

MAHAKANNI STLC CONCENTRATE

Campo Mahakanni STLC Concentrate

from *Eclipta alba*
an alternative to cancer-causing nitrosomes
forming Dihydroxyacetone (DHA)



For New Novel Herbal-based
Self-Tanning functional formulations

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

Presented by Dr Balasubramaniam M, Ph.D.

<http://www.campo-research.com>

Netscape - [Cosmetic Functional Active Ingredients (That Are Cruelty-Free)]



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MAHAKANNI STLC CONCENTRATE

Introduction



There are, broadly speaking, three classes of functional extracts from Mahakanni herb ***Eclipta prostrata* (*Eclipta alba* Hassk)**. These are **Maka, Mahakanni, Mahakanni STLC**.



MAHAKANNI STLC CONCENTRATE

Introduction

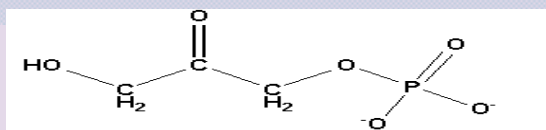
This paper, concentrates on the functionality of Mahakanni STLC and its UV absorption components. These components are complex in nature and the action of Mahakanni relies not solely on the direct action of these components, but on their ability to react safely with components of the skin to produce an excellent and efficient self-tanning agent. It is the result of the reaction of the components of Mahakanni with the skin, that results in its excellent UV protection properties. In this

respect, this interactive extract of Mahakanni is similar in function to dihydroxyacetone DHA, other natural examples of similar functionality being henna and *Sepia officinalis* (squid) and octopus.

The important components of Mahakanni STLC are DHAP, **(2-hydroxy-1,4-DHAP)** and phyto-eumelanin, a plant based novel black brown natural pigment, of Mahakanni leaf which is identical to the natural skin pigment.

MAHAKANNI STLC CONCENTRATE

Introduction



Dihydroxyacetone Phosphate (DHAP)

The self-tanning properties and functionality of Mahakanni STLC are a result of the reaction of DHAP with the skin. This is further enhanced by the natural phyto-eumelanin in a similar totally natural reaction with keratin protein which is present in the surface of the skin. This reaction of phyto-eumelanin binding to the keratin protein is identical to the final stages of melanogenesis, the forming of darker skin after initial exposure to UV-A radiation, and absorption of UV-A and UV-B. The combination of DHAP

and phyto-eumelanin form the respective scleroDHAP and scleroeumelanin compounds which are both red-brown in colour and have total UV absorption properties. These products are a result similar to the well documented Mallard et Browning reaction sequence. This is similar to the reaction with DHA, but novelty lies in the red-brown natural colour that is expressly given, rather than the typical yellow colour exhibited following the reaction of DHA with keratin protein.



MAHAKANNI STLC CONCENTRATE

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The other unique point is the presence of natural ascorbic acid in Mahakanni STLC which further reacts with DHAP to produce hydroDHAP, which is also a recognised UV absorber. Also in the extract is the presence of complex lipids, such as phosphoglyceride derivatives, the glycerophosphates, and phosphosphingolipids and the new, novel sphingomyelin, which almost certainly will spawn the next generation of therapeutic claims in the cosmoceutical industry within the next two years. Sphingomyelin reacts with the

horny layer of the skin, forming a biological barrier film, which functions to tighten and firm loose skin and reduce trans epidermal moisture loss. Thus, when Mahakanni STLC is applied, a subtle tightening of the skin is felt, moisture loss is minimised through the action of this film which serves to reduce the convection of UV rays, i.e., the natural evaporation of skin moisture caused by high UV transmittance and absorption.

MAHAKANNI STLC CONCENTRATE

Introduction

Mahakanni self-tanning liposome concentrate is a combination of DHAP and phyto-eumelanin extraction and molecule isolation from *Eclipta prostraa* and brings about natural tanning of the skin, giving a particularly even and natural tan when compared to dihydroxyacetone (DHA).

The active principle(s) of the tanning action is DHAP, and phyto-eumelanin and their derivatives in addition to carotene, in a liposomal form which is water soluble.

