

Gracest SOY

Natural estrogen

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CONTENTS

1

PRODUCT
INFORMATION

2

EFFICACY
DATA

3

APPLICATION

4

MARKETING
CLAIMS



Part 01

PRODUCT
INFORMATION

Post-30-year-old women's estrogen is under recession



- Thinning of epidermis
- Atrophy of subcutaneous fat
- Less elasticity of skin
- Wrinkles on the skin
- Accumulation of fat
- Reduction of muscle mass
- Tarnishing, brightening and shedding of hairs
- Decreased secretory and excretive functions of sebaceous glands and sweat glands

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Estrogens Effects on skin

✓ Accelerate cell proliferation

Tests prove that estrogens can stimulate cell proliferation and increase corneum thickness.

✓ Accelerate collagen synthesis

Tests prove that estrogens can improve Collagen I's contents and inhibit broken of current collagen.

✓ Resist UV-induced damage

Tests prove that more estrogens in mice body can has lower irritation to UV explosion.



Soy Isoflavones

Natural Source

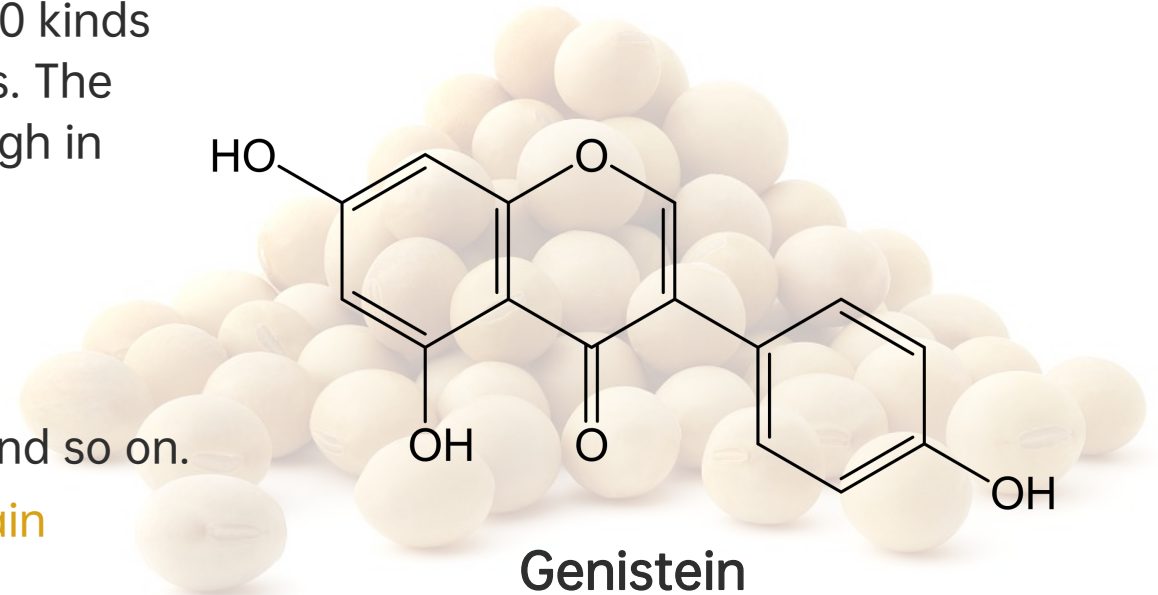
Soy Isoflavones are widely distributed in more than 300 kinds of plants, such as beans, cereals, fruits and vegetables. The contents of soybeans and its products are relatively high in the daily diet.

Main Ingredients

Soy Isoflavones include genistein, daidzein, daidzeol and so on. Among others, **genistein** and **daidzein** play the main physiological and pharmacological roles.

Application Highlights

With a similar structure with estrogen, SOY is also called "**phytoestrogens**". It can not only avoid the side effects of estrogen, but also have estrogen-like effects. In addition, it can effectively inhibit the skin problems of female older than 30 due to the lack of estrogen secretion.





