



Cosmetics & Biochemicals

## PRODUCTS CATALOGUE

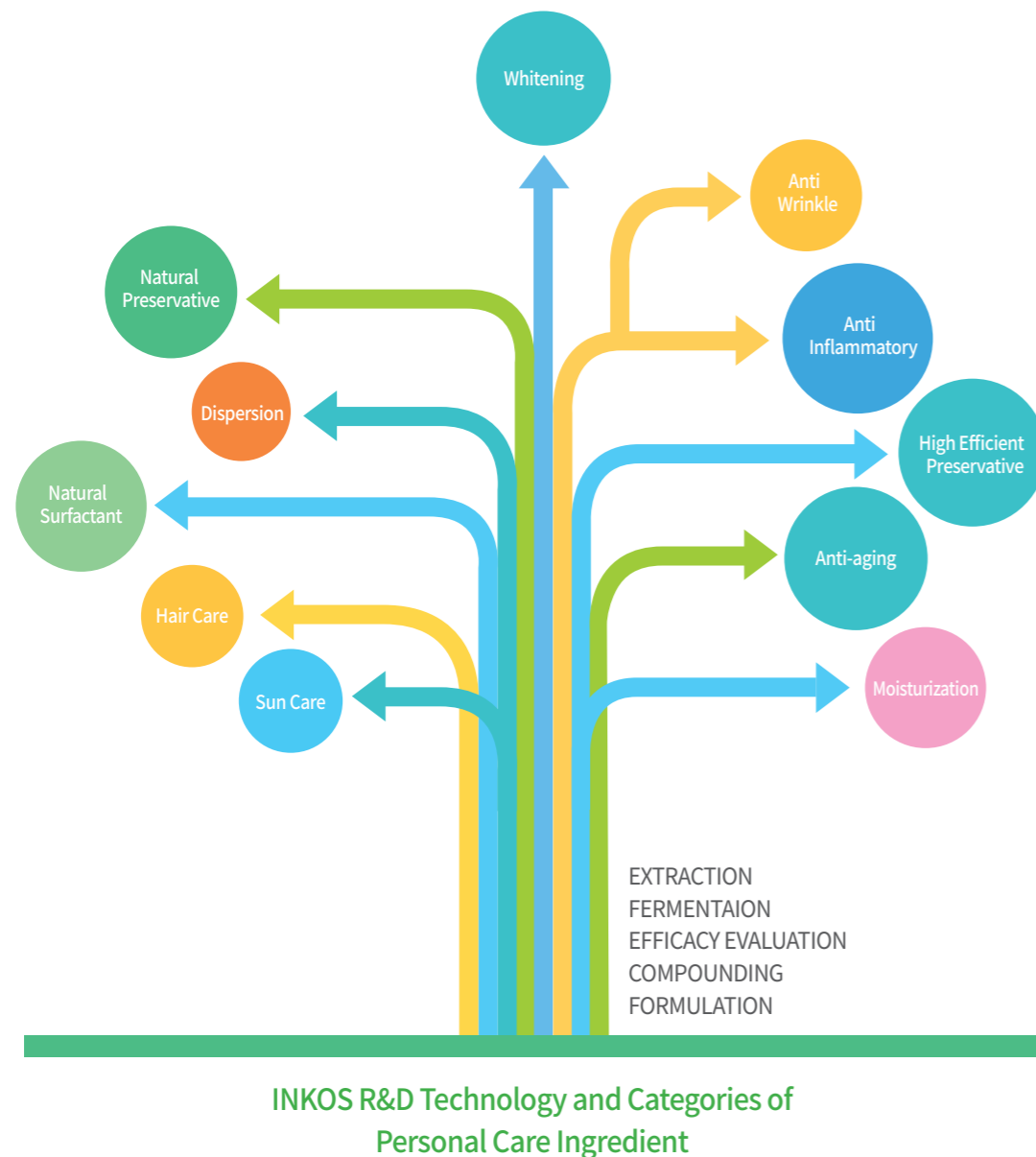


Cosmetics & Biochemicals

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Founded in 2001, INKOS is specialized in natural cosmetic ingredients and has provided numerous raw materials in Korea. With wide experience and technical knowhow, we are growing continually every year. We are pursuing innovative connection and development to fulfill our customers needs and satisfaction. Under the slogan of "Together", we want to share the benefits of nature all over the world.



## INKOS Technology

### ACTIVE EXTRACTION TECHNOLOGY

On the basis of traditional processing method from each region, do the research on medicinal and edible plants originated from all over the natural. We commercialize extract which contains functional ingredients derived from natural and supply extract to the famous cosmetic company in domestic and overseas.

### FERMENTATION TECHNOLOGY

We conduct microbiological fermentation research. And we produce functional food ingredients and cosmetics raw materials through fermentation process which use microorganisms.

### EFFICACY EVALUATION

We performed studies on the separation purification, structural analysis, quantitative analysis and physicochemical analysis for natural products and biological materials. We have also systems to evaluate the efficacy of such whitening, antioxidant, anti-wrinkle, anti-bacterial, anti-inflammatory, anti-aging, etc.

### COMPOUNDING, NEW APPLICATION

We are conducting research on the compound to enhance the effect by adding at the rate of optimal additive functional ingredient

### FORMULATION, COSMETICS

We are doing formulation and cosmetics research and providing guide formulation to cosmetic manufacture companies





## CONTENTS

INKOS R&D Technology & Categories of Personal Care Ingredient

★ Major Product

### Moisturization 8~12 page

M-Hydro EG	Glycereth-26	Light feeling / Replacement of glycerin / Moisturizer
M-Hydro BG-100	PEG/PPG - 17 / 6 Copolymer	Improve feeling of use / Moisturizer / Booster of solubilization
★ Cinnogel CG	Glycerin, Glyceryl Acrylate Acrylic acid Copolymer and Propylene Glycol	Emollient / Moisturizer / Rheology Modifier
★ Cinnogel Oil	Glycerin, Glyceryl Acrylate Acrylic acid Copolymer, Propylene Glycol, PVM/MA Copolymer	Emollient / Moisturizer / Rheology Modifier
M-Hydro GP	Glycoprotein, Yeast extract	Moisturizing by Glycoproteins / Anti-wrinkles
Hydroactol	Betaine, Sodium Hyaluronate, Butylene glycol, Glycoprotein	Moisturizing
M-Hydropatch AU	Trehalose, Urea, Aureobasidium, Pullulans(Black Yeast) Ferment Extract, etc	Moisturizing Long lasting / Hydration to the skin / Skin relief
★ BIO Pseudoalteromonas F	Pseudoalteromonas Ferment Extract	Moisturizing
Tremella Moist Plus	Tremella Fuciformis (Mushroom) Extract	Moisturizing / Skin elasticity / Cell regeneration
BIORAN Molo (NEW)	Corchorus Olitorius Leaf Extract	Moisturizing / Skin elasticity / Cell regeneration
BIO Saccharomyces-Mineral (NEW)	Saccharomyces/Copper Ferment, Saccharomyces/Iron Ferment, Saccharomyces/Zinc Ferment, Saccharomyces/Magnesium Ferment, Saccharomyces/Silicon Ferment	Moisturizing / Various minerals / Strengthen the skin barrier

### Anti-Inflammation 13~15 page

★ BIORAN Infla-Care	Rosmarinus Officinalis Extract, Hamamelis Virginiana Extract, Chrysanthemum Indicum Flower Extract, Polygonum Cuspidatum Root Extract, Magnolia Kobus Branch/Flower/Leaf Extract	Anti-inflammation / Reduce irritation
BIORAN Infla-BBC	Coleus Forskohlii Root Extract, Boswellia Serrata Resin Extract, Psoralea Corylifolia Fruit Extract	Anti-inflammation / Anti-Acne
BIORAN Boswellia	Boswellia Serrata Resin Extract	Anti-inflammation / Soothing / Skin elasticity
BIORAN Centella	Centella Asiatica Extract	Anti-inflammation / Healing wound
BIORAN HPS (NEW)	Artemisia Princeps Extract	Anti-inflammation / Anti-microbial
BIORAN Anti-Itching (NEW)	Liquidambar Formosana Extract, Psidium Guajava Leaf Extract	Anti-inflammation / Anti-allergy / Anti-itching / Soothing

### Preservative 16~17 page

★ BIORAN NP-200R	Lonicera japonica (Honey suckle) Flower Extract, Citrus paradisi (Grapefruit) Fruit extract etc	Natural preservative / Broad spectrum of antimicrobial activities / Neutral and alkaline application
★ BIORAN NP-400	Citrus Junos Seed Extract, Illicium Verum (Anise) Fruit Extract, Scutellaria Baicalensis Root Extract, Citrus Grandis (Grapefruit) Seed Extract	Natural preservatives / Excellent Antimicrobial Activity / Natural Origin
BIORAN PD (O)	Pentylene Glycol	Moisturizer / Odorless / Antibacterial
BIORAN 1, 2HD (O)	1,2-Hexanediol	Moisturizer / Odorless / Antibacterial
BIORAN OD (O)	Caprylyl Glycol	Moisturizer / Odorless / Antibacterial
Hydro Super Bio Natur	1,2 Hexanediol, Ethylhexylglycerin, Caprylhydroxamic acid, Boswellia serreta resin Extract	Safe and effective moisturizing / Keep emulsifying / Emulsion stable
Hydro Super Bio-OD	1,2-Hexanediol, Caprylyl glycol	Moisturizer / Odorless / Antibacterial
Hydro Super Bio-CS	Ethyl Hexanediol, 1,2-Hexanediol	Moisturizer / Odorless / Antibacterial
Hydro Super Bio-P	Phenoxyethanol, Caprylyl Glycol	Moisturizer / Odorless / Antibacterial

### Improve skin texture & Keratin removal 18~20 page

★ BIO DuoFerm SL	Saccharomyces Ferment Filtrate, Lactobacillus Ferment Filtrate	Improving skin tone and whitening / Cell regeneration and Anti-aging
BIO Bifida F	Bifida Ferment Lysate	Whitening / Improve skin tone
BIO Galactomyces	Galactomyces Ferment Filtrate	Cell regeneration / Prevention of wrinkle Improvement of skin tone and texture
BIO M-Protease	Protease	Keratin removal / Peeling skin & Improve skin texture
★ BIORAN Flower Acid	Bellis Perennis (Daisy) Flower Extract, Hibiscus Sabdariffa Flower Extract, Jasminum officinale (Jasmine) Flower Extract, Spiraea Ulmaria Flower Extract	Improving skin tone and whitening / Keratin removal / Natural AHA, BHA: remove dead skin cell

### Whitening 21~22 page

★ BIORAN Snow SP	Piper Longum Fruit Extract, Sanguisorba Officinalis Root Extract, Lactobacillus Ferment Filtrate	Whitening effect / Ferment by noble Ferment Strain
BIO Gallnut F	Lactobacillus/Rhus Semialata Gall Extract Ferment	Origin from clean area 'Jeju' Island / Lactobacillus bacteria ferment / Whitening effect/Prevent of wrinkle from UV / Antiaging, Excellent antibacterial effect
BIO Cudrania F	Lactobacillus/Cudrania Tricuspidata Bark Extract Ferment Filtrate	Origin from clean area 'Jeju' Island / Lactobacillus bacteria ferment / Reduce melanin contents / Skin safety / High skin penetration of active ingredient
BIORAN MY-150	Ecklonia Cava Extract	Origin from clean area 'Jeju' island / Whitening effect and anti-inflammatory

## CONTENTS

INKOS R&D Technology & Categories of Personal Care Ingredient

★ Major Product

### Anti-Aging 23~25 page

BIO Snail-EZ	Snail Secretion Filtrate	Rapid skin regeneration / Wound healing / Moisturizing, Skin relief / Improve acne scar
BIO Sea Cucumber-EZ	Sea Cucumber Extract	Moisturizing / Improving skin damage of UV Refirming eye wrinkle.
BIO Beta Citrus F	Schizophyllum Commune/Citrus Unshiu Peel Extract Ferment Filtrate	Citrus Peel from Jeju Island: Rich in Natural flavonoids / Antioxidant / Whitening / Anti-inflammatory
★ BIO BY-300	Aureobasidium Pullulans Ferment	Moisturizing / Anti-aging / Cell regeneration
Rejuvera Marine	Caulerpa Lentillifera Extract, Spirulina Platensis Extract, Hydrolyzed Jellyfish Extract	Anti-aging / Moisturizing / Collagen Biosynthesis
BIO Placenta	Glycine Soja (Soybean) Phytoplacenta Extract	Rapid skin regeneration / Moisturizing / Skin relief
BIO Nano EGF1	rh-Oligopeptide-1	Cell regeneration / Prevention of wrinkle / Available 10 ppm 20 ppm
M-Marine Collagen	Hydrolyzed Collagen	Marine collagen derived from fish skin / Antiaging / Remove wrinkle / Wound healing Moisturizing / Suitable for mask pack
Collagen Peptide	Hydrolyzed Collagen	Pig skin collagen / High water holding capacity Enhance skin hydration / Cell regeneration Promote wound healing
PLEX SNC	1,3-Butylene Glycol, Chitosan, Hydrolyzed Chitosan, Lactic acid	Chitosan / Penetration enhancer Moisturizing / Skin feel improvement / Regeneration
BIORAN Camellia Saponin	Camellia Japonica seed Extract	Anti-aging / Improve blood circulation / Cell regeneration
Black Pearl Extract	Pearl Extract	Anti-aging / Whitening

### Anti-Pollution 26~27 page

PLEX SNCC	Chitosan, Hydrolyzed silk, Algin	Including Chitosan / Skin cell regeneration / Strengthen immunity / Detox effect
PA Pollution	Oryza Sativa (Rice) Extract	Negative charge that removes dust and heavy metal / Chelating effect by phytic acid