The DHAP bonds firmly to the horny layer of the skin, showing a distinctive bronzing, with the ultimate effect in sun protection. This product exhibits a much quicker and longer lasting tanning action than DHA.

Mahakanni Self Tanning Liposome Concentrate Extract also contains stabilised Catalase Enzymes that acts on H₂O₂ at cellular level as a free-radical scavenger and reduce the hydrogen peroxide into free oxygen and water. The catalase activity is useful as a cosmetic approach for vitiligo patches.



MAHAKANNI STLC CONCENTRATE

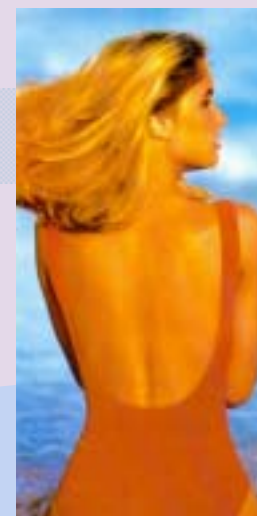
Specification

Product Name	MAHAKANNI self-tanning liposome concentrate extract
INCI TRADE NAME	CAMPO MAHAKANNI (INCI ID# 50922)
INCI NAME	ECLIPTA PROSTRATA EXTRACT (INCI Monograph ID# 9712)
Product #	95130-3003 MA
Specific gravity	1.100 - 1.320
pH	3.0 - 5.9
Colour	Brown liquid
Solubility	Soluble in water, fatty acids and multi-vitamin ceramide complex
Pesticides	None
Application level	VITILIGO COSMETIC CONCEALERS 10% & SELF TANNERS 5%

MAHAKANNI STLC CONCENTRATE

Composition

Components (partial list)	Percentage %
DHAP (2-hydroxy-1, 4-DHAP)	40.00
Phyto-eumelanin	50.00
ascorbic acid	1.50
lecithins	3.00
phosphosphingolipids	2.50
sphingomyelin	1.50
beta-carotene	0.50
thiamine	trace
malic acid	trace
niacin	trace
Catalyse Enzymes	1000 unit

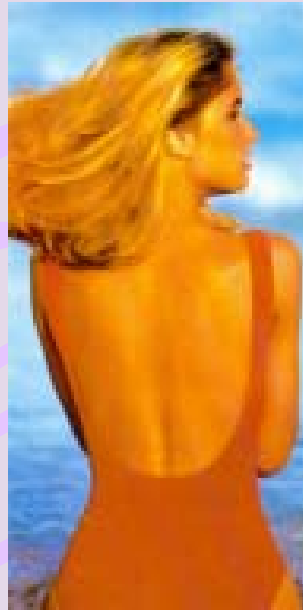


MAHAKANNI STLC CONCENTRATE

STLC Dosage & Application

Mahakanni self-tanning liposome concentrate is an extract from *Eclipta alba*, that brings about a natural tanning of the skin, giving a particularly even and natural tan when compared to synthetic dihydroxyacetone (DHA). The tan develops quicker and is longer lasting.

Generally as an organic grown plant product, Mahakanni STLC extract is safer to use than DHA.





MAHAKANNI STLC CONCENTRATE

STLC Dosage & Application

Mahakanni STLC may be added to the aqueous phase of emulsions, preferentially oil in water type. Liquid preparations in an aqueous form with 30% alcohol are normal.

An even application to the skin is important. Before applying the finished self-tanning preparation containing Mahakanni STLC, the skin should not be treated with creams or make-up preparations.

In some cases, especially for vitiligo affected parts, the skin area is pre-applied with a Phyto Catalase Extract containing lotion, before being applied with a Mahakanni Self-Tanner

The use of a face-mask before application of the self-tanning preparation improves the effect. The tanning effect is apparent approximately 3 hours after the application but to intensify the effect a further treatment should be repeated 2 or 3 times with an interval of 1 hour between each application. After application of the self-tanning formulation, one should not wash for approximately one hour.

However, if the preparation has been split on hands or fingers, it should be washed off immediately with soap and water.