Part 02

EFFICACY DATA

EFFICACY DATA

Anti-aging

- Slows down climacteric skin aging
- Resists photo-aging
- Inhibits glycosylation

brightening

- Inhibits tyrosinase activity
- Anti-oxidation

Soothing

- Cell viability

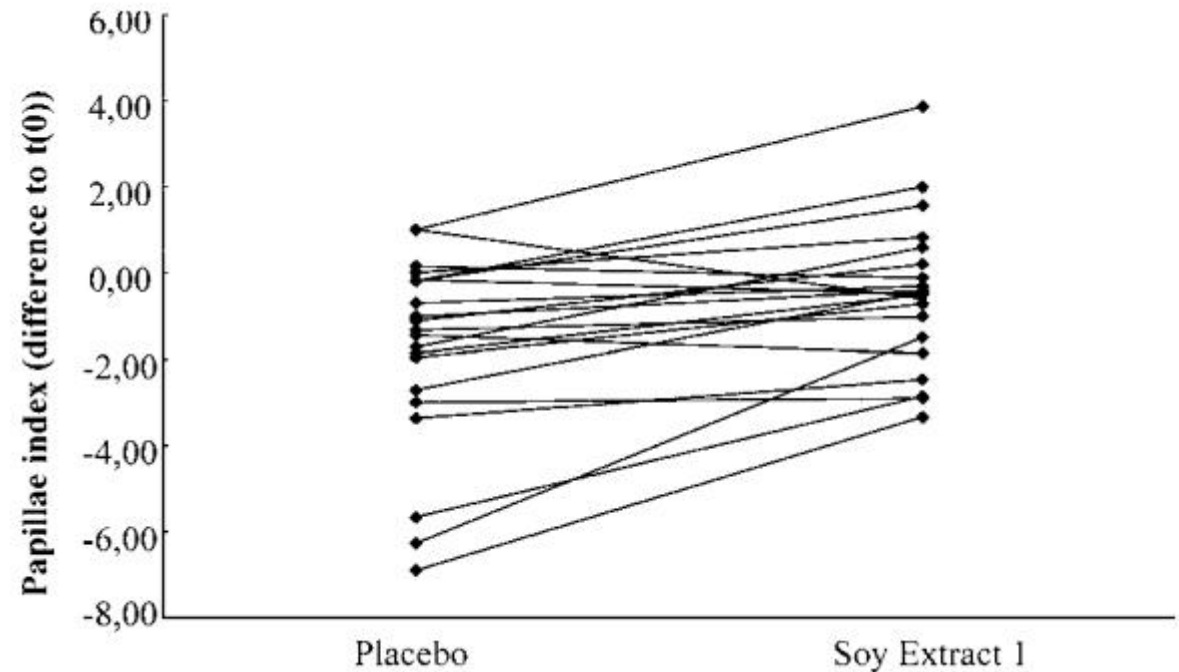
Anti-aging

Climacteric Skin Aging

Test Method: *in vivo*

- n=21, female volunteers aged 55
- Apply on lower arms cream 2% Gracest SOY
- Test papillae index in 0, 2 weeks with laser confocal scanning microscope .

(Note: Higher papillae index means tighter junction between dermis and epidermis)



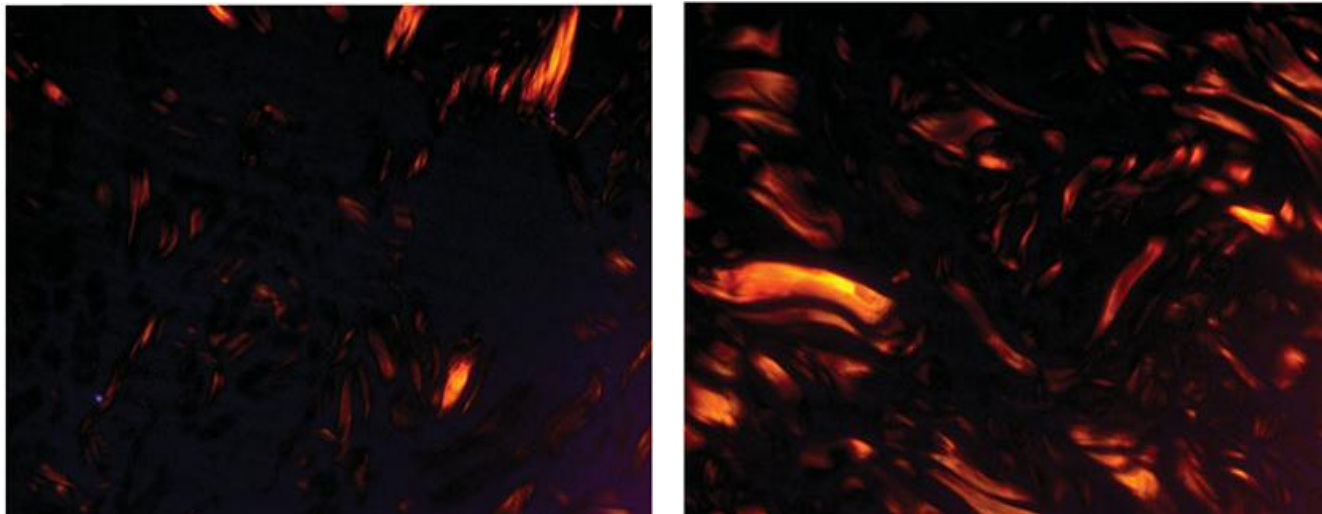
Conclusion: Gracest SOY can improve the papillae index effectively and reduce wrinkle formation.

