BENEFITS	>	• Helps to delay the signs of time • Highly effective Collagenase (MMP) inhibitor, which helps protect skin from unscheduled collagen degradation* • Helps to reduce skin roughness** • Effective solution for healthy-looking hair** * <i>In vitro</i> ** <i>In vivo</i>			>			
TECHNICAL	>	Form: Liquid Use level: 1–5%	pH of use: 3–9 Preservative: Phenoxyethanol-free	Solubility: water soluble Biodegradability: Expected to be biodegradable	>			
REGISTRATION CERTIFICATION PATENT	>			Raw material verified by ECOCERT GREENLIFE, conform to the COSMOS Standard			>	



Produced from rice protein

Extracted by water

- COLHIBIN CB, the result of a carefully isolated fraction of natural rice-derived peptide, has a 99.6% natural origin (ISO 16128).
- The production process is operated under mild conditions without hazardous chemical substances.
- Dried rice is ground, dissolved in water, centrifuged, rinsed, resolubilized and filtered to obtain the peptide fraction of the rice protein.
- The hydrolyzed rice protein is then dissolved in water and Pentylene glycol (produced from natural resources).



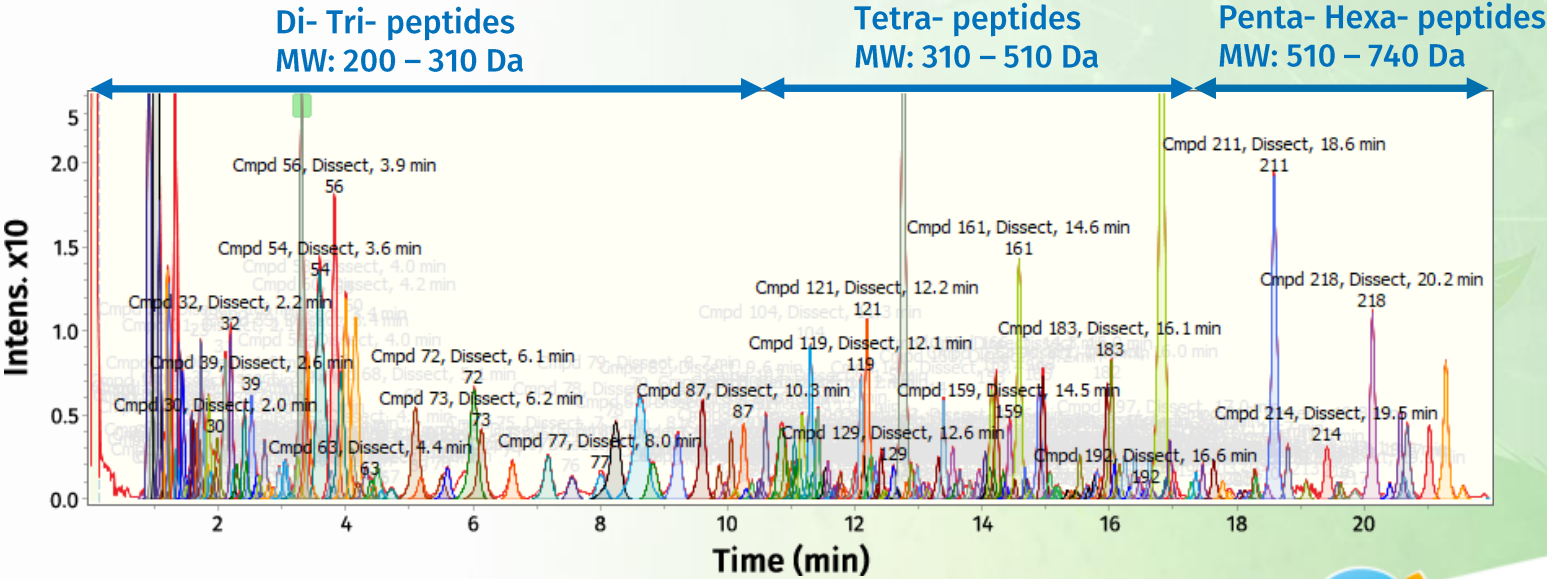
COLHIBIN CB is rich in Di-, Tri-, and Tetra- rice peptides

...with low molecular weights

- COLHIBIN CB contains more than 220 peptides of which the majority have a relative Molecular Weights (MW) of less than 800 Daltons, analyzed by LC-HR-MS.