MAHAKANNI STLC CONCENTRATE

STLC Dosage & Application

Generally a cheap variety of natural label claim cosmetics can be formulated using the following combinations:

Dihydroxyacetone	3% (dissolved in water at 38°C)
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Mahakanni STLC	4%
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Or

Dihydroxyacetone	4%
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Mahakanni STLC	2%
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Both DHA and Mahakanni STLC are dissolved in water. The temperature should not exceed 38°C for any length of time.

MAHAKANNI STLC CONCENTRATE

Caution

As DHA causes formation of nitrosomes when applied on the skin. This is a suggestion of the general trend, however, we do not recommend the use of dihydroxyacetone with any of our Campo ingredients.



Storage

The Mahakanni STLC should be stored at 4°C in a refrigerator, in dark containers that are well closed and airtight for long term storage.

If required, the Mahakanni STLC can be stored or transferred into dark or dark amber glass bottles protected from direct sunlight.

After prolonged storage of Mahakanni STLC, we recommend shaking or stirring the contents.

MAHAKANNI STLC CONCENTRATE

MAHAKANNI SELFTAN & SUNTAN ACCELATOR (MSSA)

This is a special preparation from *Eclipta prostrata* L which stimulates the formation of the melanin in the skin.

Melanin is a dark pigment which is synthesized in the melanocytes located at the lower layer of the dermis. Its task is to act as a natural filter of the sun ultraviolet radiation.

The formation of melanin is the consequence of the melanocyte reaction against an UV radiation. The quantity of melanin produced, depends on the duration, intensity and frequency of the exposition under ultraviolet light.

The biochemical process of the melanin formation is quite complex, but it might be resumed in a comprehensible way as follows: the tyrosine amino acid, present in the melanocytes, is oxidised by means of certain redox activators (tyrosinases, riboflavin) and also by the presence of light, oxygen and heat to 3,4-dihydroxyphenylalanine (DOPA). It is also oxydised by dopaquinone. By means of a later oxydation and polymerization we arrive to the formation of melanin which has two different varieties: eumelanin, with a dark brown-blackish colour.

MAHAKANNI STLC CONCENTRATE

MAHAKANNI SELFTAN & SUNTAN ACCELATOR (MSSA)

The first variety existing in especially in black and brown people, and the second variety one in blonde or red-haired people.

From the physiologic point of view, the formation of melanin is produced as follows: first at all, tyrosinase is produced at the melanocytes ribosomes; then it passes through the endoplasmic reticulum to the Golgi apparatus, where it is accumulated as small vesicles. Then starts the melanosomes formation, very rich in tyrosine. The tyrosine accumulated in the Golgi apparatus is then transferred to the melanosomes. As explained in the previous paragraph, here is where take place the consecutive biooxidations that lead to the melanin formation. By means of vermiform elongations originated in the melanocytes, the melanin synthesized at the melanosomes passes to the keratocytes, colouring them.

The pigment formed by the melanocytes of the lower layer, transferred later to the keratocytes of the epiderm deepest layers, migrate to the most external layers, resulting a more or less tanned colour, which at the same time is acting as a protection against the UV solar radiation.

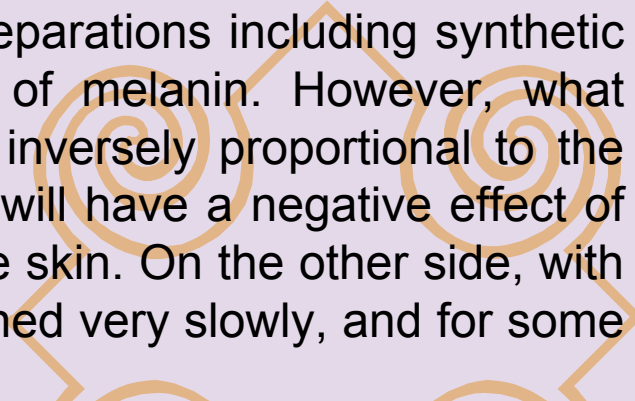


MAHAKANNI STLC CONCENTRATE

MAHAKANNI SELFTAN & SUNTAN ACCELATOR (MSSA)

The skin of white people are very fewly pigmented. When it is exposed to the direct action of sun light, UV radiation promotes a great stimulation of melanocytes, with the corresponding melanin increment, wich needs some days to arrive to the most superficial layers of the skin. For this reason the pigmentation appears after some days, however in the meantime, there is not enough solar protection, of which causes some troubles such as redness, irritation and skin burning in the most serious cases.