Anti-aging

Climacteric Skin Aging

Test Method: *in vivo*

n=15, postmenopausal women aged 45 – 55, apply cream with 4% genistein (main active component in Gracest SOY) ; Test collagen content in skin with Imagelab software at 0, 24 weeks; take the skin tissue in front of ears, stain the Collagen I /III and test its content.



	Collagen I μm^2	Collagen III μm^2
0	47.50 \pm 2.22	45.50 \pm 1.26
24w	75.17 \pm 1.02*	63.83 \pm 1.08*

Note: vs before use, * $P < 0.001$

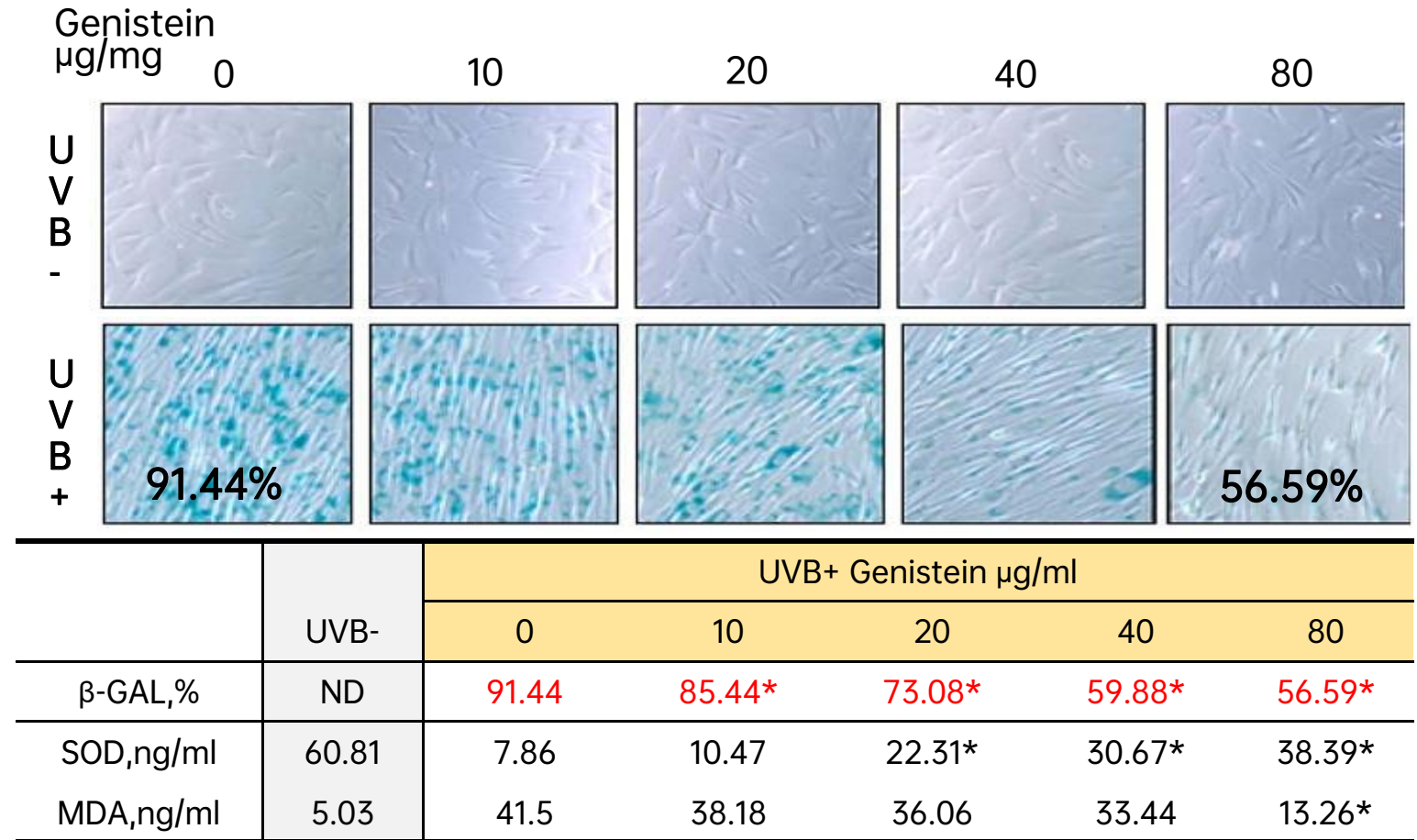
Conclusion: Genistein can increase Collagen I /III content in skin and reduce wrinkle formation.