COLHIBIN CB	Molecular weight 202–310 Da	Molecular weight 310–510 Da	Molecular weight 510–740 Da
Di- and Tri- peptides	~100		
Tetra-peptides		~110	
Penta-, Hexa-, peptides			~10

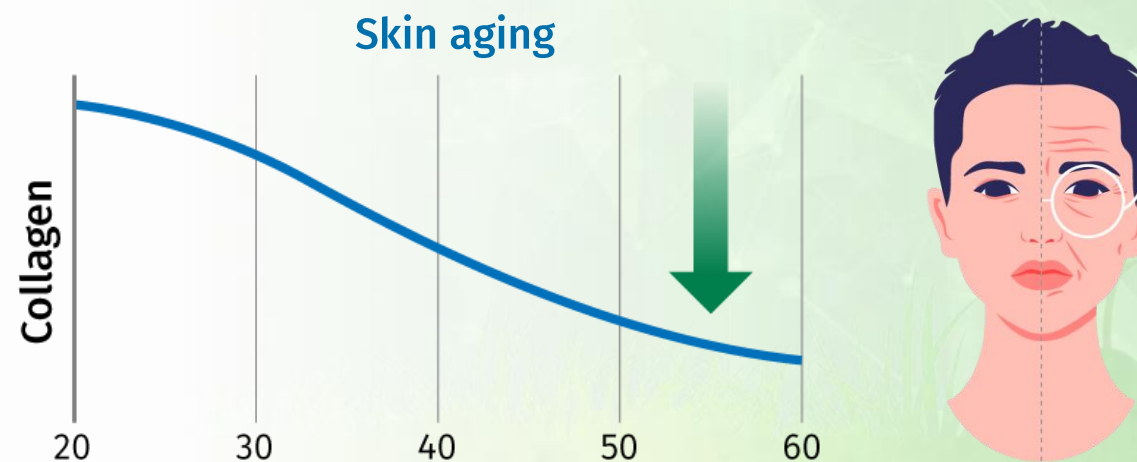
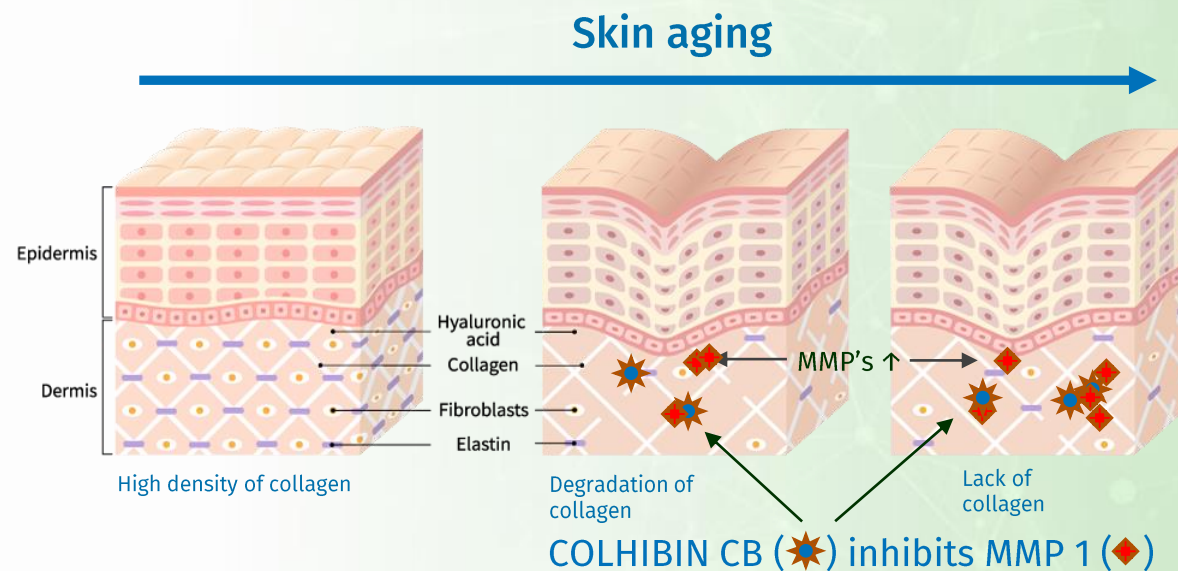
COLHIBIN CB is particularly rich in Di-, Tri- and Tetra- rice peptides.