To avoid this problem, it is necessary to use preparations including synthetic sun filters, which will replace the initial lack of melanin. However, what happens in this case, is that the protection is inversely proportional to the tanning speed, and so, as it appears quickly, it will have a negative effect of redness, irritation, and burning sensation over the skin. On the other side, with a high sun protection factor, the skin will be tanned very slowly, and for some types of skin the tanning will never happen.



MAHAKANNI STLC CONCENTRATE

MAHAKANNI SELFTAN & SUNTAN ACCELATOR (MSSA)

By adding **MAHAKANNI SELFTAN &SUNTAN ACCELERATOR** preparation which accelerates the formation of melanin in the suntan products, we will obtain a solar protection factor suitable for each case, without increasing the time to obtain the desired tanning. This is the basic principle of the **Mahakanni Self & Sun tanning Accelerator**, which will satisfy the essential requirements of solar baths: to obtain the maximum coloration in the minimum time, by causing the minimum damage possible to the skin.

COMPOSITION

MAHAKANNI SELFTAN & SUNTAN ACCELERATOR is presented as a solution which includes the following active components:

Eclipta prostrata extract complex of Tyrosine, Riboflavin (Vitamin B) and other plant amino acids & phytochemicals in a water and glycerine solution.

MAHAKANNI STLC CONCENTRATE

MAHAKANNI SELF TAN & SUNTAN ACCELATOR (MSSA)

The formation of melanin in the skin is verified on basis of the tyrosine amino acid. However, such a biochemical transformation requires the co-operation of light, heat, oxygen and one enzyme. Such enzyme is the tyrosinase, one oxidase that makes possible the first step of the tyrosine oxidation, following automatically the next steps until the coloured pigment formation.

According to a basic biochemical law, in an enzymatic process the more quantity of disposable substratum is, the better are the results obtained. So, it suggests the possibility of obtaining a more intensive and quick tanning, by supplying tyrosine to the skin. However, the most difficult is the addition of this amino acid to the preparations, because it is not soluble enough for the basis normally used in cosmetics.

The most suitable solution to this problem, is to add the tyrosine in form of a proteic hydrolysate very rich in this amino acid, with such a molecular weight that the tyrosine be in form of a di- or tri-peptide, in which its solubility is maximum.

MAHAKANNI STLC CONCENTRATE

MAHAKANNI SELFTAN & SUNTAN ACCELATOR (MSSA)

It has been experimentally proved that the single addition of tyrosine for a preparation does not give perceptible results, since it is necessary the presence of a catalyst of tyrosine oxidation to DOPA. Such oxidation takes place in the skin by means of tyrosinases, but due to its instability, it is not possible to include it in suntan accelerator preparations. Instead of tyrosinase, we use riboflavin, which also catalyses the tyrosine oxidation process.

COSMETIC APPLICATION

It intensifies the formation of skin melanin. For this reasons, by adding it to the suntan preparation, it helps the obtention of a quicker, intense and lasting tanning. It has been proved that with the same time and in two identical basis, the tanning intensity becomes between 20% and 50% higher, depending on the kind of skin and incident light.



MAHAKANNI STLC CONCENTRATE

MAHAKANNI SELF TAN & SUNTAN ACCELATOR (MSSA)

MAHAKANNI SELF TAN & SUNTAN ACCELERATOR

Product Code: 2001-03-02-01MSSA

Existing INCI: Eclipta Prostrata

Proposed INCI: Eclipta Prostrata (and) Glycerin (and) Water (Aqua)

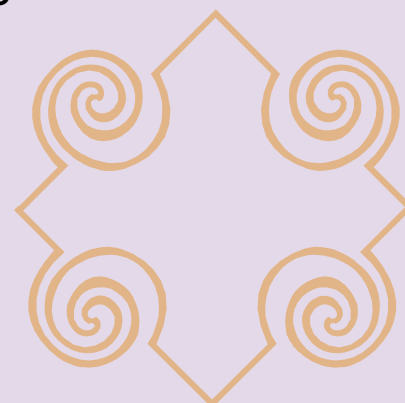
An Eclipta prostrata extract complex preparation rich in tyrosine (4.5 - 5.3%), riboflavin (0.25 - 0.35%) and other amino acids and phyto-chemicals that stimulates the biochemical reactions of melanin formation on the skin.