### Hair Care 28~30 page

★ BIORAN Scalp N	Triticum Vulgare (Wheat) Seed Extract, Typha Orientalis Extract, Malt Extract, Panicum Miliaceum (Millet) Seed Extract	Prevent hair loss / Supply nutrition to scalp / Dermal papilla cell proliferation
BIORAN Hair G-Factor	Houttuynia Cordata Extract, Rosemarinus Officinalis Leaf Extract, Perilla Frutescens Leaf Extract, Camellia Sinensis Leaf Extract, Pyrrolidinyl Diaminopyrimidine Oxide	Treatment of damaged hair / Prevent hair loss
BIORAN Anti-DAF	Sophora Angustifolia Root Extract, Tribulus Terrestris Fruit Extract, Melaleuca Alternifolia (Tea Tree) Leaf Extract	Reduce dandruff / Scalp calming effect
BIORAN Hair Protein S	Hydrolyzed Keratin, Hydrolyzed Collagen, Hydrolyzed Wheat Protein	Improve hair providing with protein
BIORAN Hair Amino S	Hydrolyzed Silk (or) Silk Amino Acids	Treatment of damaged hair by providing amino acid and peptide
Amino Acid Complex 17	Lysine, Histidine, Arginine, Aspartic Acid, Threonine, Serine, Glutamic Acid, Proline, Glycine, Alanine, Valine, Methionine, Isoleucine, Leucine, Tyrosine, Phenylalanine and Cysteine	17 kinds of Amino Acid / Supply nutrition to damaged hair

### Natural Surfactant 31 page

BIORAN Natural Olive S	Olea Europaea (Olive) Fruit Oil, Cocos Nucifera (Coconut) Oil, Yucca Schidigera Root Extract, Saponaria Officinalis Extract	Natural Surfactant / Natural detergent / Skin emollient / Anti-aging / Moisturizing effect
★ BIORAN Natural Olive S [H]	Potassium Cocoate, Potassium Oliviate, Yucca Schidigera Root Extract, Saponaria Officinalis Extract	Natural surfactant / Natural detergent / Excellent foaming ability and stability / Mild irritation / Skin emollient
BIORAN Natural S	Yucca Schidigera Root Extract, Saponaria Officinalis Extract	Natural surfactant / Natural detergent / Stable foam (Patentpending: 10-2015-0114227)

### Natural Emulsifier 32~33 page

M-Nature SE100	Lysolecithin, Hydrogenated lecithin, Cetearyl alcohol, Bees Wax, Tocopheryl acetate	Natural emulsifier / Uniquely good sensory / Mild irritation / Good texture
M-Nature SE200 (NEW)	Glyceryl Stearate, Polyglyceryl-2 Stearate, Polyglyceryl-10 Laurate, Lysolecithin, Caprylic/Capric Triglyceride	Natural emulsifier / Uniquely good sensory / Lower irritation / Provide special watery sensory
BIORAN Nano Oil	CetylEthylhexanpate, Ceteth-20, Glyceryl stearate, Phenoxyethanol, CaprylylGlycol, Cetech-10	Excellent of skin penetration and Good feeling / Translucent blue color / Customized oil product is available

### Sun Care 34~35 page

SunNano T40	Titanium Dioxide, Cyclomethicone, Isohexadecane, Stearic Acid, PEG-10 Dimethicone, Aluminum Hydroxide	UV Protection (TiO <sub>2</sub> 40% dispersion) / Good spreadability / Low viscosity / No white turbidity / High SPF / Oil soluble
SunNano Z50	Micro Particle ZnO Cyclomethicone, Methicone, PEG-10 Dimethicone	UV A Protection (ZnO 50% dispersion) / Good spreadability / Low viscosity / No white turbidity / High PA+++ / Oil soluble
SunNano T40AQ	Titanium Dioxide, Potassium Cetyl Phosphate, Stearic acid, Aluminum Hydroxide	UV Protection (TiO <sub>2</sub> 40% water-soluble dispersion) / Good spreadability / Low viscosity / No white turbidity / High SPF / Water soluble
UV Phyto-Cut (NEW)	Hibiscus Sabdariffa Flower Extract, Perilla Frutescens Leaf Extract, Rhodiola Rosea Extract, Opuntia Coccinellifera	UV-Cut / Improves blemishes and freckles formed by UV rays / Prevents aging through antioxidizing effects / Brightens the skin by suppressing tyrosinase

### Fresh Cell Series 36 page

BIORAN FC Series (FC100 ~ FC500)	- Cucumis Sativus Fruit Extract - Daucus carota sativa root extract - Camellia sinensis leaf extract - Panax ginseng root extract - Vaccinium Angustifolium (Blueberry) Fruit Extract	Isolation of Single cell- Cucumber, carrot, green tea, ginseng, blue berry / Can be produce according to order
BIO Conversion Oil Series	Olea Europaea (Olive) Fruit Oil, lipase etc.	Improve anti-oxidant effect due to abundant Linolenic Acid / Increase spreadability due to improved emulsifying / Improve moisturizing / Protect hair / Strengthen hair
BIO Extensin Series	Hydrolyzed Extensin (or) Daucus Carota Sativa (Carrot) Root Extract	Vegetable collagen / Moisturizing / Cell regeneration / Anti-aging / Can be produce according to order

Moisturization

Cinnogel CG / Cinnogel Oil

Story

Cinnogel series offer wide ranges of enhancing technologies to make products feel more elegant, deliver a multitude of functions and aid ease of formulation. Cinnogel Series are hydrophilic and consist of water, humectants and a polymer as a thickening agent. The solvent and humectant molecules are bound to the polymeric network, resulting in a structured system with increased viscosity. As a rheology modifier, Cinnogel series, they are also effective at stabilizing emulsions in various personal care applications.

Description

	Cinnogel CG	Cinnogel Oil
INCI Name	Glycerin (and) Glyceryl Acrylate/ Acrylic Acid Copolymer (and) Propylene Glycol	Glycerin (and) Glyceryl Acrylate/ Acrylic Acid Copolymer (and) Propylene Glycol (and) PVM/ MA Copolymer
Viscosity (CPS)	200,000 ~ 400,000	500 ~ 1,600
pH	5.0 ~ 6.0	5.0 ~ 5.5
Recommended Use level	5 ~ 25 %	0.2 ~ 5 %

Cinnogel CG [1,2 HD], Cinnogel DV / MS



Advantages

- Superior moisturization
- Excellent skin compatibility and toxicity profile
- Imparts an inviting after-feel and slip
- Excellent lubricity, spreadability and emolliency
- Good auxiliary thickening, suspending power and viscosity enhancement
- Broad formulation compatibility

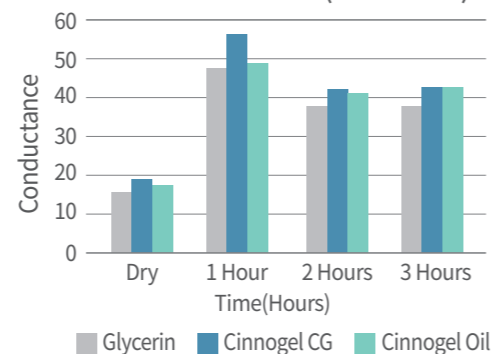
Functions

- Emollient
- Moisturizer
- Rheology Modifier

Applications

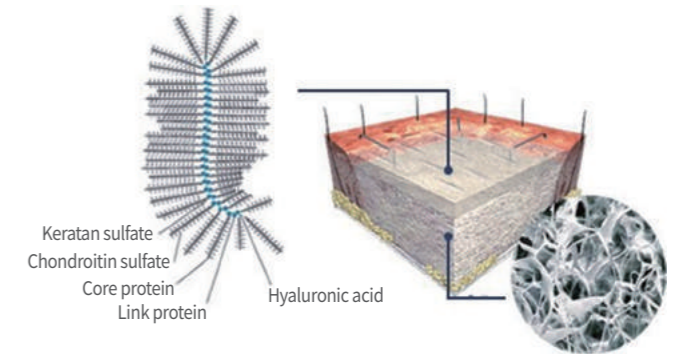
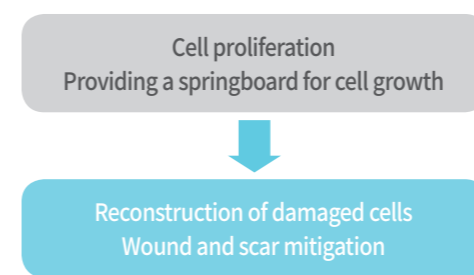
- Skin care (Moisturizer, Toner, Lotion and Cream etc), Sun Screen Cream, Eye Round Gel
- Body Lotion and Cream
- Cleansing Gel

Moisturization Effect (Short Term)

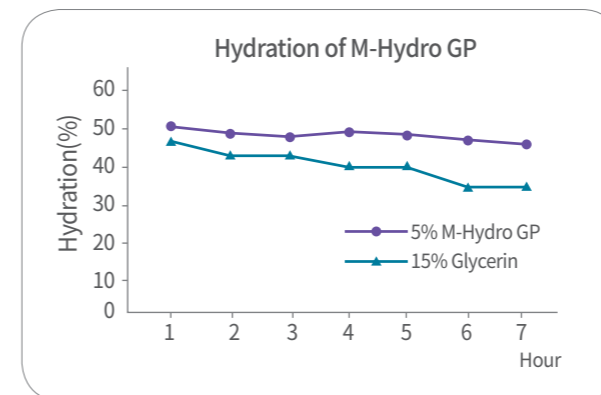


Moisturization

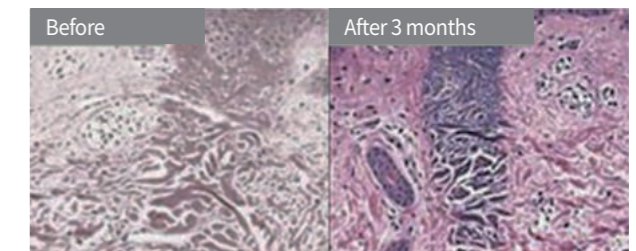
INCI Name	Product Name
M-Hydro GP	Glycoproteins, Yeast Extract
M-Hydropatch AU	Trehalose, Urea, Aureobasidium Pullulans(Black Yeast) Ferment Extract, Hydrolyzed Silk, Pentylene Glycol, Glyceryl Polyacrylate, Algin, Caprylyl Glycol, Sodium Hyaluronate, Disodium Phosphate, Potassium phosphate
Hydroactol	Betaine, Sodium Hyaluronate, Yeast extract



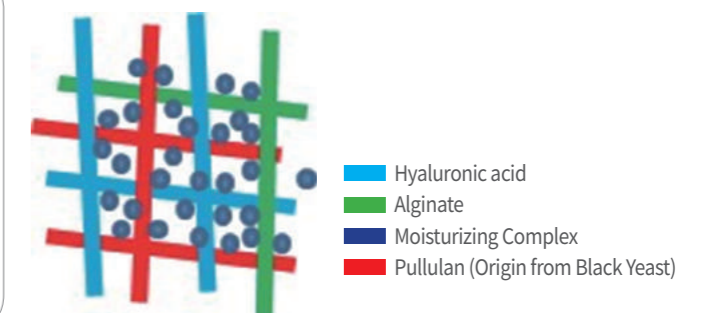
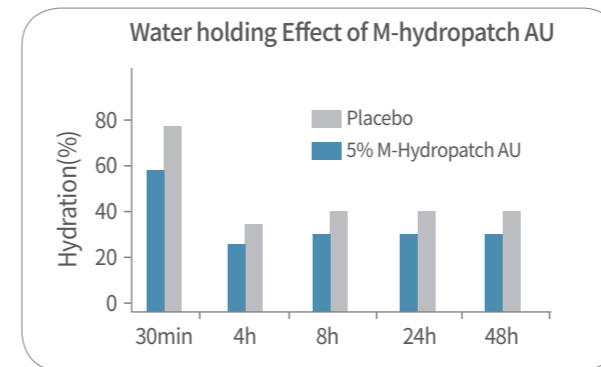
M-Hydro GP



M-Hydro GP is natural-based moisturizer. Active ingredients from snails improve acne scars, freckles, and wrinkles, and keep moisturizing. It relieves skin and controls keratin cycle, preventing skin trouble.



M-Hydropatch AU





Moisturization

BIORAN MOLO

Story

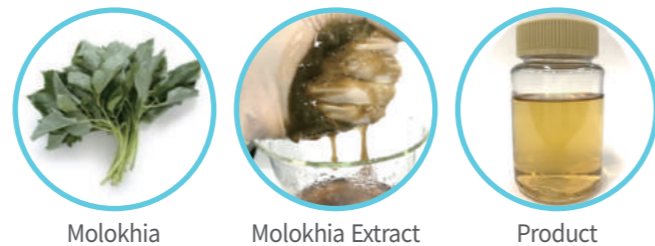
BIORAN Molo has Natural Moisturizing component, mucosubstance which are extracted from Molokhia. These components make a film on skin and protect it from external stimuli and keep it moist. Also, it has anti-inflammatory effect and keep skin healthy.