Anti-aging

Inhibit UV-induced Aging

Test Method: *in vitro*

- Co-culture HDF Fibroblast with Genistein for 24h, leave the culture medium, add PBS and treat with 250 mJ/cm² UVB; after 24h, stain cell with β-GAL (β-galactosidase, an enzyme, its expression will increase in aged cells)
- Take the supernate and test SOD and MDA content



SOD : superoxide dismutase, can scavenge hazardous substances produced in metabolism.
MDA: malonaldehyde, products in lipid peroxidation.

Note: vs. UVB group, **P* < 0.05

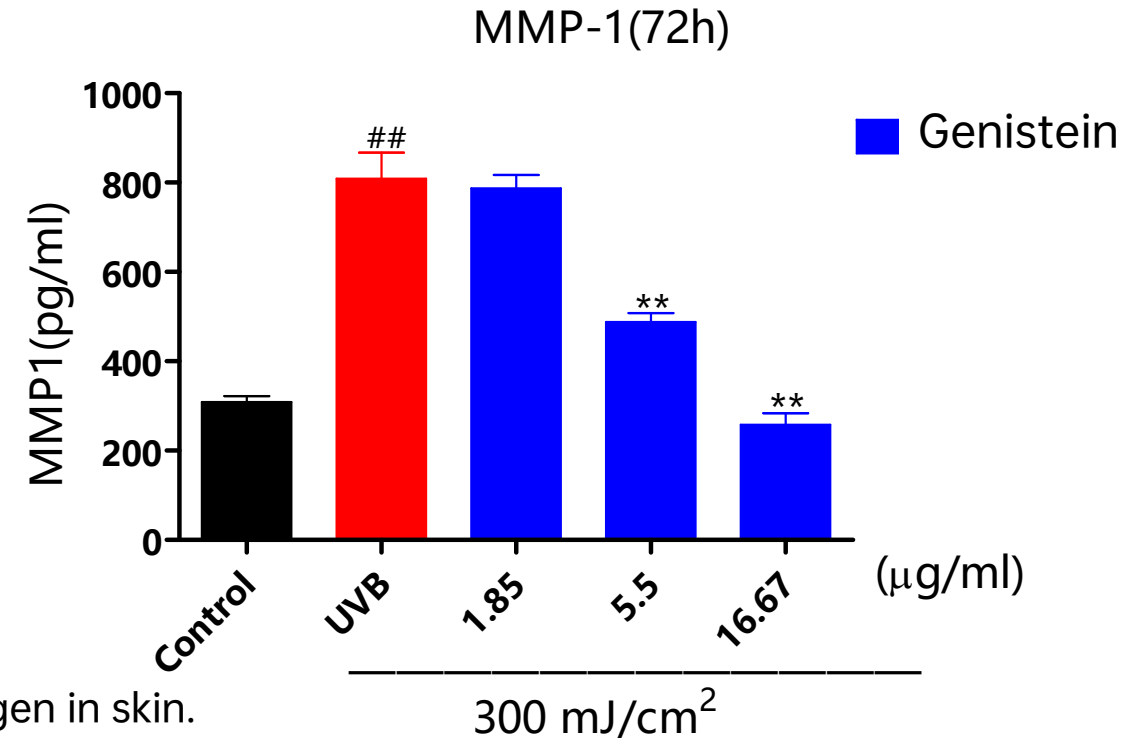
Anti-aging

Inhibits UV-induced Aging

Test Method: *in vitro*

Treat HDF fibroblast with 300 mJ/cm² UVB to cause skin photo-aging; add genistein into cell, after 72 h, collect the supernate and test MMP1 with ELISA (MMP1, to decompose the protein)

MMP1: matrix metalloproteinases; can decompose collagen in skin.