Mode of action

COLHIBIN CB

- With age, the Collagen density in the Dermis decreases and its network becomes increasingly fragmented, presenting shorter and less organized fibers. The skin becomes rough and wrinkles are formed.
- Aged skin is characterized by a strong loss of Collagen and upregulated Collagenases also known as Matrix Metalloproteinases (MMP) activity.
- An increase in MMP expression accelerates the Collagen degradation.
- COLHIBIN CB inhibits MMP 1 enzyme and helps prevent degradation of type 1 Collagen.



Reference: Asserin et al. (2015) J Cosmet Dermatol, 14, 291-301
Papakonstantinou et al. (2012) Dermato-Endocrinol 4:3, 253-258

Protection of skin against collagenases – *ex vivo*

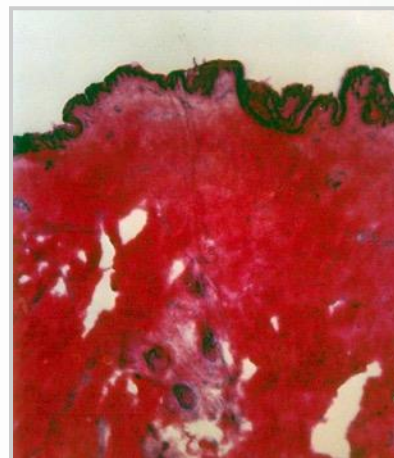
COLHIBIN CB

This *ex-vivo* study was performed with human skin explants taken from plastic surgery.

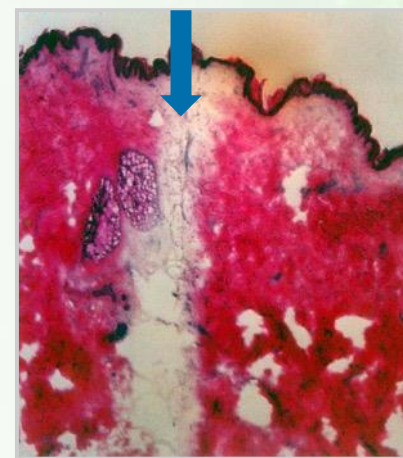
Cotton threads were saturated with collagenase (400Units/ml) with/without COLHIBIN CB (5%) and set down on the skin sections. The skin sections were then incubated for three hours. At the end of the reaction the skin was fixed and stained with eosine/saffron.

No staining is observed at sites where collagenase destroyed the collagen fibers (blue arrow).

The colored cross section (right) is due to a strong protection of collagen by COLHIBIN CB and demonstrates a reduction of collagenase derived cutaneous damage compared to the placebo (left).