INCI Name

Corchorus Olitorius Leaf Extract

Advantages

- Contain of mucosubstance from Molokhia
- Non-oily moisturizing component
- Skin soothing and protection
- Anti-inflammation

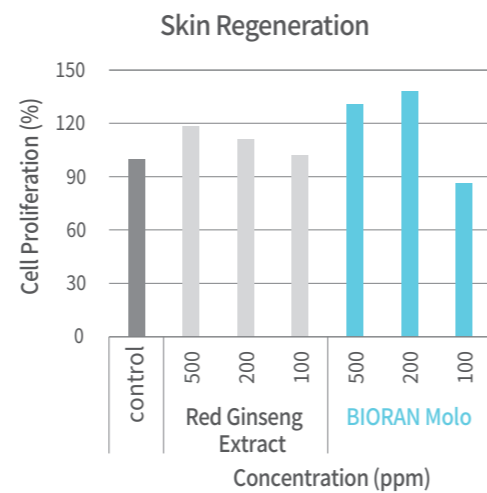
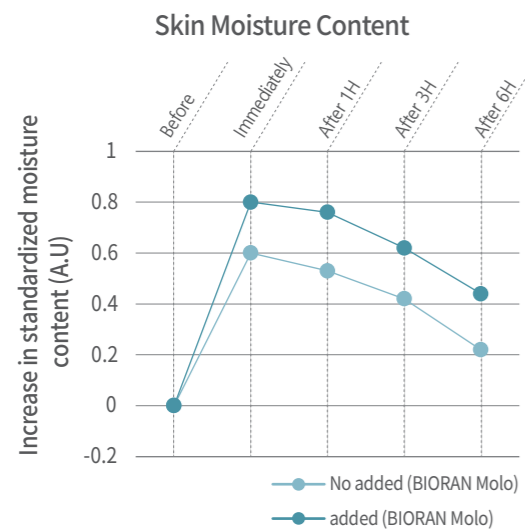


Molokhia

Molokhia Extract

Product

Efficacy Test



Information

- INCI Name : Corchorus Olitorius Leaf Extract
- Recommend Dosage ≤ 90%
- Storage : Store in dark place at 1 ~ 25 °C

Application

Skin care, Body products for all skin types

Specification

Analytical Tests	Specifications
Appearance	Light Yellow ~ Yellow Transparent Liquid
Odor	Slightly characteristic
pH	6.0 ± 1.5
Specific Gravity	1.05 ~ 1.16

Moisturization

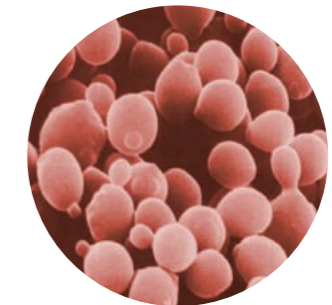
BIO Saccharomyces-Mineral

INCI Name

Saccharomyces/Copper Ferment, Saccharomyces/Iron Ferment, Saccharomyces/Zinc Ferment, Saccharomyces/Magnesium Ferment, Saccharomyces/Silicon Ferment

Feature

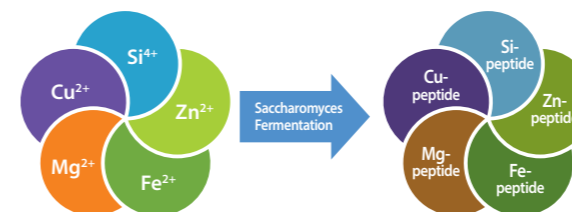
- Saccharomyces fermentation increases the absorption of five minerals.
- Contain Various minerals, vitamins and beta-glucan
- Minerals keep skin cell regeneration and collagen binding to prevent skin aging



Application

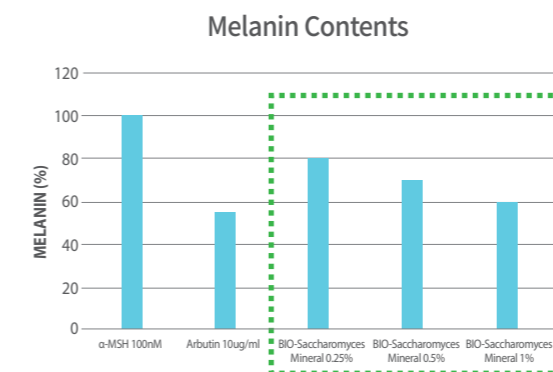
Facial Care, Body Care, Hair Care

Mineral Fermentation Therapy

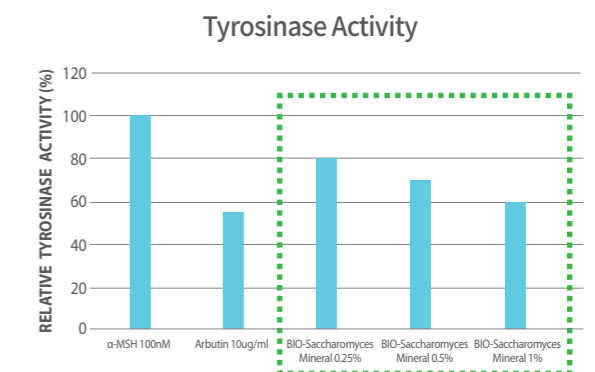


Ingredient	Effect
Zinc	Whitening effect, Synthesis of collagen with vitamin C, anti-wrinkle effect, soothing effect
Iron	Recovered dry skin
Magnesium	Prevention of skin barrier weakening
Copper	Cell regeneration
Silicon	Suppress collagen degradation enzyme, Promote the growth of skin cells.

Whitening Effect



\* The inhibition of melanogenesis in B16F10 melanoma by arbutin or BIO Saccharomyces-Mineral



\* Inhibition of tyrosinase activity by arbutin or BIO Saccharomyces-mineral measured using the cell lysate of B16F10 melanoma.

## Moisturization

### BIO Pseudoalteromonas F

#### Story

BIO Pseudoalteromonas F supplies moisture to skin as a moisturizing agent including Glycoprotein which is secreted from microorganism that lives in ultra low temperature in South Pole.

It is functional ingredient using extremophiles that can live in ultra low temperature in South Pole. It is multi-functional moisturizing agent that can protect creature at any extreme temperature or condition, so it draws moisture in the air and creates external layer to keep moisture on skin.

South Pole microorganisms in King George Island secrete Glycoprotein which is freeze protection protein that prevents themselves from freezing.

When it is applied to skin, it strengthens fibroblast and epidermal cells as well as moisturizing. It also helps skin reconstitution by boosting compounds of collagen and elastin and has a great wrinkle treatment effect.



#### INCI Name

Pseudoalteromonas Ferment Extract

#### Feature

- Low irritant fermented product
- Use Pseudoalteromonas fermentation
- Pseudoalteromonas is an extremophile that can live in ultracold South Pole.
- BIO Pseudoalteromonas F produces glycoprotein by itself which has a protection function.

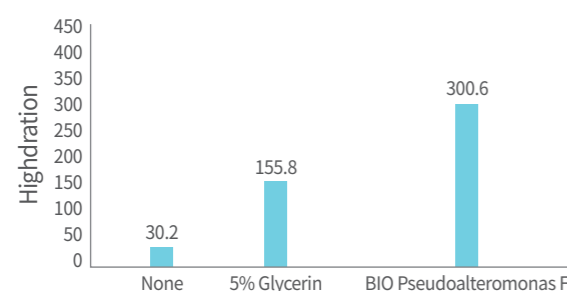
#### Applications

- Skin care (e.g.) anti-wrinkle eye cream, firming cream, skin regeneration cream etc.
- Body care
- Hair care
- Recommend dosage: below 90%



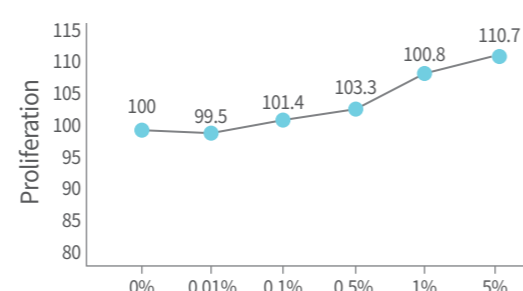
#### Moisturizing Effect on Skin

Determination of water retention capacity



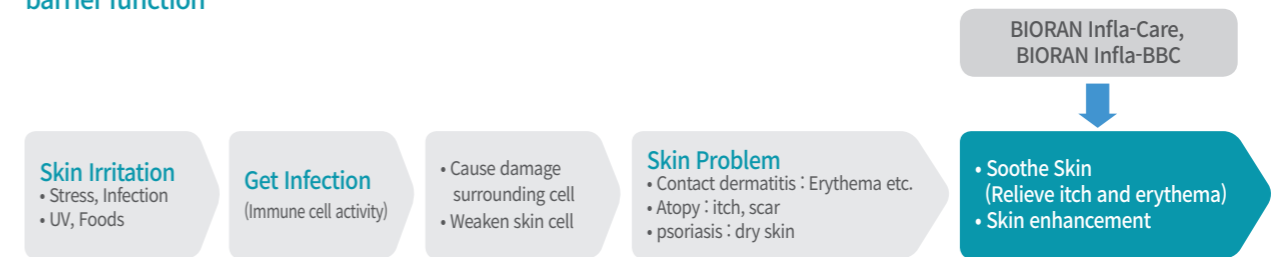
#### Cell Regeneration Effect

MTT assay using the HDF cell



## Anti-Inflammation

Anti-Inflammation products inhibit inflammatory mediators, relieving itch in skin and restore the damaged barrier function



### BIORAN Infla-Care

#### Story

BIORAN Infla-Care is Magnolia, Chrysanthemum, Rosemary, Reynoutria complex. It relieves inflammatory skin problems and can be widely applied to skin, body, and hair care products as it does not have toxicity. As well, it is valuable as an anti-inflammatory ingredient as it rapidly relieves skin inflammation from external stimuli.

#### INCI Name

Magnolia Kobus Flower Extract, Chrysanthemum Indicum Flower Extract, Rosmarinus Officinalis extract, Polygonum Cuspidatum Root Extract, Hamamelis Virginiana Extract

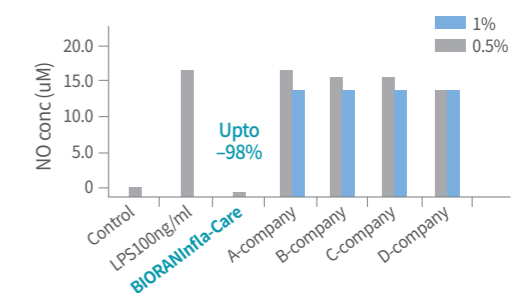
#### Function

- Soothe Skin (relief of itch and reddish skin)
- Abirritation
- Skin enhancement

#### Calm Skin (Relieve itch and erythema)



#### Anti-Inflammatory Effect



### BIORAN Infla-BBC

#### Story

BIORAN Infla-BBC is Boswellia, Forskohlii, Psoralea corylifolia complex. It can relieve sensitive, erythema and reddish skin. As it functions as a sebum control agent, it is effective for acne caused by sweat, sebum, waste, and skin trouble.

#### INCI Name

Coleus Forskohlii Root Extract, Boswellia Serrata Resin Extract, Psoralea Corylifolia Fruit Extract

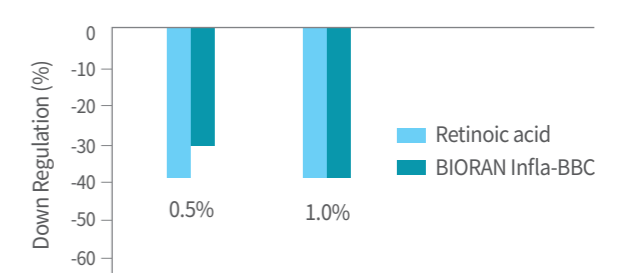
#### Function

- Soothe Skin (relief of itch and reddish skin)
- Improvement of Inflammatory Acne
- Sebum Control
- Calming Skin

#### Inhibition of P.acne growth

Sample Name	Zone of inhibition (mm)**
Salicylic Acid	12 mm
BIORAN Infla-BBC 5%	37 mm

#### Down Regulation of 5- $\alpha$ -reductase Expression



●  
Anti-Inflammation

BIORAN HPS

Story

Sea Mugwort is a local special product from Komundo(Port Hamilton) area where clean South Sea wind and clay are raised. It has a rich aroma and high antioxidant power as compared with general mugwort. It's well known that mugwort helps blood circulation, maintains the elasticity of the skin, and contains a large amount of vitamin C to clear the blood color. It's effective for acne, anti-bacterial, anti-inflammatory, and eczema.

INCI Name

Artemisia Princeps Extract

Active Compounds

Cineole, Terpinen-4-ol, β-carophyllene, Linalool, Artemisia alcohol, Camphor, Borneol

Advantages

- Strong antioxidant effect compared to general mugwort
- Low heavy metals and mercury content
- Antimicrobial effect

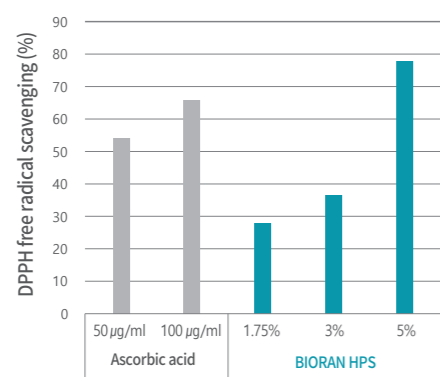
Applications

- Skin care and body; whitening, moisturizing
- Functional cosmetics such as inflammatory skin

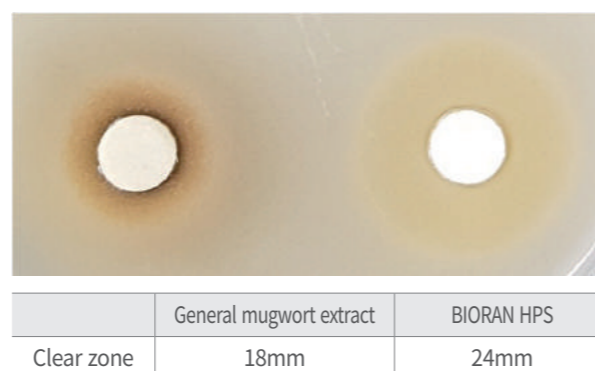


Efficacy Test

Antioxidant efficacy of BIORAN HPS (DPPH assay)



Antimicrobial Effect of BIORAN HPS (Paper Disc Method)



Specification

Analytical Tests	Specifications
Appearance	Colorless ~ Light yellow transparent liquid
Odor	Characteristic
pH	7.00 ± 1.5
Refractive Index	1.3000 ~ 1.4000
Specific Gravity	0.950 ~ 1.060
Microbe	≤ 100 cfu/g
Heavy metal	Pb : ≤ 20 ppm
	As : ≤ 2 ppm

Recommend level ≤ 90%  
Storage: Store in dark place at 1 ~ 25 °C  
Color may change according to the characteristic of extract  
Shelf Life : 2 years from manufacturing date

●  
Anti-Inflammation

BIORAN Anti-Itching

Story

BIORAN Anti-Itching contains liquidambar formosana and guajava leaf extract and soothes dry and itching skin. BIORAN Anti-itching recovers skin trouble by restraining inflammation intentionally and improves itching with natural anti-histamine components, which restrains the activity of histamine and leukotriene, and it has no side effects.