Note: vs Control group, ## $P < 0.01$
vs UVB group, ** $P < 0.01$

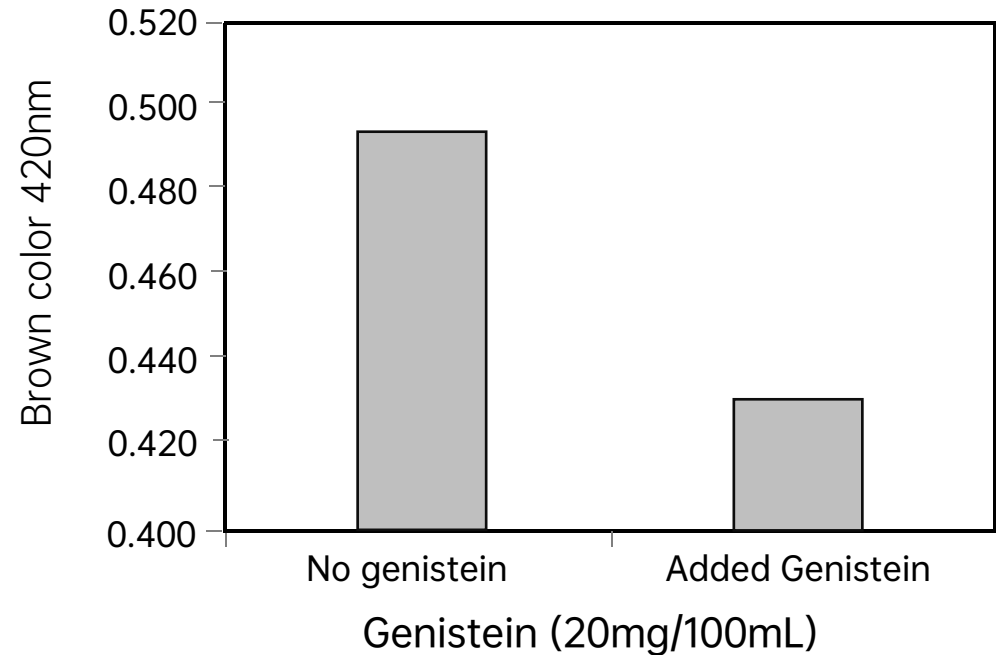
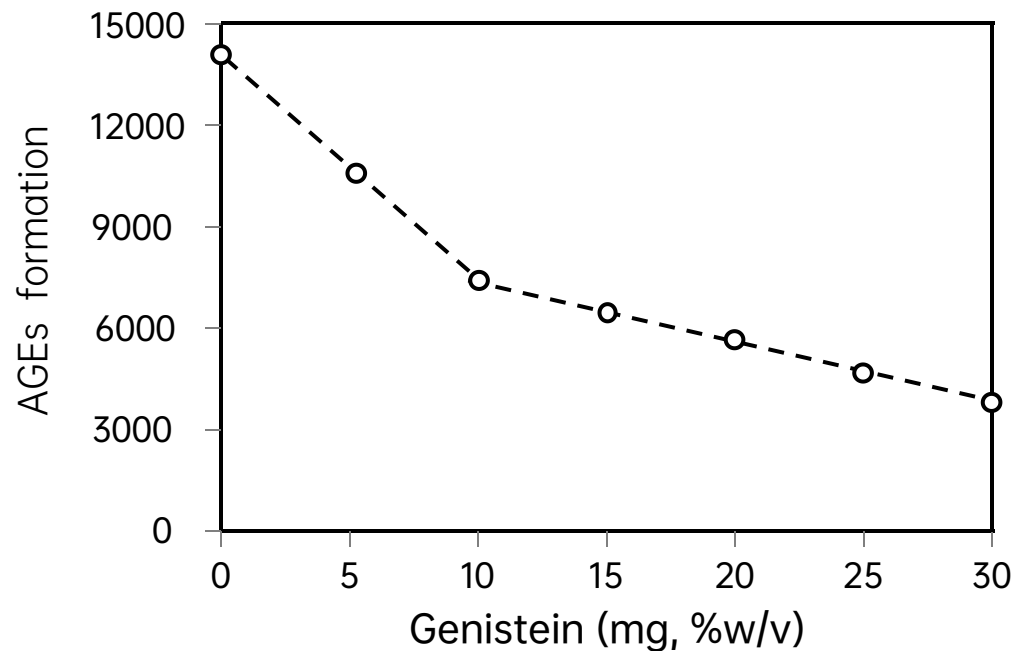
Conclusion: Genistein can resist fibroblast cell damage from UVB and have the effects of anti photo-aging.

Anti-aging

Inhibits formation of AGEs

Test Method: *in vitro*, heat skim milk-lactose solution with genistein, test AGEs formation with immunofluorescence labeling method and observe color change(brown) of solution.

Note: AGEs(Advanced Glycation End Products) are the final products of glycosylation—reactions like condensation, rearrangement, pyrolysis or oxidation between aldehyde group of reducing sugar and free amidogen of protein, amino acid, lipids or nucleic acids under conditions of no enzyme.



Conclusion: Genistein can inhibit formation of AGEs and resist skin aging induced by glycosylation.