Placebo



Collagenase only

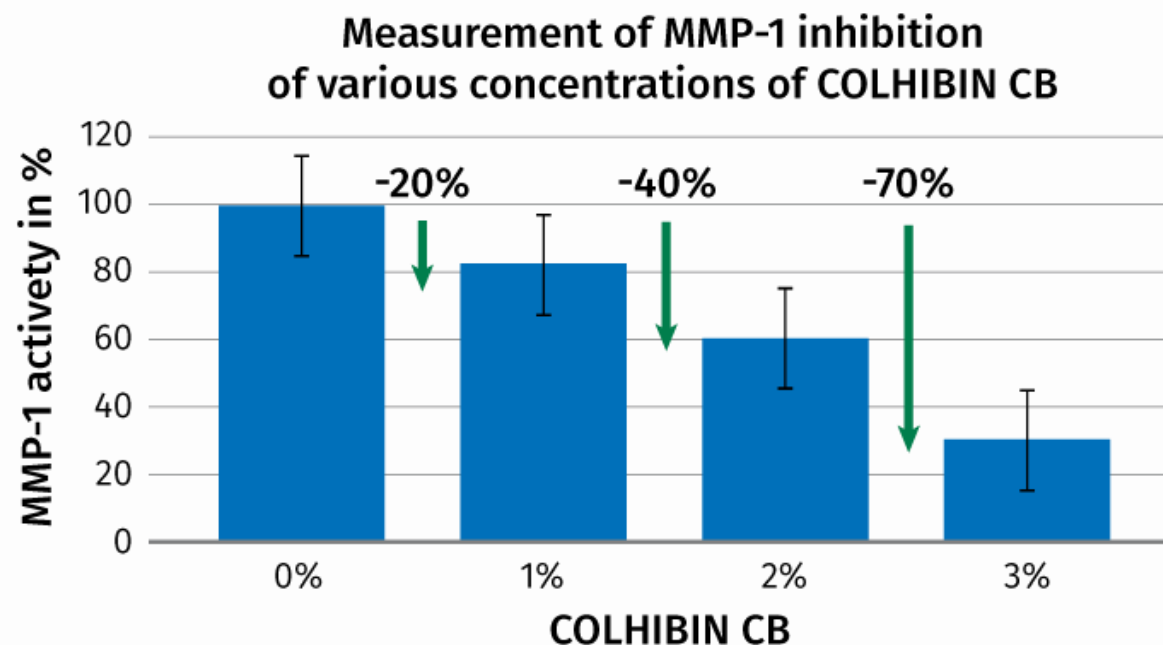


Collagenase + 5% COLHIBIN®

COLHIBIN CB is a highly effective Collagenase (MMP) inhibitor, which helps protect skin from unscheduled collagen degradation

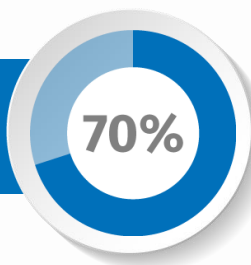
Inhibition of MMP-1 – *in vitro*

COLHIBIN CB



Various concentrations of COLHIBIN CB and MMP-1 were added to a native collagen containing solution. The concentration dependent inhibition effect of COLHIBIN CB was measured in a photometric assay.

Up to 70% reduction of MMP-1 have been obtained with COLHIBIN CB



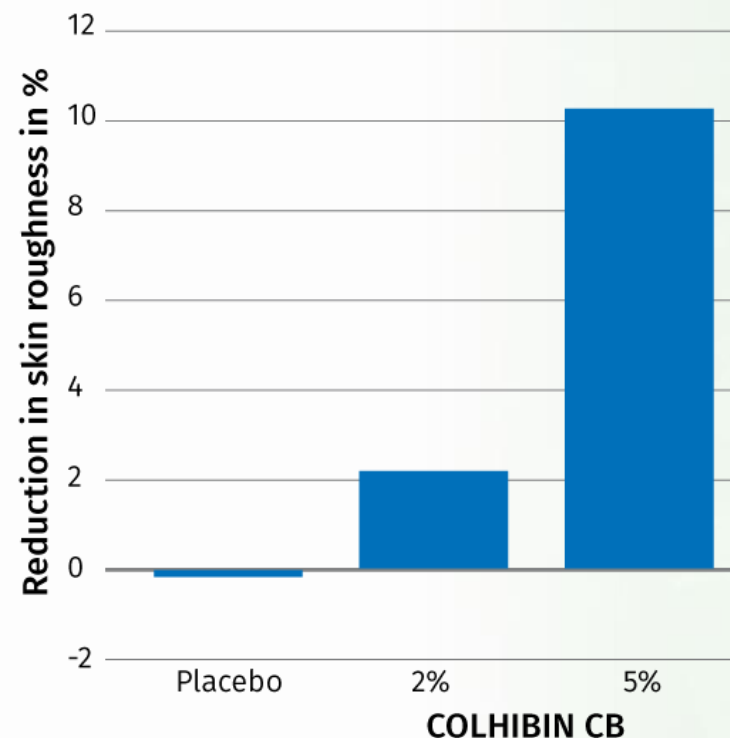
Visible reduction of skin roughness – *in vivo*