INCI Name

Liquidambar Formosana Extract, Psidium Guajava Leaf Extract

Active Compounds

Polyphenol, Folic acid, Vitamin B, C, and E, Flavonoid, Tannin, Quercetin, Natural anti-histamine

Advantages

- Excellent anti-allergy, anti-itching
- Anti-inflammation, soothing, anti-toxin
- Excellent anti-oxidant
- Improve complexion

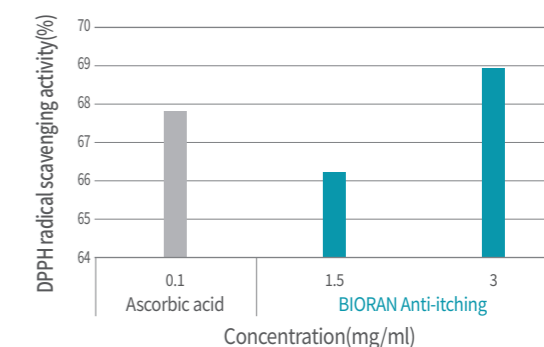
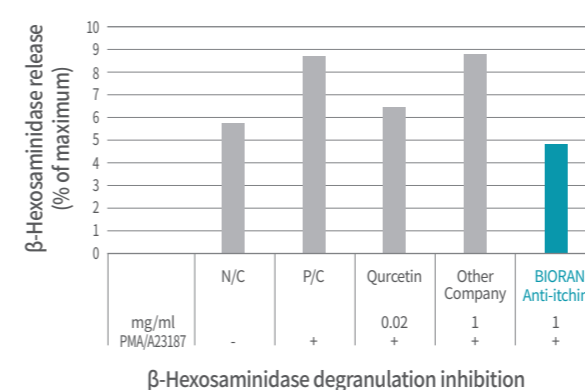
Applications

- Sensitive, damaged, dry, itchy skin
- Atopy care / Baby product
- Skin care; cream, lotion, gel, facial mask
- Scalp care, Anti-itching shampoo



Efficacy Test

Function: Anti-itching, Anti-allergy



Information

- INCI Name : Liquidambar Formosana Extract, Psidium Guajava Leaf Extract
- Recommend Dosage : 0.5 ~ 2%
- Storage : Store in dark place at 1 ~25°C





# Preservative

## Benefits of Natural Preservative

Allow “natural” and “organic” product labeling.  
Consumers generally prefer natural preservatives over synthetic preservatives.  
Often function over a broad pH range. Many confer natural fragrances to products.

## BIORAN NP Series

### BIORAN NP-200R

#### INCI Name

Lonicera Japonica (Honeysuckle) Flower Extract, Usnea Barbata (Lichen) Extract, Citrus Paradisi (Grapefruit) Fruit Extract, Ocimum Basilicum (Basil) Extract

#### Advantages

- All ingredients from nature
- Broad spectrum of antimicrobial activity Allow “No Preservative” labeling
- Allow application a neutral or alkaline skin care

### BIORAN NP-400

#### INCI Name

Citrus Junos Seed Extract, Illicium Verum (Anise) Fruit Extract, Scutellaria Baicalensis Root Extract, Citrus Grandis (Grapefruit) Seed Extract

#### Advantages

- Patent (KR. 10-1532005)
- Mild irritants
- Broad range of antimicrobial activity
- Allow application a acidic or slightly acidic skin care

## Efficacy Test

### Antimicrobial Test

(Minimum Inhibitory Concentration, %)

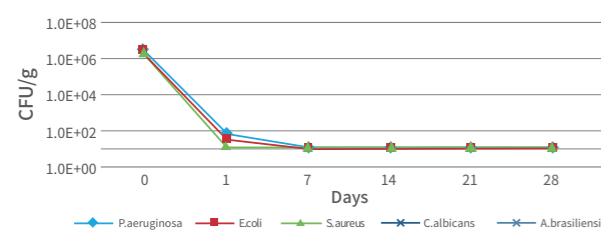
	S.aureus	E.coli	P.aeruginosa	Calbicans
Phenoxyethanol	0.6	0.6	0.6	0.8
BIORAN NP-200R	0.6	0.08	0.16	0.3
BIORAN NP-400	0.3	0.3	0.6	0.3

### Preservative Efficacy Test

(modified ISO11930)

Challenge Test Microorganism	
Scientific Name	Pseudomonas aeruginosa
	Escherichia coli
	Staphylococcus aureus
	Candida albicans
	Aspergillus niger

### Lotion in BIORAN NP-200R 1.5 %

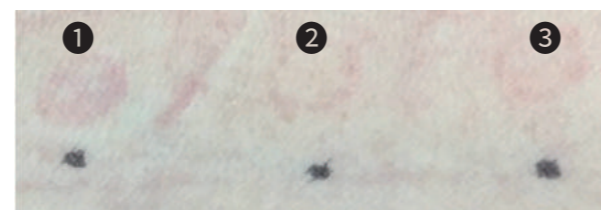


### Skin Irritant Test

Finn Chamber Patch Test

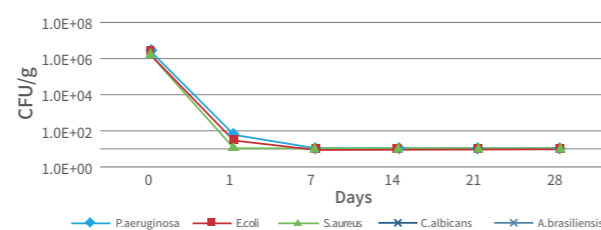
No.	Test Material	24hrs				
		±	1+	2+	3+	4+
1	Glycerin	-	-	-	-	-
2	BIORAN NP-200R (4%)	-	-	-	-	-
3	BIORAN NP-400 (4%)	-	-	-	-	-

The number of test subject : 10 people



1.phenoxyethanol 2.BIORAN NP-200R 3.BIORAN NP-400

### Lotion in BIORAN NP-400 1.5 %



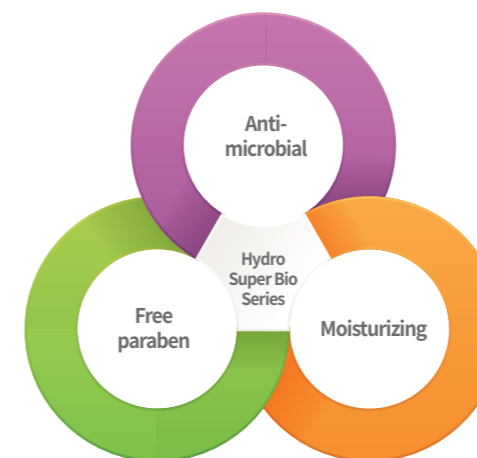
# Preservative

## Hydro Super BIO series

### Story

Hydro Super BIO Series can replace Parabens. It is high preservative product by mixing various materials which have antifungal activity.

### Multi Function Agent



### Advantages

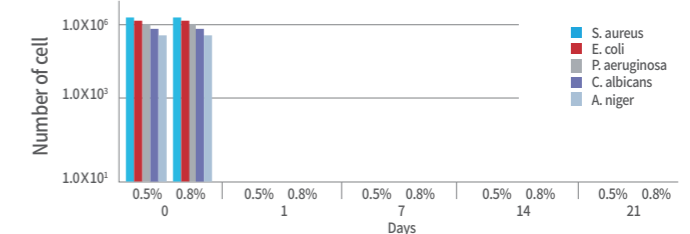
- Paraben-Free
- Wide preservative spectrum
- No irritation and safety
- Available in high temperature & wide range of pH Colorless and odorless

Product Name	INCI Name	Use Level
Hydro Super BIO- P	Phenoxyethanol and Caprylyl Glycol	0.5 ~ 1.0 %
Hydro Super BIO- OD	1,2 Hexanediol and Caprylyl Glycol	0.5 ~ 2.0 %
Hydro Super BIO- EHG	1,2 Hexanediol and Ethylhexylglycerin	1 ~ 2%
Hydro Super BIO- Natur	1,2 Hexanediol, Ethylhexylglycerin, Caprylhydroxamic Acid, Boswellia Serrata Resin Extract	1 ~ 2%
Hydro Super Bio-CS	Phenoxyethanol, Caprylyl Glycol	0.5~2.5%

### Preservative Efficacy Test (modified ISO11930)

Test Microorganism	
Scientific Name	Pseudomonas aeruginosa
	Escherichia coli
	Staphylococcus aureus
	Candida albicans
	Aspergillus niger

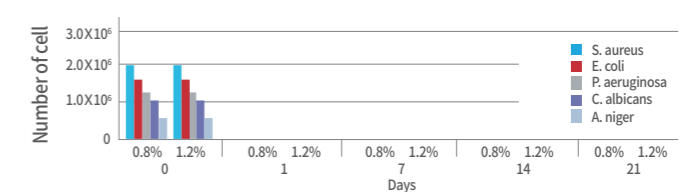
### Hydro Super BIO-P (in lotion)



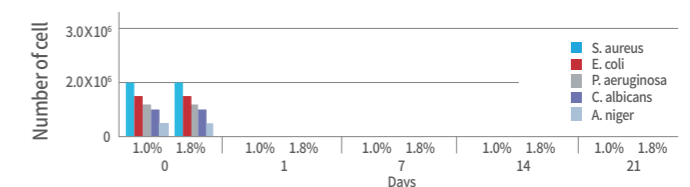
### Hydro Super BIO-EHG (in lotion)



### Hydro Super BIO-OD (in lotion)



### Hydro Super BIO-Natur (in lotion)

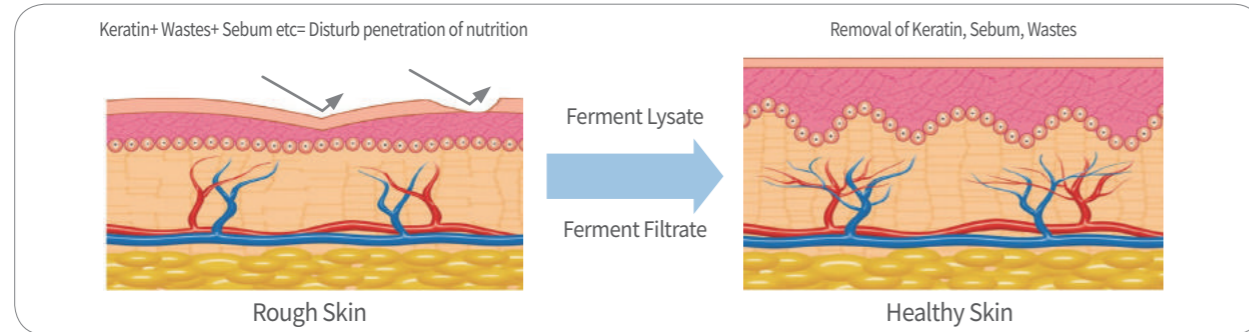


## Improve skin texture & Keratin removal

### Fermentation

#### What is Fermentation?

Fermentation is a process that enzymes created by microorganism finely discompose organic matters, generate useful matters for human beings, and maximize useful matters by culturing microorganism that secreting useful matters.



#### Advantages of Fermentation

1. It moderates skin's natural surface renewal cycle
2. It makes skin radiant and glowing
3. Skin is moisturized and soft
4. Pores are smaller
5. Dark spots are lightened



#### Yeast Fermentation

##### Description

This is a natural yeast used to brew alcoholic at brewery which has a great effect to make skin transparent, soft, and more elastic.

##### Product

BIO Galactomyces	Galactomyces Ferment Filtrate
BIO Saccharomyces	Saccharomyces Ferment Lysate Filtrate



#### Probiotic Fermentation

##### Description

This lactobacillus ingredient is contained a lot in breast milk and Yogurt and is used to make ferment food in a various way. It prevents skin damage and improves for live skin

##### Product

BIO Bifida F	Bifida Ferment Filtrate
BIO Lactobacillus F	Lactobacillus Ferment Filtrate
BIO Lactococcus F	Lactococcus Ferment Filtrate



#### Two Stage Fermentation

##### Description

1<sup>st</sup> stage : Fermented by Yeast  
2<sup>nd</sup> stage : Using effective ingredients not used in a primary ferment process and creates functionally greater bioactive materials than the ones created from the primary ferment.

##### Product

BIO Duoform SL	Saccharomyces Ferment Filtrate Lactobacillus Ferment Filtrate
----------------	--

## Improve skin texture & Keratin removal

### BIO M-Protease

#### Story

BIO M-Protease is protease that has keratinolytic activity. It removes stratum corneum without physical stimulus by promoting disintegration of protein or peptide bind. You can expect transparent and soft skin from this product as it promotes skin rejuvenation by removing dead skin cell on skin surface.