Brightening

Tyrosinase Activity Inhibition Test

Test Method: *in vitro*

Theory: Tyrosinase(TYR) is speed-control enzyme in melanin synthesis process; inhibiting tyrosinase is one of the main target during inhibiting melanin synthesis

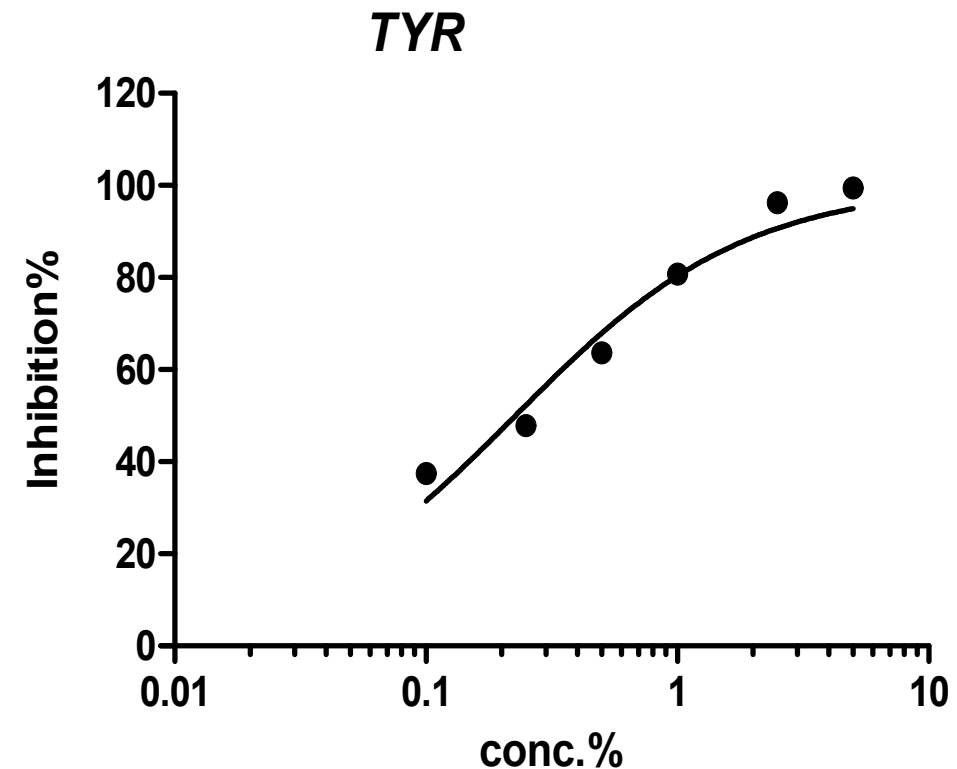
Substrate: L-tyrosine

Enzyme: Mushroom Tyrosinase

Reaction: L-tyrosine + Mushroom

Tyrosinase+ Gracest SOY, 37°C, 30 min

Test: OD₄₉₂



Conclusion: Gracest SOY can **inhibit** tyrosinase activity and has excellent brightening effects.

Brightening

Anti-oxidation

Reactive oxygen species, ROS

- Mainly including hydroxyl radical, superoxide radical and H_2O_2 .
- Active oxygen will activate melanin synthesis process in body and accelerate melanin synthesis.

ROS	Genistein IC50, $\mu\text{g/ml}$	Daidzein IC50, $\mu\text{g/ml}$
O_2^-	16.14 ± 1.25	196.63 ± 15.36
-OH	2.9 ± 0.24	1100 ± 110
H_2O_2	> 2500	> 2500

Conclusion: Gracest SOY can scavenge free radicals effectively and reduce melanin synthesis in skin induced by active oxygen.

Soothing

-cell viability

Test method (*In vitro*)

