SONGYI DERMA BLANC

FOR NOVEL FAIRNESS SKIN-WHITENING

novel functional ingredients
for multi-purpose formulations

CAMPO RESEARCH

Level 30, 6 Battery Road
Singapore 049909
Tel: (65) - 63833203 / 2 / 63833631 Direct
Fax: (65) – 63834034 / 63833632 / 63824680
e-mail: sales@campo-research.com
website: http//www.campo-research.com

CAMPO ® Multi-Purpose Cosmetic Base Chemicals & Active Ingredients
CAMPO ® Novel Functional Active Cosmetic Ingredients and Raw-Materials

SONGYI DERMA BLANC®

FOR NOVEL FAIRNESS SKIN-WHITENING

Fairness Whitening properties of SONGYI Derma Blanc

Consumer demand for plant derived ingredients is gaining popularity. This keen interest from natural active materials has affected scientists in the cosmetic industry to come up with fairness whitening agents from these natural sources. Toward these developments, cosmetic companies combine a fairness whitening main active and other plant extracts to enhance the efficacy of their products. One remarkable observation that has been proven effective and has a perceivable result is the inclusion of the **SONGYI Derma Blanc** an unique Extract blend of the components of **Tricholoma Matsutake** mushroom (Matsutake mushroom) and **Glycyrrhiza uralensis** (syn. Glycyrrhiza glabra of Ural Mts. Licorice plant) extracts.

The main active component of Matsutake mushroom is **polysaccharides (polysaccharides' linked enzymes)** and licorice extract is **glabridin**. Both substances in their own unique individual characteristics and in combination inhibits tyrosinase activity, DOPA chrome tautomerase and spontaneous conversion, while also preventing melanin formation.

Tyrosinase is an enzyme relating to the formation of melanin. In Melanocytes, tyrosinase is synthesized in the lysosome on the surface of the rough-surfaced endoplasmic reticulum. Then, it is modified by saccharide and activated in Golgi-associated endoplasmic reticulum of lysososme (GERL). Activated tyrosinase is secreted as a coated vesicle from GERL and is fused with premelanosome. Promelanosome is considered to be formed in Golgi body or smooth-surfaced endoplasmic reticulum. Melanin formation progresses in this way and melanosome is filled with polymerized melanin polymer.

It has been said that tyrosinase is the only enzyme which is related to the melanin formation. Synthesis after Dopaquinone is considered to be spontaneously occurred. However, recent research indicates that there are three kind of enzyme including tyrosinase, which is related to the melanin formation.

It is reported that in melanin formation pathway by way of 5,6-dihydroxyindole-2-carboxylic acid (DHICA), DOPA-chrome to DHICA. Likewise the existence of DHICA oxidase or TRP1 is reported. It catalyzes the conversion of DHICA into Indole-5, 6-quinone-2-carboxylic acid. In addition, these two enzymes have the function to stabilize tyrosinase. In addition to the inhibition of tyrosinase activity, the inhibition of the activity of these two enzymes would be another important key issue for the development of whitening products.

Ural Licorice

Matsutake mushroom

Technical Specifications:

• CAMPO SONGYI DERMA BLANC™

Skin -Whitening Fairness Activity Without Irritation for Fairness Soap Bars, Liquid Soaps, Fairness Shower Gel, Fairness Facial Foam, Fairness Creams, Fairness Serum & Fairness Lotions)

Other Name: LICORICE GLABRIDIN MATSUTAKE POLYSACCHARIDAL ENZYMES EXTRACT

INCI Name (Proposed):

Mushroom extract (Tricholoma matsutake Singer) (AND) Polysaccharides (AND) Alcohol (AND)

Water (AND) Glycyrrhiza Glabra Licorice Extract (AND) Glycerin (AND) Saccharide Hydrolysate

- **Product #:** **20030210 LFAI**
- **Species:** **Tricholoma matsutake Singer And Glycyrrhiza Glabra L.**
- **Parts Used:** **Mycelium of whole fresh mushrooms and Roots of Licorice plant**

- **Appearance:** **Viscous slow flowing Buff yellowish liquid**
- **Odor:** **Characteristic with faint -alcoholic**
- **Specific Gravity (20 deg.C):** **1.200 - 1.350**
- **Refractive Index (20 deg.C):** **1.200 - 1.500**
- **pH (20ºC) :** **2.5-4.5**

- **Solvent(s):** **Carbon dioxide gas deionised at critical temp.,**
- **Carrier menstrual (vehicle):** Ethanol 0.1%,Water 2.0%, Glycerine 2%,

- **Preservative:** **None**
- **Synthetic Anti-oxidants:** **None**

- **Water Solubility:** **20%**

- **Total Germs,(WHO standard):** **< 100 cfu/ml Non-pathogenic**
- **Total Yeast / Molds:** **< 100 cfu/ml**

- **Heavy Metals(total) Pb, As, Hg:** **< 0.005 PPM**

Comments:

Dissolve about >1.5% ->5 % for skin-whitening soaps

(perceivable effective dosage recommended: > 1.5% w/w)

Up to >10% w/w to the formulation for Skin-Whitening Cremes and Lotions

Shake Well or Agitate thoroughly the containers before Use or Addition to the Soap Noodles at the mixer stage or to Cream Formulations

Storage

Darkening of this material may be experienced, if stored more than 12 months at > 45 Degrees Centigrade and exposure to atmosphere, without lids being airtight. Long term storage (>12 months) is recommended in airtight containers in a cool and dark place.

Shake Well or Agitate thoroughly the containers before Use or Addition to the Soap Noodles at the mixer stage or to Cream Formulations

Major Fairness Whitening Cosmetics in Japan and Asia with Licorice Extracts and Matsutake Mushroom (SONGYI) Extracts.