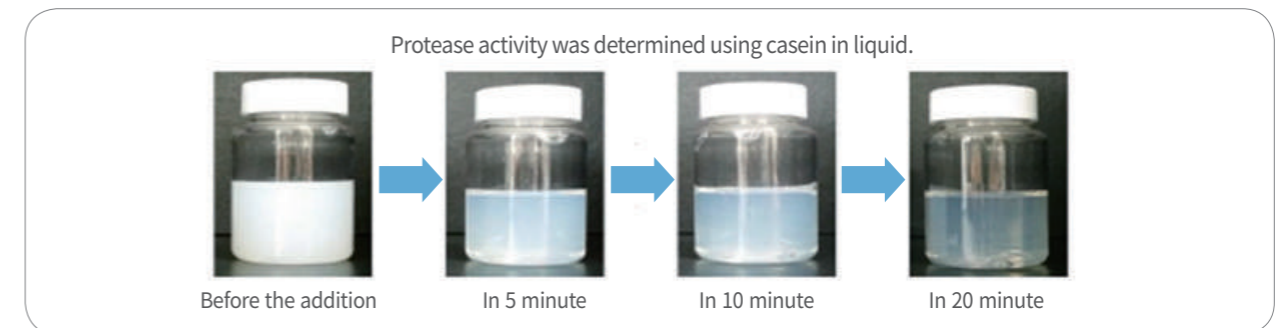
#### Functions

- Excellent effect of keratin removal
- Anti-acne
- Shorten skin regeneration cycle
- Keep smooth skin texture

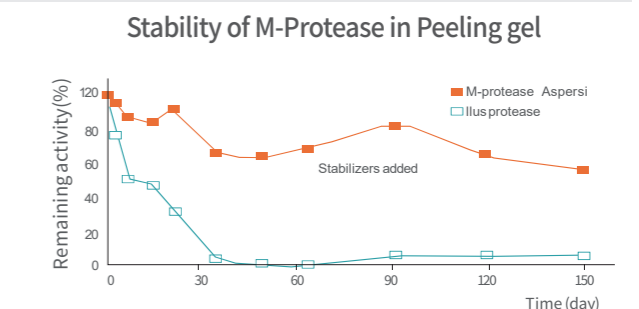
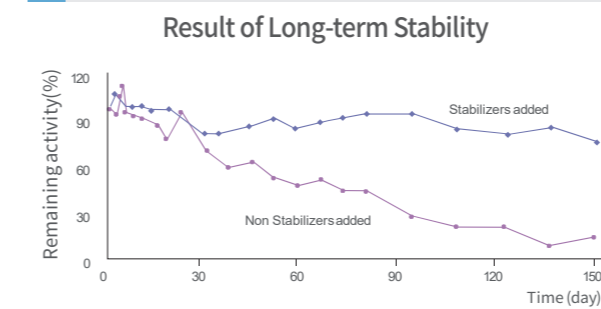
#### Application

- Exfoliating Gel
- Cleansing Gel
- Product for Acne
- Body Lotion
- Baby Bathes

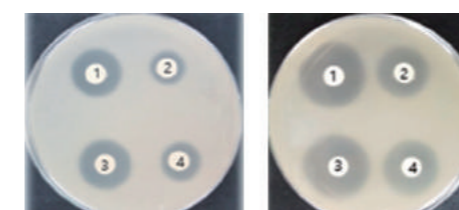
#### Protease activity Test



#### Stability Test



#### Semi-quantitative Enzyme Assay (Halo Test)



1. BIO M-Protease, 2. A, 3. B, 4. C

#### Test for skin exfoliating ability (Use period : 28 days)

	Epidermis (um)	Stratum corneum(um)	Whole skin (um)	
Before	29.5 ± 1.8	15.6 ± 0.9	67.3 ± 6.0	
After	Peeling gel (Blank)	25.2 ± 2.6	13.1 ± 0.3	56.2 ± 4.4
	Peeling gel (M-Protease)	17.8 ± 3.1	9.3 ± 1.6	52.6 ± 4.5

## Improve skin texture & Keratin removal

### BIORAN Flower Acid

#### INCI Name

Hibiscus Sabdariffa Flower Extract, Spiraea Ulmaria Flower Extract, Bellis Perennis (Daisy) Flower Extract, Jasminum Officinale (Jasmine) Flower Extract

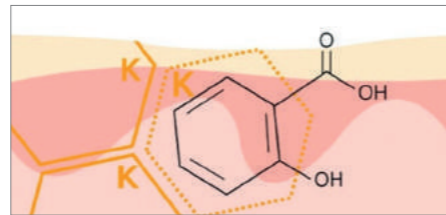
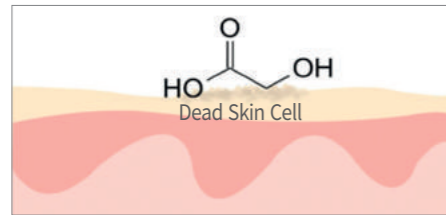
#### Feature

- Natural Keratin removal agent that removes the dead cells at the skin surface without irritation
- Natural Flower Acid component activates skin turnover function
- Skin regeneration

#### Application

Peeling gel, Cleansing cream, Peeling Patch, Facial Mask, Skin Care, etc.

#### What is the Flower Acid?

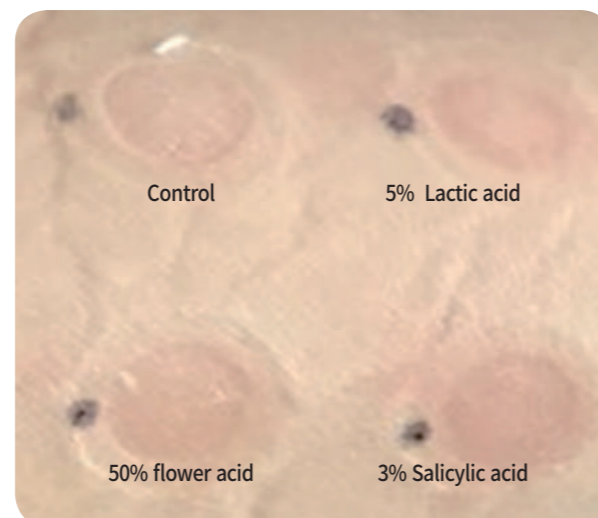


- Natural AHA, BHA, AKA
- Flower acid contains AHA citric acid, malic acid, and tartaric acid as well as a combination of salicylic acid and lactic acid.
- Promotes the regeneration of cells without damaging the sensitive skin cells.
- Removes dead cells from the skin surface and removes keratin and waste from pores.

#### Exfoliation Effect



#### Patch Test



## Whitening

### BIORAN Snow SP

#### Story

BIORAN Snow SP is a product that strengthens whitening efficacy by bio-converting Piper longum and Sanguisorba officinalis into our patented strain. Whitening ingredients concentrated with high concentration block various pathways that lead to create melanin and help to resolve the fundamental reason of skin pigmentation. BIORAN Snow SP makes skin tone clear and transparent by lightening blemish or stain on skin.

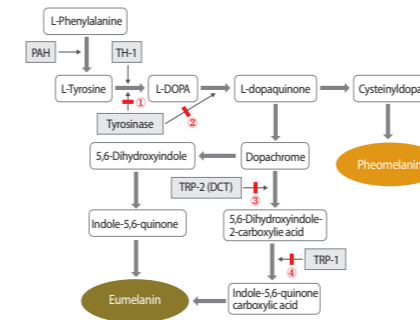
#### INCI Name

Piper Longum Fruit Extract, Sanguisorba Officinalis Root Extract, Lactobacillus Ferment Filtrate

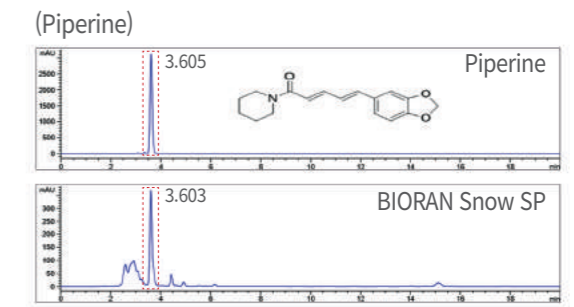
#### Feature

- Patent: 10-1796955
- Containing Procyanidins and alkaloids
- Whitening effect by blocking melanin synthesis pathway

#### Whitening Melanin Synthesis Pathway

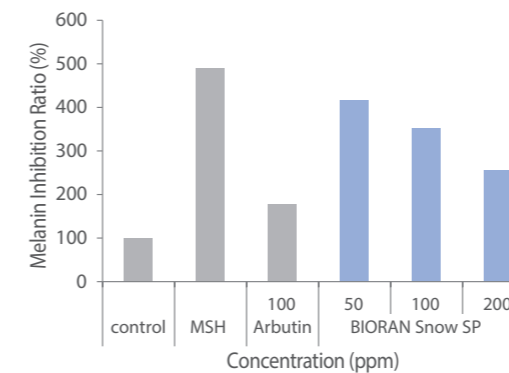


#### Analysis of Standard Compound by HPLC

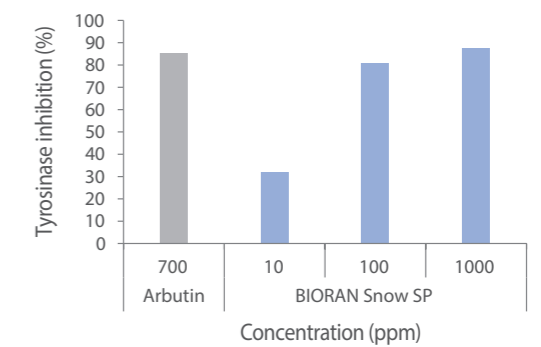


#### Whitening Efficacy

##### Melanin Synthesis Inhibition



##### In vitro Tyrosinase inhibition



#### Clinical Data



Apply whitening cream with 3% BIORAN Snow SP for a month  
After using 3% BIORAN Snow SP cream, we checked that skin tone was bright and Dark spot faded.  
The redness on skin was alleviated.



**Whitening**

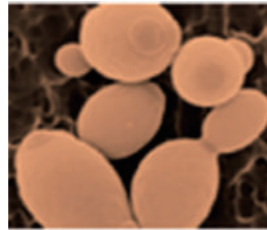
**BIO Gallnut F**

**INCI Name**

Lactobacillus/Rhus Semialata Gall Extract Ferment

**Feature**

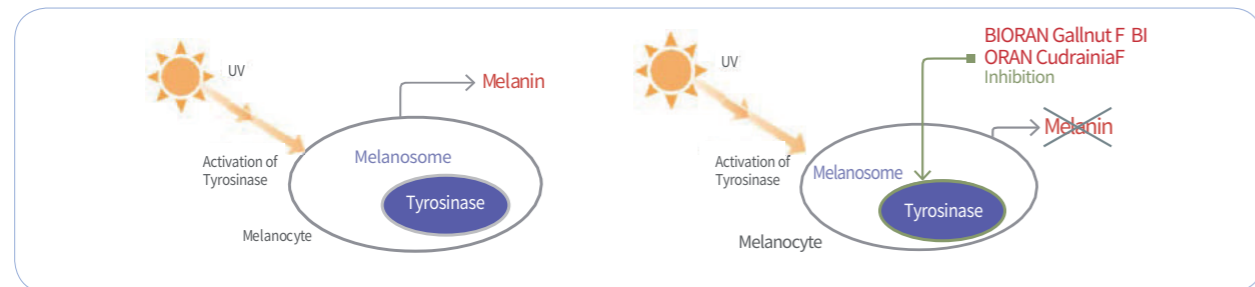
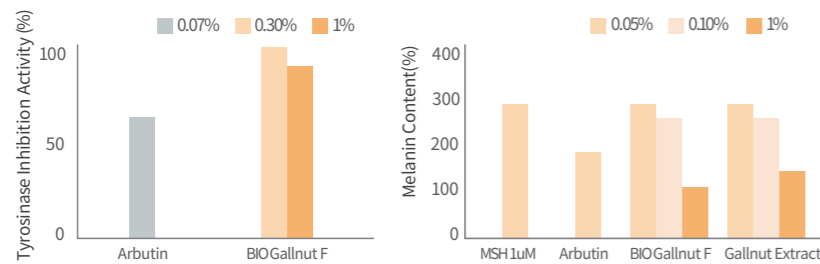
- Jeju island origin
- Ferment by probiotics
- Prevent Photodamage



**Ferment?**

- Mild irritant
- High penetration rate
- Produce bio factors by microorganism

**Whitening Effect**



**BIO Cudrania F**



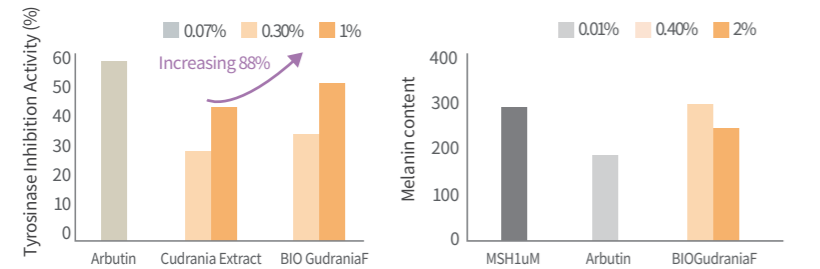
**INCI Name**

Lactobacillus/Cudrania Tricuspidata Bark Extract Ferment Filtrate

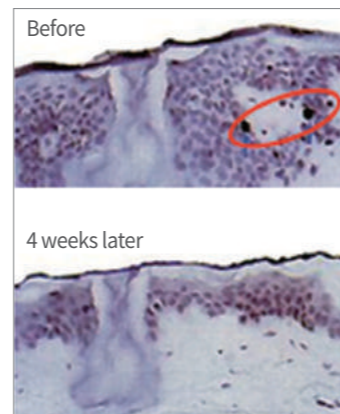
**Feature**

- Jeju island origin
- Naturally fermentation for 40 days
- Whitening effect

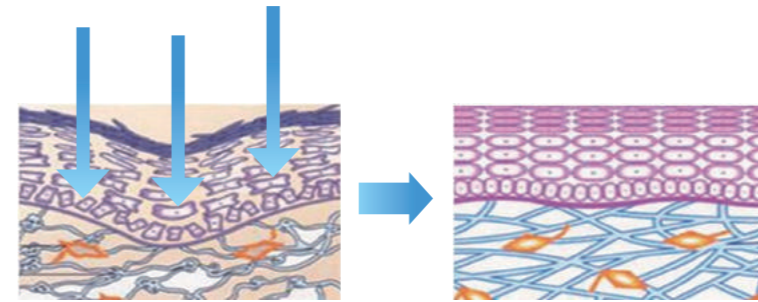
**Whitening Effect**



Decrease in melanin granules (Using Serum containing BIORAN Cudrania F for 4 weeks)