Cell: HaCaT keratinocytes

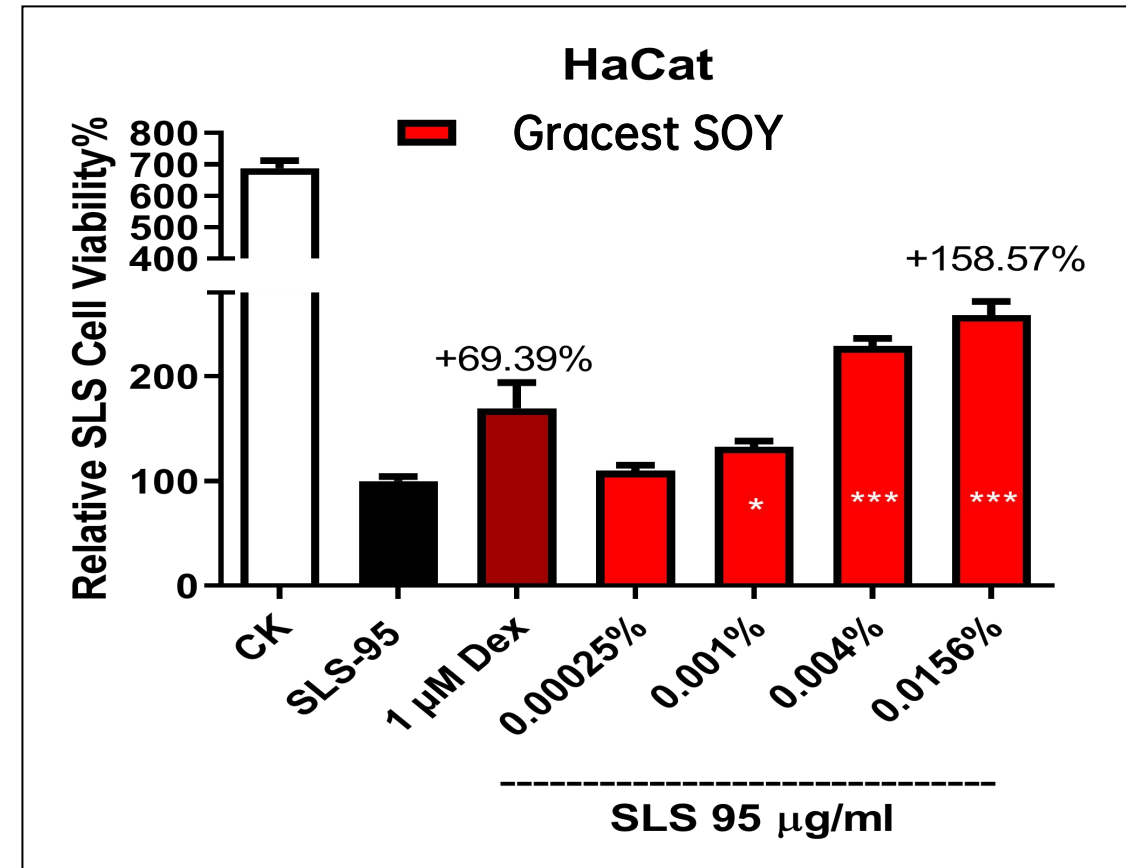
Sample: Gracest SOY

Stimulant: 95 $\mu\text{g/ml}$ SLS

Treatment: pre-treatment with SOY for 4h, then co-treat with SLS for $19 \pm 1\text{h}$