MAHAKANNI STLC CONCENTRATE

MAHAKANNI SELFTAN & SUNTAN ACCELATOR (MSSA)

ANALYTICAL DATA

Appearance:	clear orange liquid
Odour	characteristic
Specific gravity (20°C)	1.100 - 1.250
PH (20 Deg C) 100% Solution	5.5 - 6.5
Total aerobian bacteria	max. 100 cfu/g
Yeast and moulds	max. 10 cfu/g
Pathogenic germs	exempt in 1 g



MAHAKANNI STLC CONCENTRATE

MAHAKANNI SELF TAN & SUNTAN ACCELATOR (MSSA)

SOLUBILITY (USP)

WATER	ETHANOL 20 %	ETHANOL 50 %	PROPYLENE GLYCOL	NA LAURETH SULFATE 28	ISOPROPYL MYRISTATE	SUNFLOWER SEED OIL	MINERAL OIL
VS	VS	VS	VS	VS	I	I	I

~~VS~~ Very soluble

~~SS~~ Sparingly
soluble

~~VSS~~ Very slightly
soluble

~~FS~~ Freely
soluble

~~SLS~~ Slightly
soluble

~~I~~ Insoluble

~~S~~ Soluble

HANDLING AND PROCESSING GUIDELINES

According to available information, no toxic effect of cutaneous irritation or sensitisation has been reported. It is stable at a pH between 5.0 - 6.5.



MAHAKANNI STLC CONCENTRATE

MAHAKANNI SELFTAN & SUNTAN ACCELATOR (MSSA)

STORAGE

To be stored in hermetically closed vessels at a temperature between 10° and 25°C, and protected from direct light and humidity.

Shelf life in sealed vessel is 12 months.

MAHAKANNI STLC CONCENTRATE

MAHAKANNI SELFTAN & SUNTAN ACCELATOR (MSSA)

Formulary Guidelines

Product: TANNING EMULSION

Product Formulary Guideline Ref. no: 2001 -4817-

PHASE	COMPONENT	% w/v	Remarks
1	Glyceryl stearate	6,00	
	Ceteareth-12	3,50	
	Muirity Muirity OIL	3,00	CAMPO
	Decyl oleate	5,00	
	Isopropyl myristate	5,00	
	Mineral oil	2,00	
2	Deionized water	c.s.p.	100,00
	Propylene glycol		3,00
	MAHAKANNI SELFTAN &SUNTAN ACCELERATOR (MSSA)		3,50 CAMPO
3	Fragrance		0,25
	Preservative		c.s.



M A H A K A N N I S T L C C O N C E N T R A T E

MAHAKANNI SELFTAN & SUNTAN ACCELATOR (MSSA)

Available on request

**Quick Drying Sunless Bronzing Lotion
within 10 minutes.**

**After 10 minutes; White clothes can be
worn while you tan without staining
under your white clothes**

Email: gikdrymaha@campo-research.com

MAHAKANNI STLC CONCENTRATE

Sunless Self Tan Milk

CTFA INCI LISTING OF INGREDIENTS in Sunless Self Tanning Milk-Bulk Ready Formulation

	<u>weight by %</u>	
Glyceryl stearate	2.50	
PEG - 100 Stearate	2.50	
Sorbitan Stearate	3.00	
Polysorbate 60	3.00	
200 Silicone fluid 100cs	0.50	
Cetyl alcohol	1.00	
Heavy liquid paraffin	3.00	
Cetyl ester	2.00	
Botanical oil/Campo Thulasi Ashvini root oil	2.00	Natural Novel UV A & B Filter
Botanical Extract/Campo Puruf Grande extract	0.50	Natural Botanical UV B Filter
Water deionised	61.00	
Sclerotium Gum / Camigel 1	0.50	
Butylene glycol	3.00	
Botanical Extract / Campo Mahakanni STLC	15.50	