COLHIBIN CB

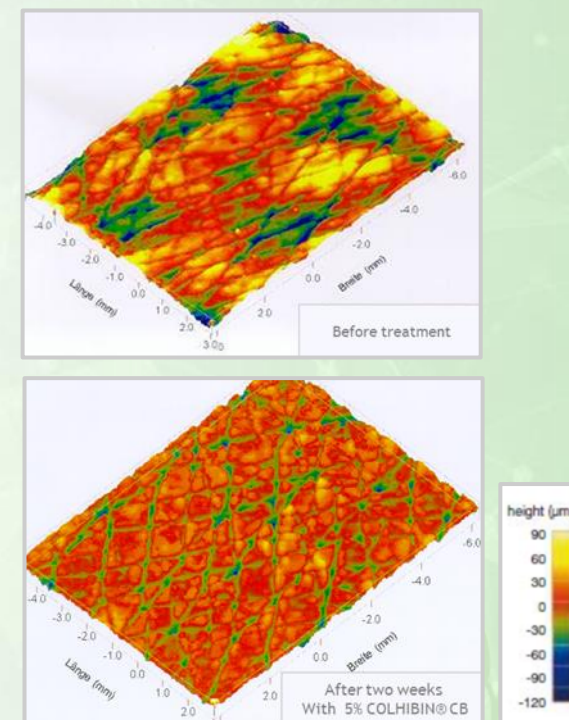
To demonstrate the beneficial effect of COLHIBIN CB (5%) on the skin surface we performed a 14 days in-vivo study with 20 volunteers.

The skin surface relief was optically measured on silicon replica taken from the skin of the volunteers before and 14 days after twice daily application of a formulation containing COLHIBIN CB (5%).

The figures shows the mean difference in skin roughness before and after 14 days treatment of a formulation with COLHIBIN CB (5%).



After 2 weeks up to 10% reduction of skin roughness after frequent use of COLHIBIN CB



After 2 weeks twice daily application of a formulation with COLHIBIN CB skin roughness is visibly reduced.

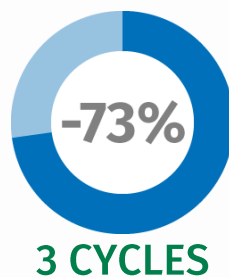
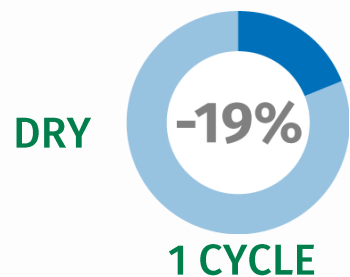
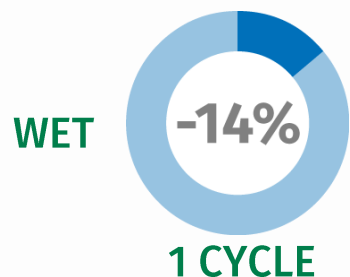
Helps to promote healthy-looking hair