Shiseido **Kose**	**Whitess Essence EX** **Whitening Serum FX**	**Licorice,** **Licorice,Alpha-ceramidein(as AHA)**
BKP Indonesia **Godrej India** **Mendora** **London** **Pakistan**	**SHINZU'I Fairness** **FAIRGLOW Fairness** **Tibet Snow Fairness**	**Matsutake mushroom Extr** **Matsutake mushroom Extr** **Matsutake mushroom Extr.**
Christian Dior	**Clair de Dior Expert**	**Licorice,** **Enzymes Coupled Vitamin C** **(Vitamin C Derivative)**
Chanel	**Blanc Pur-Whitening Serum**	**Vitamin C (Enzymes Coupled Vit. C)** **Licorice**

Inhibitory effect of SONGYI Derma Blanc on:

A.Tyrosinase

Conc. Ext. (mg/ml)	Melanin Formation*	% Inhibition
0	26 ± 3	
10^{-3}	-3 ± 1	110 ± 4
10^{-4}	10 ± 1	59 ± 4
10^{-5}	24 ± 2	5 ± 8
10^{-6}	26 ± 2	0 ± 8
10^{-7}	25 ± 2	3 ± 8
10^{-9}	30 ± 2	-15 ± 8

*** pmol/24h/1.5x10^6 cells**

SONGYI Derma Blanc was added to B16F10 derived Tyrosinase, and melanin formation was measured using ^{14}C-tyrosine.

B. Culture Cell

Conc. Ext. (mg/ml)	Melanin Formation*	% Inhibition
0	398 ± 20	
10^{-2}	165 ± 10	60 ± 3
10^{-3}	237 ± 18	41 ± 5
10^{-4}	319 ± 24	20 ± 6
10^{-5}	364 ± 30	8 ± 8
10^{-6}	389 ± 17	2 ± 4
10^{-7}	394 ± 12	1 ± 3
10^{-8}	410 ± 24	-3 ± 6

*** pmol/24h/1.5x10^6 cells**

HM-3-KO human melanoma cells were cultured with DMEM which contains Campo Songyi Derma Blanc (Songyi and Licorice Extracts Blend). After 3 days the cells were harvested, solubilized and the melanogenic activities were measured using ^{14}C-tyrosine.

C. DOPAchrome Tautomerase

Conc. Ext. (mg/ml)	DOPAchrome Tautomerase Activity*	% Inhibition
0	323 ± 24	
10^{-2}	95 ± 10	71 ± 3
10^{-3}	82 ± 8	75 ± 2
10^{-10}	82 ± 6	75 ± 2

*** nmol/24h/1.5x10^6 cells**

HM-3-KO human melanoma cells were cultured with or without Songyi Derma Blanc (Songyi & Licorice Extracts Blend) for 3 days. Then the cells were harvested, solubilized and DOPAchrome tautomerase activity was measured by the concentration of DHICA using HPLC.

D. DHI Production

Conc. Ext. (mg/ml)	Spontaneous DHI Production*	% Inhibition
0	14.0 ± 2.6	
10^{-2}	4.2 ± 0.8	70 ± 6
10^{-3}	3.3 ± 0.7	76 ± 5
10^{-10}	3.1 ± 0.8	78 ± 6

- **μg/h/1.5x10^6 cells**

HM-3-KO human melanoma cells were cultured with or without Songyi Derma Blanc (Songyi & Licorice Extracts Blend) for 3 days. Then the cells were harvested, solubilized and spontaneous DHI production was measured by the concentration of DHI using HPLC.

SONGYI Derma Blanc was also safety tested using a variety of in vivo and vitro protocols . The CAMVA was used to determine irritancy. This in vitro assay determines the iritancy of a test compound based on its ability to induce hemorrhage on the chorioallantoic membrane of a chicken egg. Two other in vitro tests were run on **Songyi Derma Blanc** - EpiDerm and Epi-Ocular. EpiDerm is a three - dimensional system composed of human epithelial cells to which the test compound is applied. After incubation , the number of viable cells is measured using the MTT conversion assay.

An ET_{50} is determined , which gives an idea of potential skin toxicity . EpiOcular is a three- dimensional system composed of stratified human keratinocytes to which the test material is applied. After incubation , the number of viable cells is measured using the MTTconversion assay. An ET_{50} is determined, which gives idea of possible ocular irritation. Results are shown in Figure I.

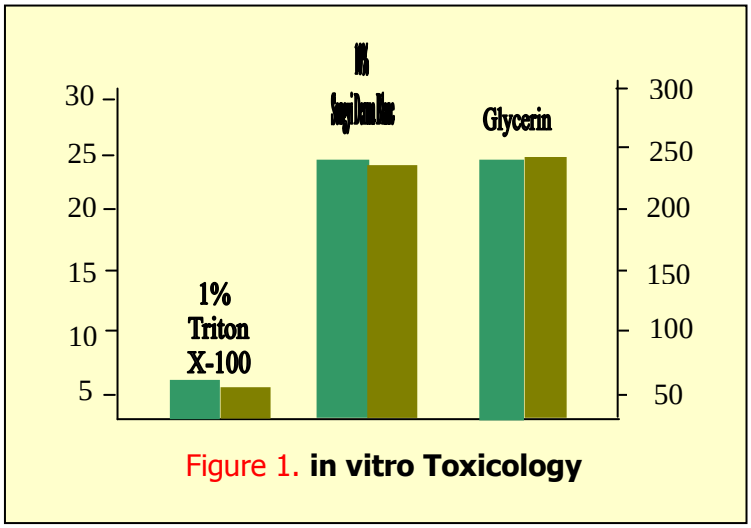

Figure 1. **in vitro Toxicology**

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