**Anti-Aging**



**1st Step**

Prevention (Anti-oxidant)  
Product skin from free radicals reduce free radical

**2nd Step**

Wrinkle improvement Epidermal Cell Proliferation & Moisturization

**3rd Step**

Wrinkle improvement collagen, Elastin and other extracellular matrix synthesis



**PLEX SNC**

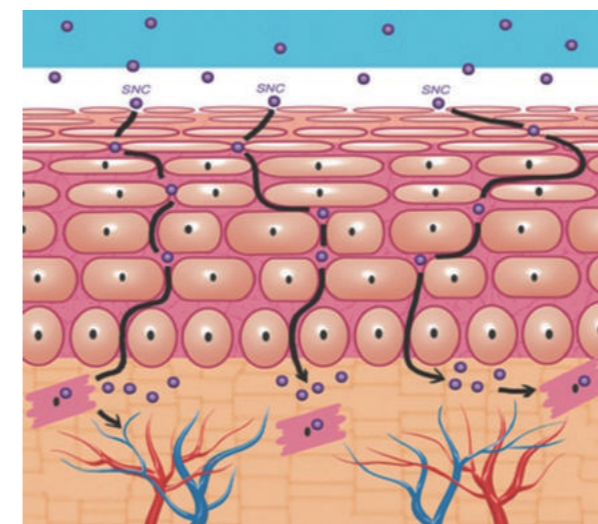
**INCI Name**

Chitosan, Hydrolyzed Chitosan, Lactic acid

**Feature**

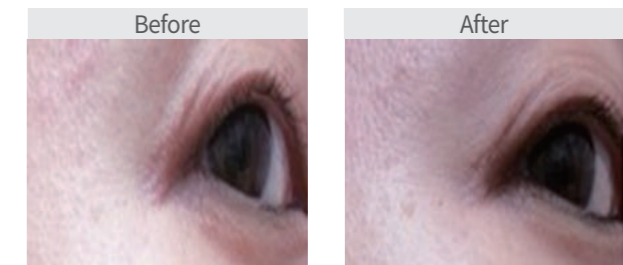
- Skin regenerating ability
- Film-forming agents
- Improvement Collagen Synthesis

**Core Technology (Two-step)**



SNC (Soluble Nano Chitosan) Technology: Rejuvenation

**Regenerate effect**



Essence Containing PLEX SNC  
After only 4 weeks of consistent use

Anti-Aging

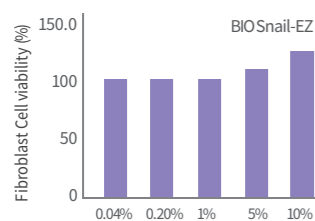
BIO Snail-EZ



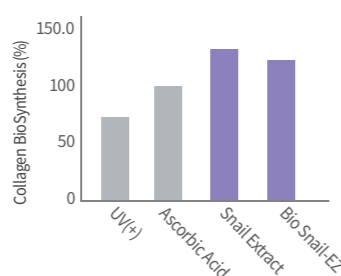
**INCI Name**  
Snail Secretion Filtrate

- Advantages**
- Rapid skin regeneration
  - Wound healing
  - Moisturizing
  - Anti-aging
  - Improve acne scar

Proliferation Effect



Rejuvenation Effect



Cream Containing BIO-Snail EZ 7.0 %  
After 6 months of consistent use

BIO Sea Cucumber-EZ



**INCI Name**  
Sea Cucumber Extract

Production of Collagen from Sea cucumber

Collagen- containing Raw Material (Sea Cucumber)

- Long-chained protein (mean molecular weight ≈ 300 kD)

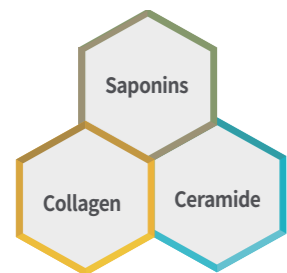


Extraction via enzymatic hydrolysis, purification, concentration,

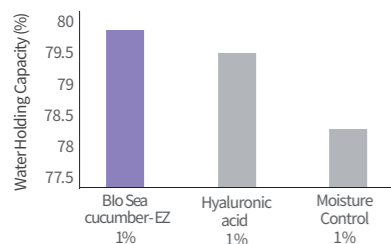
Collagen Hydrolysate

sterilization

- Short-chained peptides (mean molecular weight ≈ 3.3 kD)
- High degree of bioavailability



Water Holding Effect



Beauty Treatment of Sea cucumber

- 70% of protein in Sea cucumber consists of Collagen.
- Moisturizing : High-enriched Ceramide
- Sea cucumber called sea of ginseng because of the high content of saponins.
- Collagen in sea cucumber help recover damaged cells.
- Sea cucumber has antioxidant effect.

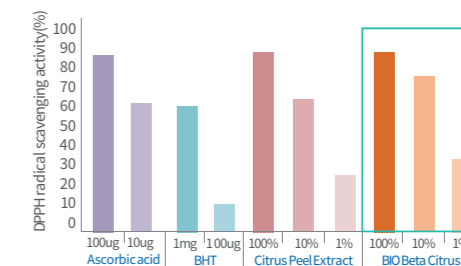
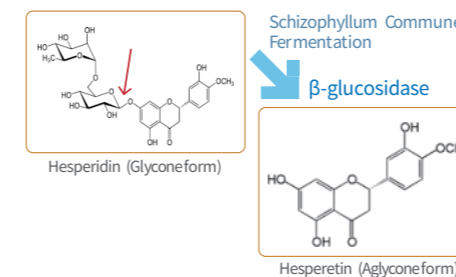
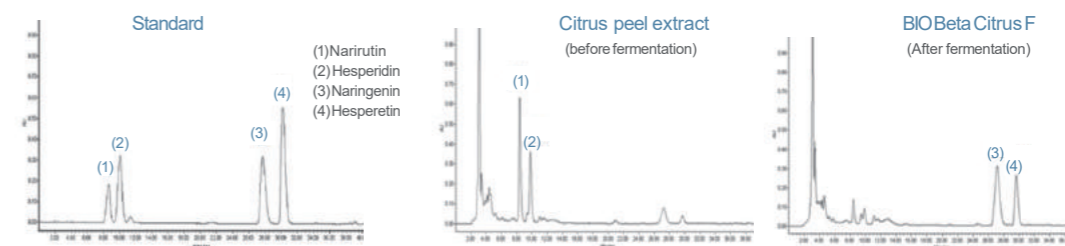
Anti-Aging

BIO Beta Citrus F



**INCI Name**  
Schizophyllum Commune /  
Citrus Unshiu Peel Extract Ferment Filtrate

BIO Conversion by Schizophyllum Commune(Conversion form from Glycone to Aglycone)



BIO BY-300

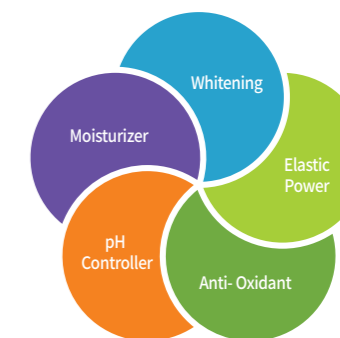
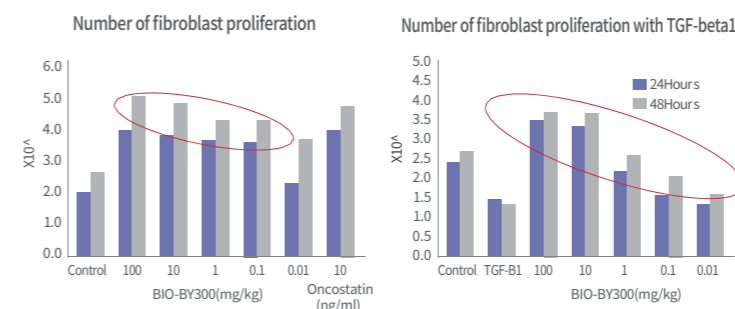


**INCI Name**  
Aureobasidium  
Pullulans Ferment

Black Yeast

- Richer Beta-glucan than other yeasts
- Production high content of Pullulans
- High-enriched bio factors
- Improve acne scar

Proliferation Effect





Anti-Pollution

PLEX SNCC

Story

Chitosan is polysaccharide and high molecular substance with positive charge. It composed of monomer from chitin coming away from acetyl group, which is composed shell of shrimps. It is natural high molecular polysaccharide polymer without taste and odor.

PLEX-SNCC has the effect of absorbing waste matter of heavy metals and skin exposed to pollutants caused by environmental pollution and removing waste of the skin.

It has a unique antibacterial ability to moisturize the skin to keep it moist and to prevent the infection of bacteria and pollutants. Activate skin cells to stimulate metabolism of skin cells and enhance immunity.

INCI Name

Chitosan, Hydrolyzed silk, Algin

Active Compounds

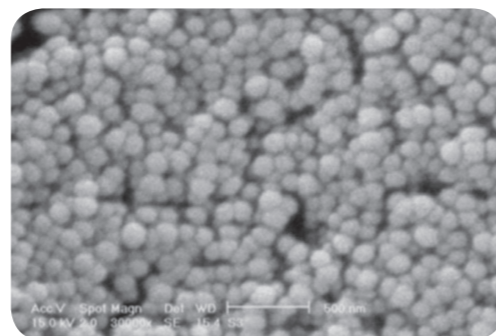
Hydrolyzed silk

Advantages

- Adsorption of heavy metals, pollutants and waste products
- Skin absorbency, touch, water absorbing ability and excellent moisture retention
- Self-antibacterial ability to prevent infection of bacteria and pollutants.
- Promoting metabolism and immunity enhancement of skin cells

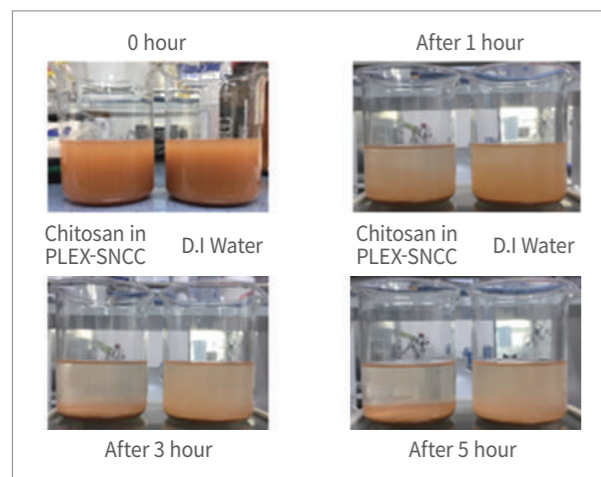
Applications

Skin care : Repairing effect, Detoxification, Moisturizing effect, Skin feel enhancing, Antimicrobial activity, Protective layer formation, Film-forming



Anti-pollution Efficacy Test

The color is lighter in PLEX-SNCC, compared to D.I.WATER. It proves that it removes skin waste and absorb heavy metal and pollutants.



Specifications

Analytical Tests	Specifications
Appearance	Colorless ~ slightly yellow, Opalescent viscous liquid
Odor	Characteristic
pH	5.50 ± 1.5
Specific gravity	1.000 ~ 1.060
Microorganism	≤ 100 cfu/g
Heavy metal	Pb : ≤ 20 ppm As : ≤ 2 ppm

Anti-Pollution

PA Pollution

Story

Fine dust with high density has had a bad influence on skin health, not only respiratory system in our daily life. It has a very small size as much as one-fifth of pores' and causes skin troubles and aging damaging cells and collagen. It is important to block it on the skin surface not to permeate into it.

PA Pollution has phytic acid, strong antioxidant and chelating agent, which extracted from brown rice.

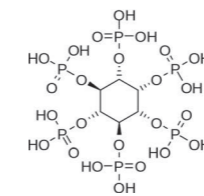
Phytic acid has chemically negative charges and prevent permeation by reflecting fine dust(negative charge) and absorbing heavy metal(positive charge) when applying on skin.

PA pollution has an excellent moisture retention and strengthen skin barrier.

INCI Name

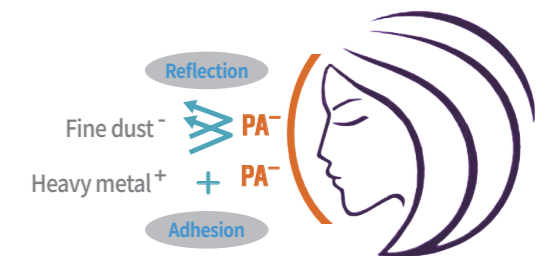
Oryza Sativa (Rice) Extract

Phytic Acid



- Distributed in beans, fruits and grains husk
- Natural plant antioxidant ⇒ PM-Induced Oxidative Stress and Early Aging Suppression
- Chelating agent ⇒ PM inhibits skin penetration

Phytic Acid Mechanism

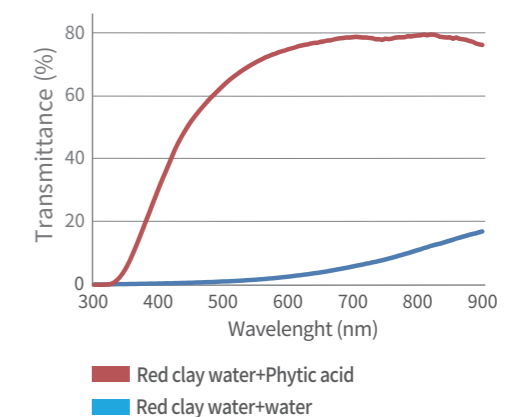
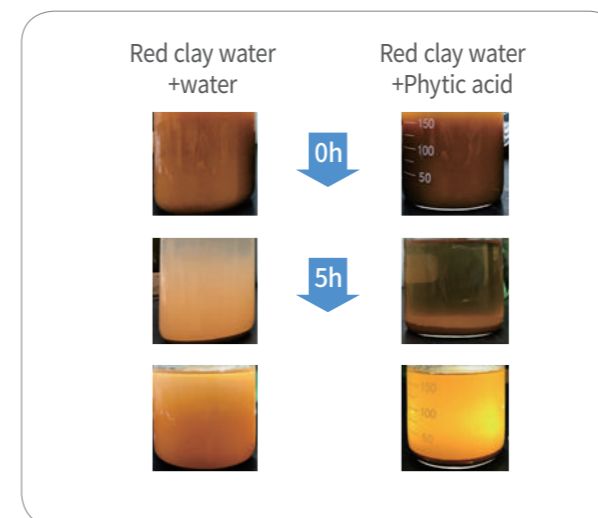


Efficacy Test

Efficiency

Anti-Pollution Effect

-Sedimentation velocity comparison



\*Sample was collected 3cm deep from the surface  
The sample containing phytic acid has 80% light penetration.  
The sample containing water has 18% penetration.