COLHIBIN CB

Shampoo



Reduction in COMBING FORCE



HAIR FIBERS VS PLACEBO

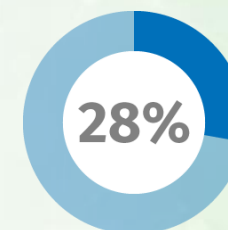
Bleached Caucasian hair
Breakage: repeated combing test
COLHIBIN CB at 3% as supplied



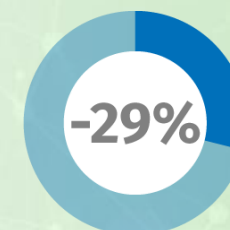
Leave-on

single application

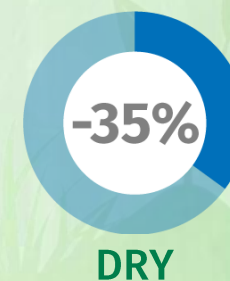
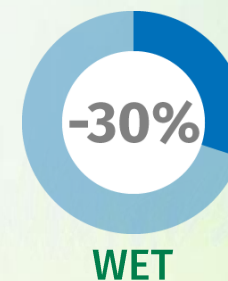
Hair BREAKAGE Reduction



SPLIT ENDS Reduction (dry combing force at tips)



Reduction in COMBING FORCE



Easy-to-use

COLHIBIN CB

COLHIBIN CB is a clear, yellowish aqueous solution



Soluble in water at all ratios



Stable in a pH-range from 3-9



Can be processed either warm (<80°C) or cold and is incorporated in the aqueous phase of a cosmetic formulation



Recommended dosage: up to 5%



Rice Peptide Nourishing Cream

With COLHIBIN CB and TILAMAR® PDO with NØØVISTA™

This rice peptide nourishing cream perfectly revitalizes the skin and slows down the aging process of the skin, thanks to which the skin maintains its smoothness, elasticity and youthful appearance. It absorbs quickly into the skin without leaving it sticky.

The cream is recommended for mature skin.

COLHIBIN CB helps to delay the signs of time and helps smooth the skin.



TILAMAR® PDO with NØØVISTA™ provides hydration, sensory enhancement as well as preservative boosting performance.



Rice Peptide Nourishing Cream

96.61% Natural Origin (ISO 16128)

	Ingredient	% w/w	Function
A	Aqua	64.66	Solvent
	Sodium Gluconate	0.20	Chelating Agent
	TILAMAR® PDO with NOOVISTA™	5.00	Sensory, Hydration, Active carrier and Preservative booster
	Xanthan Gum	0.20	Thickener
B	Cetearyl Olivat, Sorbitan Olivat	4.00	Emulsifier
	Cetearyl Alcohol	1.50	Co-emulsifier
	Phenoxyethanol, Ethylhexylglycerin	1.00	Preservative
	Caprylic/Capric Triglyceride	8.00	Emollient
	Octyldodecanol	10.00	Emollient
	Dimethicone	2.00	Emollient
C	Hydroxyethyl Acrylate/Sodium Acryloyldimethyl Taurate Copolymer	0.40	Thickener
D	COLHIBIN CB (Hydrolyzed Rice Protein, Glycerin, Aqua, Pentylene glycol, Sodium benzoate)	3.00	Active
E	Citric Acid, Aqua	0.04	pH adjuster

Procedure

1. Mix Phase A and heat under stirring to 75-80°C.
2. Mix Phase B and heat under stirring to 75-80°C.
3. At the end of the heating phase, add Phase C into Phase B.
4. Add Phase B+C into Phase A and homogenize 1 min at 15000 rpm.
5. Let cool to ±35°C under stirring.
6. Add Phase D and stir moderate until it's homogeneous.
7. Adjust to pH 5.5 with Phase E.
8. Let stir for another 15 min.

pH: 5.8

Viscosity: 17 800 mPa.S
(spindle RV05 / 10rpm)

SK-E-101976-7 See disclaimer Guide Formulations

Reset the Time Therapy

With COLHIBIN CB, ALPAFLOR[®] EDELWEISS CB, LIPOGARD, D-PANTHENOL 75L, PHYTANTRIOL, TILAMAR[®] Quat 640

This hair conditioning formulation protects and stimulates the scalp, strengthens and revitalizes the hair, limiting hair fall due to breakage.