Detect method: MTT

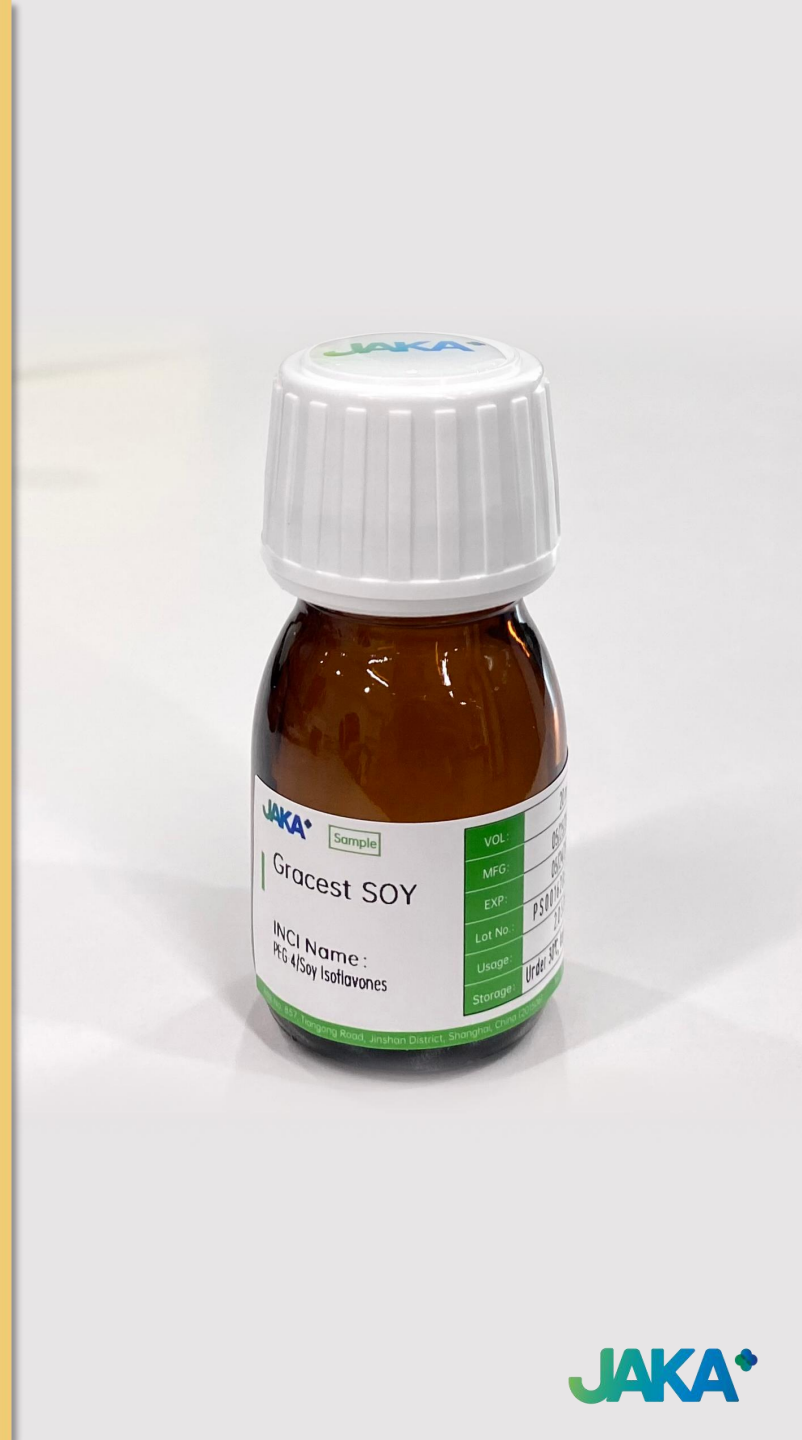
Result assessment: cell viability



Conclusion: Gracest SOY has good resistance to SLS damage.

Specification

Appearance	Light yellow to brownish yellow, transparent liquid
Odor	Slight characteristic odor
Density (20°C)	1.13-1.18g/cm ³
Refractive index (20°C)	1.450-1.500
Content of genistein (HPLC)	≥ 10.0%
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Recommended use level	2.0 - 5.0%
Shelf life	2 years
Solubility	Polyol Soluble





Part 03

APPLICATION



KUORA
Day & Night SOYA Emulsion

5% Soy Isoflavones

5% Soy Isoflavones can improve collagen and elastic protein synthesis, bring supports to skin structure, and increase the thickness of dermis.



MartiDerm DSP Serum Illuminator



Physicians Formula
Dark Spot Corrector & Skin Brightener



Part 04 MARKETING CLAIMS

Marketing Claims



INCI: PEG-4, Soy Isoflavones

Gracest SOY

Natural estrogen

Natural botanical source

- extracted from *Glycine max* and purified

Slow down aging

-Slow down skin aging and reduce fine lines with similar effects to Estrogen's

Brightening

-Inhibit tyrosinase activity to brighten skin tone



NO PESTICIDE
RESIDUE



NO ALLERGENS



NON-GMO

Documents for Gracest SOY

Category	No.	Name of Document	Content
Profile	1	PPT	Detailed Profile
Technical Documents	2	FCRM	Full Composition of Raw Material
	3	MFC	Manufacturing Flowchart
	4	MOA	Method of Analysis (Company Standard)
	5	MSDS	Material Safety Data Sheet
	6	SP	Specification
	7	PA	Statement for pesticide absence
Raw Material Information	8	RMI	<ul style="list-style-type: none"> 1) Basic information (Raw material NMPA submission code, recommended level, efficacy category, manufacturer information, etc.) 2) Composition and process (Natural index/natural origin index, impurities and other residues, etc.) 3) Storage and transportation (Storage conditions, corrosion challenge test, labeling regulatory statements in compliance with GHS/CLP, etc.) 4) Regulatory Information (Whether in compliance with national cosmetic regulations, a listing of chemical substances by countries, CITES Convention, Nagoya Protocol, HALAL, KOSHER, COSMOS, RSPO standard, PCPC registration, etc. or not.) 5) Safety and efficacy information (Safety assessment report, safety test data, ecotoxicological data, etc.)
Usage Guidance	9	PUG (Product Usage Guidance)	Compatibility and Stability Tests

Safety and Efficacy Reports for Gracest SOY

Safety Reports

No.	Project
1	10%-Raw Material Safety Assessment
2	Heavy Metal, Microorganisms, Allergens, Pesticide Residues
3	Skin Patch Test
4	Skin Irritation- Epidermis Model
5	Skin Irritation- Corneal Model
6	Phototoxicity
7	Human Repeated Insult Patch Test

Efficacy Reports

No.	Project
1	Report on fibroblast photo-aging test
2	Report on tyrosinase activity test
3	Report on keratinocyte stimulation damage test

Disclaimer

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