Hair Care

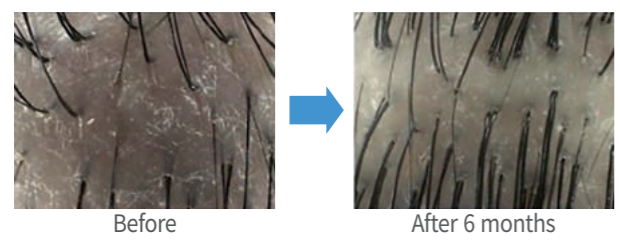
### BIORAN Scalp N

#### Story

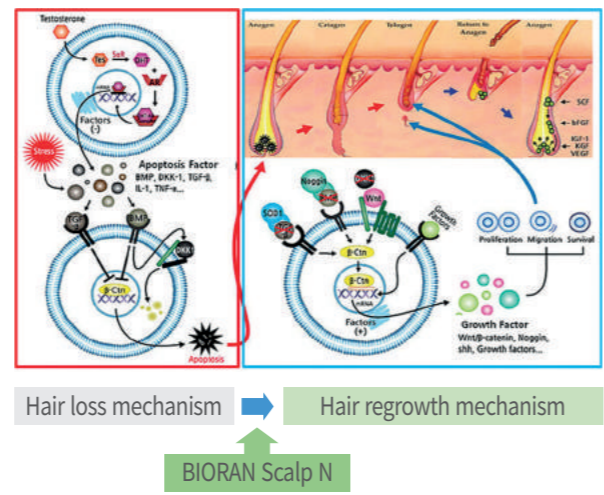
BIORAN Scalp N is complex of 4 seeds extract from Triticum Vulgare (Wheat) Seed Extract, Typha Orientalis Extract, Malt Extract, and Panicum Miliaceum (Millet) Seed Extract. This product helps hair growth and prevents hair loss by supplying early nutriment in seeds. And it induces expression of hair growth factor and suppress hair cell necrosis factor. Therefore, it induces growth from cell, so it has dermal papilla cell proliferation effect. It also help hair growth by strengthen hair root.

INCI Name	FUNCTION
Triticum Vulgare (Wheat) Seed Extract	Nutrition supply to scalp
Typha Orientalis Extract	Anti-hair loss
Malt Extract	Increase of hair thickness
Panicum Miliaceum (Millet) Seed Extract	Dermal papilla cell proliferation effect

#### Clinical Data



- We checked number of hair increased after one used a product including 10% BIORAN Scalp N for 6 months.
- We checked hair became thicker after one used a product including 10% BIORAN Scalp N for 6 months.



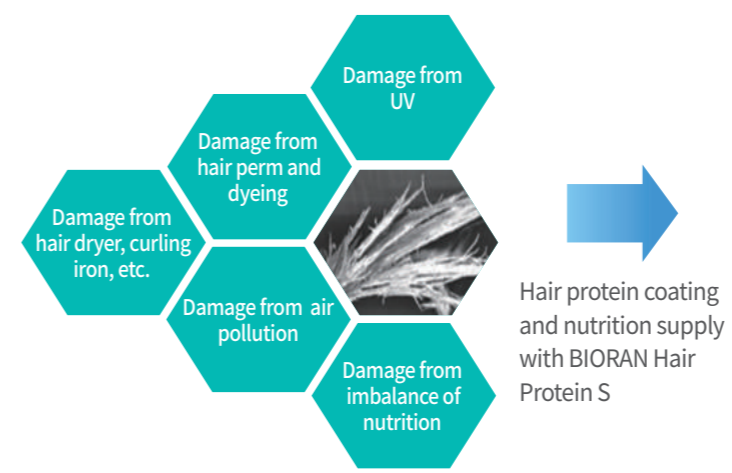
Hair Care

### BIORAN Hair Protein S

#### Story

BIORAN Hair Protein S is complex product with protein components which is necessary to hair. BIORAN Hair Protein S accelerates cell growth and regeneration as bio-peptide that is decomposed from high molecule protein into peptide size. Its molecular weight is around 2,000 and it protect hair and increase water retention capacity by coating hair surface from external irritation. And it makes skin supple and has hair conditioning effect.

INCI Name	FUNCTION
Hydrolyzed Wheat Protein	Increase of conditioning effect by hair surface coating
Hydrolyzed Collagen	Hair protection from damage
Hydrolyzed Keratin	Increase of water retention capacity



### BIORAN Hair G-Factor

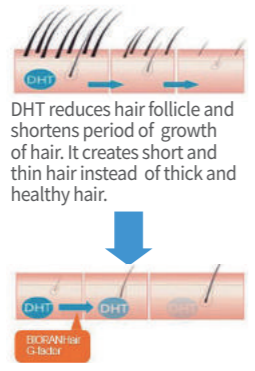
#### Story

BIORAN Hair G-Factor is a complex of Houltuynia cordata, Rosemary, Perilla frutescens, Green tea and Pyrrolidinyl diaminopyrimidine oxide. BIORAN Hair G-Factor recovers weak follicle cells by supplying the nutrition which hair needed for growth and increase the growth of hair and increases the volume of hair in the growth stage by working on the deep structure of the roots. It is good antioxidant effect, restrains breeding of demodex folliculorum, and prevents inflammatory hair loss.



#### INCI Name

- Houltuynia Cordata Extract Seed Extract
- Rosmarinus Officinalis (Rosemary) Leaf Extract
- Perilla Frutescens Leaf Extract
- Camellia Sinensis Leaf Extract
- Pyrrolidinyl Diaminopyrimidine Oxide



#### Hair Growth Effect



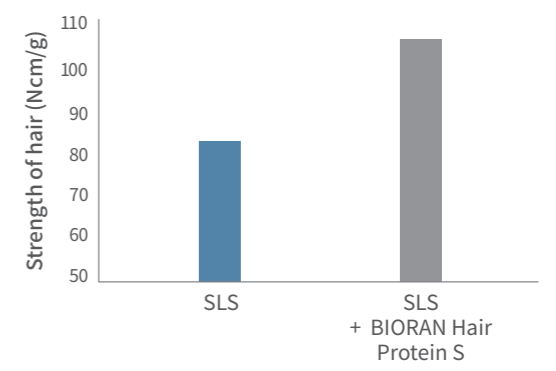
- After using BIORAN Hair G-Factor 5% morning and night for 12 months, there was effect of restraining and restoring hair.
- Change of hair after using BIORAN Hair G-Factor: Hair got thicker and hair loss was restrained.



#### Hair Damage Improvement Effect



#### Hair Strength Improvement Effect



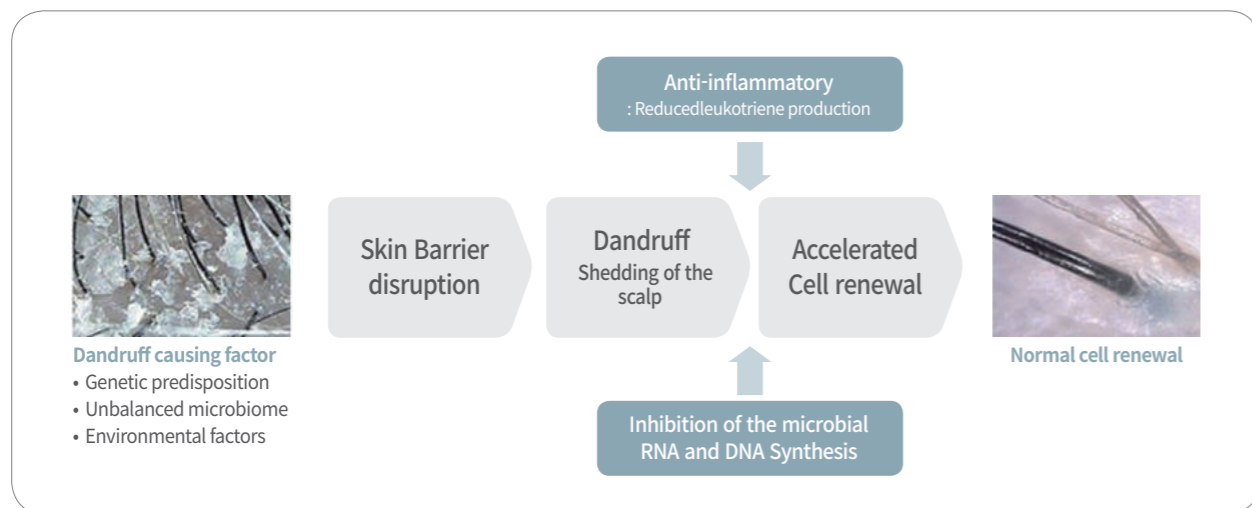


Hair Care

## BIORAN Anti-DAF

### Story

BIORAN Anti-DAF is developed to quickly remove dandruff by multi-ways action. Dandruff appearance is due to abnormal desquamation of epidermis cells at scalp level. Proliferation of microorganisms enhance the phenomenon since it provokes inflammations as very unpleasant itching, irritations or sebum excess. BIORAN Anti-DAF contains abundant saponins which act physically by foaming and taking off dandruff. Saponins act on biological mechanism of dandruff by its circulatory and anti-inflammatory properties, and postpone and limit dandruff reappearance for many days.

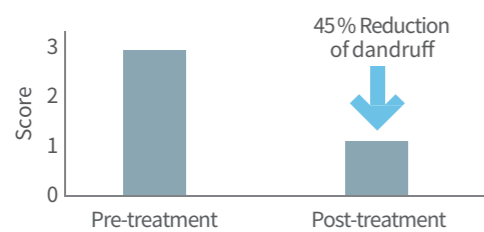


BIORAN Anti-DAF
Anti-Microbial
Anti-Inflammatory
Circulatory

INCI Name	FUNCTION
Sophora Angustifolia Root Extract	Anti-Inflammatory Anti-microbial
Tribulus Terrestris Fruit Extract	Anti-Inflammatory Circulatory
Melaleuca Alternifolia (Tea Tree) Leaf Extract	Anti-microbial

### Reduction of Dandruff

(Improvement for scalp with BIORAN Anti-DAF)



- 10 Volunteers
- Used shampoo containing BIORAN Anti-DAF 2 %
- 28 days, 3 times per week

### Anti-fungal Effect

(Anti-fungal Activity against Malassezia furfur)

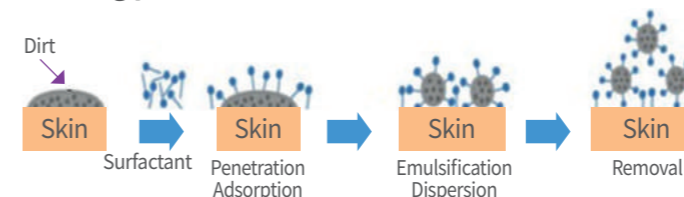
Testing Sample	Clear Zone *
Shampoo containing BIORAN Anti-DAF (2 %)	12 mm

- Fungi inhibition zone
- Cultivation 30 °C, 12 hours



Natural Surfactant

### Cleansing process of Natural surfactant



## BIORAN Natural Olive S

### Story

Natural material combining Olea Europaea (Olive) Fruit Oil, Cocos Nucifera (Coconut) Oil, Yucca Schidigera and Saponaria Officinails. Yucca Schidigera has been used by indian for a long time as shampoo, detergent, cosmetic preparation. Saponaria Officinails has been used as soap from a long time ago and was planted near wash places in middle ages Europe. BIORAN Natural S[H] has high value as natural surfactant with great foam stability and as soft and natural detergent.

### INCI Name

Olea Europaea (Olive) Fruit Oil, Cocos Nucifera (Coconut) Oil, Yucca Schidigera Root Extract, Saponaria Officinalis Extract

### Advantages

- Natural Surfactant / Natural detergent
- Skin emollient / Anti-aging
- Natural foam agent
- Moisturizing effect

### Evaluation on Skin Irritation



- Patch test: Apply BIORAN Natural Olive S and 10% SLS for 24 hours and check degree of skin irritation.
- Degree of skin irritation
  - ✓ In case of 10% SLS, skin irritation appears.
  - ✓ 10% BIORAN Natural Olive S does not lead any irritation even it applies to the skin.

## BIORAN Natural Olive S[H]

### Story

BIORAN Natural Olive S[H] is a natural surfactant mixed with coconut oil, Yukashidegera and soapwort. Natural oil included in BIORAN Natural Olive S[H] forms rich bubbles and enhances the moisture of the skin after cleansing. In addition, Yuka trees and soapwort contain a lot of saponins so called natural surfactants. BIORAN Natural Olive S[H] makes very rich foams and highly stable. Furthermore it is less irritating than conventional surfactant owing to using natural ingredients.

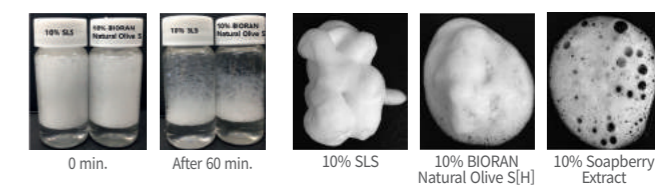
### INCI Name

Potassium Cocoate, Potassium Oliviate, Yucca Schidigera Root Extract, Saponaria Officinalis Extract

### Advantages

- Natural surfactant / Natural detergent
- Excellent foaming and excellent retentivity of foam
- Skin moisturizing / Anti-aging

### Measurement of Foaming Ability and Stability



- Evaluate bubble power by using a bubble container.
- BIORAN Natural Olive S[H] showed high bubble power when compared to soapberry.
- It is found that similar bubble power was formed even when compared to SLS.