From root to end, the hair looks stronger and revitalized.

- **COLHIBIN CB** helps to promote healthy-looking hair.
- **ALPAFLOR[®] EDELWEISS CB** helps to improve hair density.
- **LIPOGARD** provides strong anti-oxidant properties and help to stimulate the hair's natural keratin synthesis.
- **D-Panthenol 75L** helps strengthen hair, retain moisture, and improves the texture of damaged hair.
- **PHYTANTRIOL** the time-tested hair secret to repair, enhance and protect, from root to tip.
- **TILAMAR[®] Quat 640** delivers ultimate conditioning performance.

Reset the Time Therapy

90.62% Natural Origin (ISO 16128)

	Ingredient	% w/w	Function
A	Aqua	80.85	Solvent
	Behentrimonium Chloride, Isopropyl Alcohol	3.13	Conditioner
	TILAMAR® Quat 640 (Polyquaternium-6, Aqua)	1.50	Conditioner
B	Cetyl Alcohol	3.77	Emollient
	Isopropyl Myristate	2.00	Emollient
	Isopropyl Palmitate	2.00	Emollient
	PPG-3 Myristyl Ether	2.00	Emollient
	Behenyl Alcohol	0.80	Emollient
C	COLHIBIN CB (Hydrolyzed Rice Protein, Glycerin, Aqua, Pentyleneglycol, Sodium benzoate)	0.20	Active
	D-Panthenol 75L (Panthenol, Aqua)	0.75	Active
	ALPAFLOR® EDELWEISS CB (Leontopodium Alpinum Flower/Leaf Extract, Glycerin, Aqua)	0.10	Active
D	Phytantriol (Phytantriol)	0.50	Active
	Phenoxyethanol, Ethylhexylglycerin	0.80	Preservative
	LIPOGARD (Ubiquinone, Tocopheryl Acetate, Squalane)	0.10	Active
	Cyclopentasiloxane & Dimethiconol	1.00	Conditioner
	Perfume	0.50	

HC-E-101023-30 See disclaimer Guide Formulations

Procedure

1. Heat Phase A to 85°C.
2. Heat Phase B to 85°C.
3. Add Phase B to Phase A under moderate stirring.
4. Cool the formulation to 40°C and add Phase C under stirring until the formulation is homogenous.
5. Add Phase D under stirring until formulation is homogenous.

pH: 5.3

Viscosity: 30 933 mPa.S
(spindle RV04 / 3rpm)

COLHIBIN CB

In a nutshell

COLHIBIN CB is rich in rice peptides with low molecular weights, extracted from edible rice protein



Highly effective Collagenase (MMP) inhibitor, which helps protect skin from unscheduled collagen degradation*



Helps to promote healthy-looking hair**



COLHIBIN CB helps to delay the signs of time



Helps to reduce skin roughness**



* *In vitro* ** *In vivo*

Disclaimer

Copyright © 2023 DSM Nutritional Products, 4002 Basel, Switzerland.

www.dsm.com/personal-care. All rights reserved.

DSM has used diligent care to ensure that the information provided herein is accurate and up-to-date, however, DSM makes no representation or warranty, either expressly or implied, of the accuracy, reliability, or completeness thereof. The information provided herein contains scientific and product information for business to business use and does not constitute or provide scientific or medical advice, diagnosis or recommendation for treatment. Country or region-specific information should be considered when labeling or advertising to final consumer. In no event shall DSM be liable for any damages arising from or reliance upon, or use of, any information provided herein. The content of this document is subject to change without further notice. Please contact your local DSM representative for further details. All trademarks listed in this document are either (registered) trademarks of, or trademarks licensed by, the DSM group of companies in the Netherlands and/or other countries, unless explicitly stated otherwise.