## Natural Emulsifier

### M-Nature SE100

#### Story

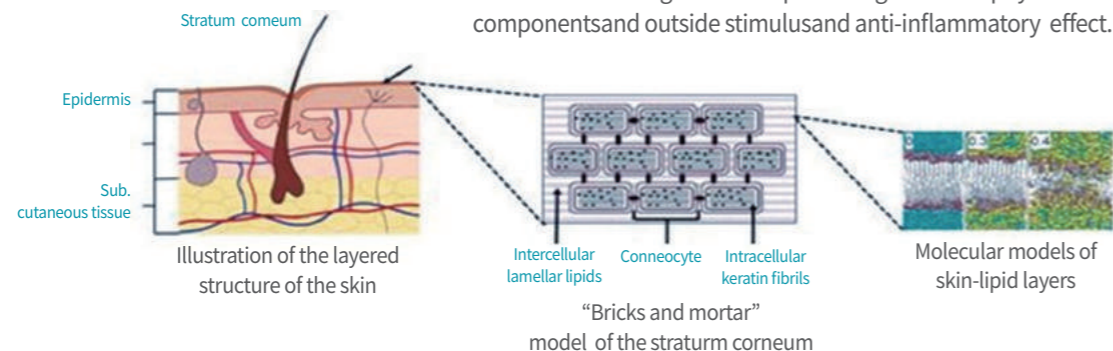
M-Nature SE-100 includes lecithin as a major ingredient that is a generic term to designate any group of yellow-brownish fatty substances occurring in plant tissues. Glycerophospholipids in lecithin include phosphatidylcholine, phosphatidylethanolamine, phosphatidylinositol, phosphatidylserine, phosphatidic acid. It has low solubility in water, but is an excellent emulsifier. In aqueous solution, its phospholipids can form either liposomes, bilayer sheets, micelles, or lamellar structures, depending on hydration and temperature.

#### INCI Name

Lysolecithin, Hydrogenated Lecithin, Cetearyl Alcohol, Bees wax, Tocopheryl Acetate

#### Advantages

- Advanced concept natural emulsifier
- Excellent moisturizing effect, and great feeling of use
- Well absorbed into skin and improves long term moisturization
- Excellent in calming down and protecting skin from physical activating components and outside stimulus and anti-inflammatory effect.



### M-Nature SE200

#### Story

M-Nature SE 200 is natural emulsifier with lecithin. It has excellent absorption, moisturizing and feeling. Also, it protects skin from external stimuli and has excellent soothing effect. M-Nature SE 200 permeates into skin well having the similar structure with skin texture and help to recover damaged skin. Also, it is PEG Free and non irritation.

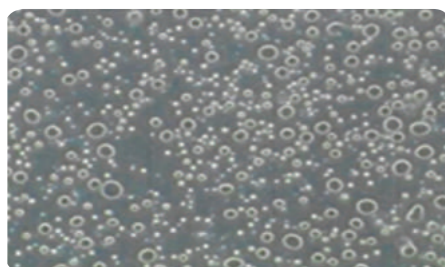
#### INCI Name

Lysolecithin, Polyglyceryl-10 Laurate, Polyglyceryl-2 Stearate, Glycerol Stearate, Caprylic/Capric Triglyceride

#### Advantages

- Contains lecithin, which consists of skin **barrier**
- Easy application for emulsions(cream, lotion and etc)
- Formation of **Liquid Crystal**, which is the structure of skin barrier
- Dermotropic, Moisturizing, **excellent feeling**

#### Emulsion Stability



Picture: emulsifying particles

	1 day	30 days	60 days
45°C stability	OK	OK	OK
pH	6.4	6.3	6.5
Viscosity(cps)	5,600	5,700	5,650
Appearance	good	good	good

## Natural Emulsifier

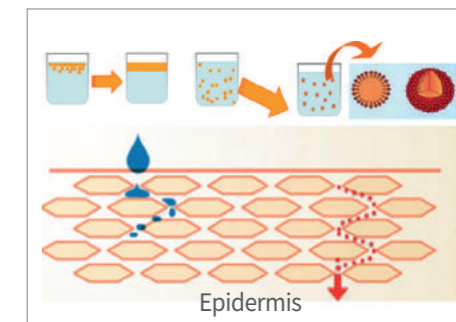
### BIORAN Nano Oil

#### INCI Name

Cetyl Ethylhexanoate, Ceteth-10, Ceteth-20, Glycerol stearate, Xanthan gum

#### Feature

- Excellent of skin penetration and Good feeling
- Translucent blue color which is differentiated from white general emulsion
- Nano-active ingredients provide higher efficacy
- Nano Oil particles make skin lotion, essence, cream easily without using extra emulsifier (Room temperature emulsification possible)
- Water/oil balance maintain optimal skin condition
- Customized oil product is available



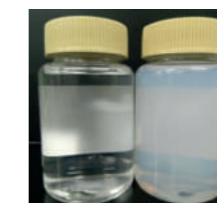
#### General Emulsion (A) vs BIORAN Nano Oil (B)

(Emulsifier, Homomixer used)

(Emulsifier, Homomixer not used)



A General Emulsion  
B BIORAN Nano Oil



A General Toner  
B 5% of Toner BIORAN Nano Oil



A General Essence  
B 5% of Essence BIORAN Nano Oil



A General Serum  
B 5% of Serum BIORAN Nano Oil

#### Guide formulation-Milky skin

Trade Name	INCI Name	%
A	M-Hydro EG	5.00
	Fragrance	0.10
	Ethanol	2.00
B	Water	to 100
	EDTA-2Na	0.04
C	BIORAN Nano Oil	5.00
Total		100.00

#### Procedure

- Mix ingredients of phase A
- Mix ingredients of phase B
- Add B to A and stir with a propeller stirrer
- Add C to III and stir with a propeller stirrer

#### Application

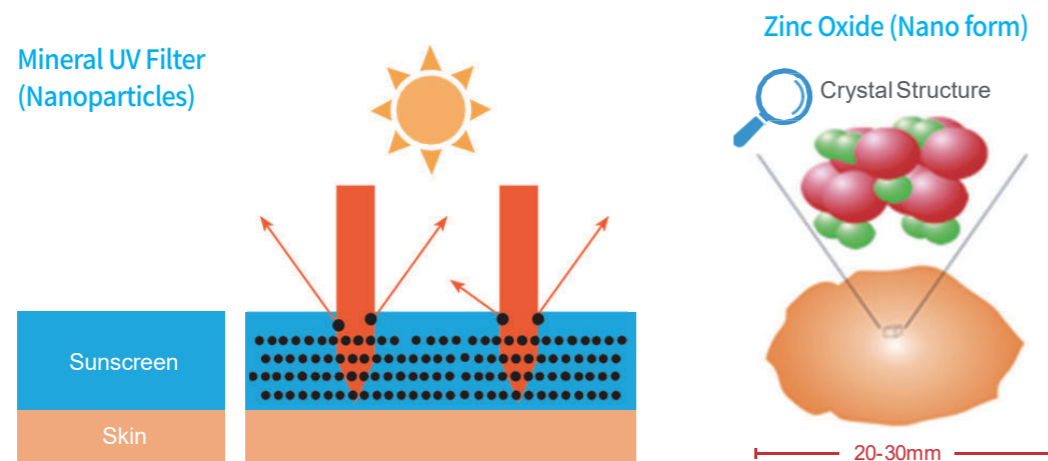
- Personal Care, Body Care, Hair Care
- Add to the water for effect of oil feeling without emulsifier (Simple addition can make a unique oil feeling for skin/ lotion/essence)
- Use 1 ~ 50% of BIORAN Nano Oil for commercialized products
- Use as skin soothing gel
- Easily absorb oil and active ingredients (Maintain water balance)

#### Recommend Dosage

1.0% ~ 50%



TiO<sub>2</sub> & ZnO Dispersions are product that high concentration TiO<sub>2</sub> and ZnO are dispersed respectively, so that they can be easily used in sun care products.



### SunNano Series

Product Name	INCI Name	
SunNano T40	Titanium Dioxide, Cyclomethicone, Isohexadecane, Stearic Acid, PEG-10 Dimethicone, Aluminium Hydroxide	Oil Soluble
SunNano Z50	Micro Particle ZnO, Cyclomethicone, Methicone, PEG-10 Dimethicone	Oil Soluble
SunNano T40AQ	Titanium Dioxide, Potassium Cetyl Phosphate, Stearic Acid, Aluminum Hydroxide	Water Soluble

Item	T40	T40AQ	Z50		
1. Composition (%)	TiO <sub>2</sub> Part (surface treated)	40	50	ZnO Part (surface treated)	50
	* Identification TiO <sub>2</sub>	32~36	28~34	* Identification ZnO	46~50
	* Stearic Acid	5Max	5Max	* Methicone Cyclom	1.5Max
	* Al <sub>2</sub> O <sub>3</sub> Cyclom	5Max	5Max	Ethicone PEG-10di	48~52
	Ethicone	35~40	35~40	Methicone	5~10
	Isohexadecane	13~17			
	PEG-10 dimethicone	5~10	5		
	Water		53~57		
2. Residue on ignition (%)	36~43	32~42		48~54	
3. Pb (ppm)	50Max	50Max		50Max	
4. As (ppm)	10Max	10Max		10Max	

### UV Phyto-Cut

#### Story

The UV Phyto-Cut is a natural sunscreen product made from Rhodiola Rosea, Perilla Frutescens, Hibiscus and Opuntia Coccinellifera extract. Because Rhodiola Rosea live in the alpine regions, they are exposed to stronger UV rays than the flatlands and as a result, they create special bioactive substances such as salidroside, tyrosol and glycoside. Also containing Hibiscus, Opuntia Coccinellifera and Perilla Frutescens, anthocyanin has the ability to absorb UV rays and can prevent weak and new leaves from receiving damage from sunlight. The UV Phyto-Cut is made with natural extracts that absorb various UV rays including UVB and UVA so its hypoallergenic qualities are suitable for sensitive skin.

#### INCI Name

Hibiscus Sabdariffa Flower Extract, Perilla Frutescens Leaf Extract, Rhodiola Rosea Extract, Opuntia Coccinellifera

#### Applications

Sun Cream, BB Cream, Makeup, Skincare Products

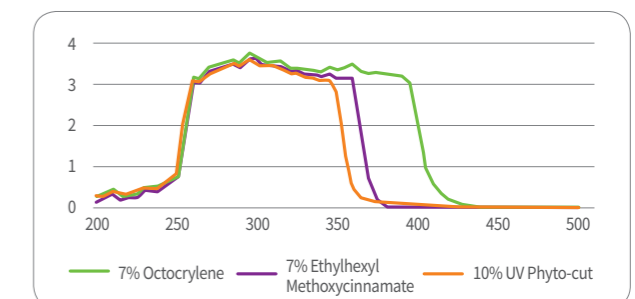
#### Advantages

- Natural sunscreen agent
- SPF booster
- Improves blemishes and freckles formed by UV rays
- Prevents aging through antioxidizing effects

#### Specifications

Analytical Tests	Specifications
Appearance	Light Yellow ~ Yellow transparent liquid
Scent	Characteristic
pH	4.5 ± 1.5
Refractive index	1.3000 ~ 1.4000
Specific gravity	0.950 ~ 1.060
Microorganism	≤ 100 cfu/g
Heavy metal	Pb : ≤ 20 ppm As : ≤ 2 ppm

#### UV Absorbance Measurement



The sample was placed in a 2ml cell using a spectrophotometer and the absorption wavelength was scanned between a range of 200 ~ 500 nm.

#### Information

- Recommended content: 1 ~ 50%
- Storage: Store in dark place at 1 ~ 25°C
- Expiration date: 2 years from manufacture date



**Fresh Cell Series**

**BIORAN FC series**

**Story**

Traditional plant extract has weakness that unstable components are lost or become inferior by destruction of cell wall. BIORAN FC Series selectively extracts unstable components as well as active components. This method makes it single-celled by enabling enzyme action on plant tissue and decomposing ground substance of plants. Active components can be separated from various vegetables through this extraction method, and they have the limelight as cosmetics additive and functional food additive.

**Functions**

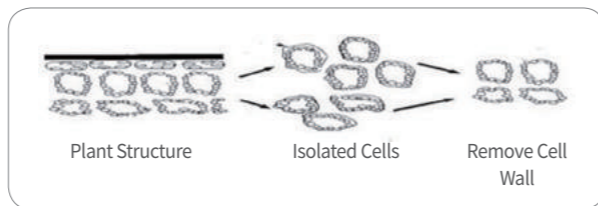
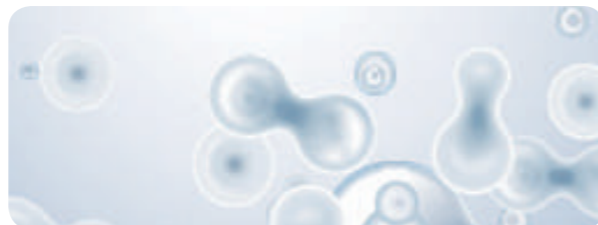
- Vitalization of function of cell
- Anti-oxidant
- Anti-aging
- Treat fine lines

**Advantages**

- Maximize nutrient and active ingredients of plants
- Excellent preservation of active ingredients by cell membrane
- Vivid color by equal particle size

**Applications**

Skin Care Product, Functional food additive



Product Name	INCI Name	Effect	Active Ingredients
BIORAN FC100	Cucumis Sativus(Cucumber) FruitExtract	Moisturizing, soothing, whitening, vitalizing function of cells	Vitamin, mineral, fiber
BIORAN FC200	Daucus Carota Savita(Carrot) Root Extract	Antioxidant, anti-aging, improvement of fine wrinkles, vitalizingcells	β-carotene, vitamin A, mineral, potassium
BIORAN FC300	Camellia Sinensis Leaf Extract	Antioxidant, whitening, moisturizing, soothing	Catechin (EGCG), caffeine, tannin, VitaminA, C
BIORAN FC400	Panax Ginseng Root Extract	Antioxidant, anti-aging, regenerating skin, moisturizing, soothing	Saponin, polyphenol, phytosterol, etc.
BIORAN FC500	Vaccinium Angustifolium (Blueberry) Fruit Extract	Antioxidant, anti-aging, whitening, moisturizing, soothing, lusterskin	Anthocyanin, polyphenol, carotinoid



**Information**

- pH: stable at pH 3 ~ 8
- Use level : 0.5 ~ 5 %
- Shelf life : 24 months from shipping date in originally sealed containers.
- Precaution : n/a

