

D’Cosmix™ Range of Cosmeceutical Blends

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abstract

Taking skin care formulations to the next level, Sabinsa launches a unique concept of blends, D’Cosmix, with innovative, patented ingredients and a focused approach in dealing with a variety of skin conditions. These blends are petroleum free with no added preservatives. Under the brand umbrella of D’Cosmix, we will be discussing our latest offerings, MelaLite DC_x and DerMoist DC_x. MelaLite DC_x is a skin brightening and lightening blend from the D’Cosmix range that has been evaluated for its *in vitro* tyrosinase inhibitory property. A human study using MelaLite DC_x 1 % cream has reported a significant improvement in skin complexion and reduction of dark spots. DerMoist DC_x is a moisturising blend composed of effective nutrients to keep the skin moisturised, nourished and healthy. A human study using DerMoist DC_x 3 % cream showed significant improvement in skin hydration.

Introduction

Radiant, glowing and healthy skin is a reflection of good health and wellbeing. Protecting the skin against pollution, stress, smoke, UVA and UVB radiation, and repairing the damage caused by these factors, has become the necessity of the hour. Today, cosmeceuticals need to have a holistic approach to deal with these skin concerns and provide protection.

Plant extracts that support the health, texture and integrity of skin and hair, are now commonly used in cosmetic formulations. Coming from natural sources, they have a long history of traditional use. However, there is a major gap in their scientific validation and characterisation with respect to their chemical composition, safety and efficacy. Further, the use of botanicals in traditional cultures is crude, relying on dried and powdered forms, thus making their incorporation into contemporary cosmetic formulations a unique challenge. Unpleasantly coloured or gritty plant extracts need to be blended seamlessly into more pleasing “milky” or clear creams, lotions and gels. In other words, there is a need for a judicious blend of art (wherein unpleasant odours and colours are removed) and science (wherein the efficacy of each ingredient is still maintained). Sabinsa’s herbal powders are enriched in comparison with standardised extracts, validating their chemical profiles and biological activity. These enriched and validated dermaceuticals from Sabinsa offer a better sensory appeal for formulations.

D’Cosmix™ is the outcome of over 2 decades of the Sami-Sabinsa team’s unrivalled competence in developing innovative novel dermaceuticals from natural sources. The D’Cosmix range is prepared by using our in-house active ingredients and other potential actives targeting specific applications.

For over 25 years, the Sami-Sabinsa group has been a pioneer in the innovation of several standardised dermaceuticals from natural resources. Continuous efforts and novel thinking from the group have given birth to D’Cosmix, a range of cosmetic blends with key benefits catering specifically to the cosmetic industry.

D’Cosmix™ Advantages

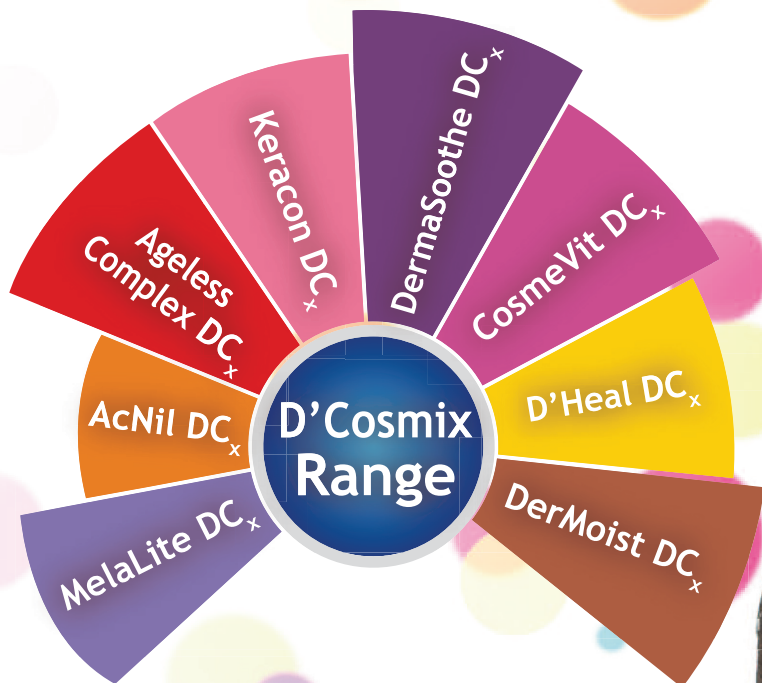
- Provide innovative solutions to create unique formulations
- Unravel multiple facets with the “Powerhouse” of synergistic naturals
- Bring balance to your search for novelty in formulations
- Offer solutions to the boundless challenges that your formulations face
- Help your products to stand out in the fiercely competitive market
- Positively influence your ease of formulations
- Uplift the spirit of formulations... Naturally!

MelaLite DC_x

A significant claim made for cosmetic products is the skin tone lightening functionality. Skin lightening, skin whitening, skin fairness and skin brightening trends are not new in the

D'Cosmix™

Incisive Prescriptions to Cosmetic Formulators



D'Cosmix™ is a range of unique proprietary blends of innovative cosmetic actives that are ready to use by formulators. This range involves several of Sabinsa's patented natural extracts and many other scientifically validated actives targeting specific applications.

Ingredient offerings for cosmetics and personal care target multiple functional attributes including healthy aging and skin tone, hydration and nutrition all while meeting emerging formulation needs, including providing well documented natural alternatives to synthetic antioxidants and preservatives.

Unravel multiple facets with these synergistic blends.



market. People may wish to lighten their skin because of sunspots or freckles. Many individuals complain of dull, rough, or ashy skin, and they are looking for products to whiten their skin. Skin fairness products form a major segment of cosmetic products worldwide and carry with them the promise of flawless skin, free from age spots, blemishes and scars.

MelaLite DC_x is a natural composite of melanin suppressors that helps to lighten the skin tone and eliminate pigmentation problems. Sabinsa's proprietary ingredients such as SabiWhite®, pTeroWhite® and Licorice extract 40% form ideal components in this blend.

SabiWhite®: Standardised for 95% tetrahydrocurcumin (the metabolite of curcumin), it is clinically proven to be a safe and effective alternative to hydroquinone, at much lower doses.

pTeroWhite®: An analogue of resveratrol, it is obtained from dried heart wood of *Pterocarpus marsupium* (standardised to contain minimum 90% pterostilbene), it is known for its melanogenesis inhibition potential.

Licorice Extract 40%: Standardised to contain 40% glabridin from *Glycyrrhiza glabra*, this molecule has properties pertaining to skin lightening.

Ingredient Rationale

SabiWhite®

SabiWhite® (Fig. 1 & 2) is a single entity, colour-free compound derived from the yellow curcuminoids, (the biologically active principles extracted from the rhizomes of *Curcuma longa*). It contains a minimum of 96% tetrahydrocurcumin. SabiWhite® offers effective topical antioxidant protection. Its antioxidant action is of a comprehensive "bioprotectant" na-

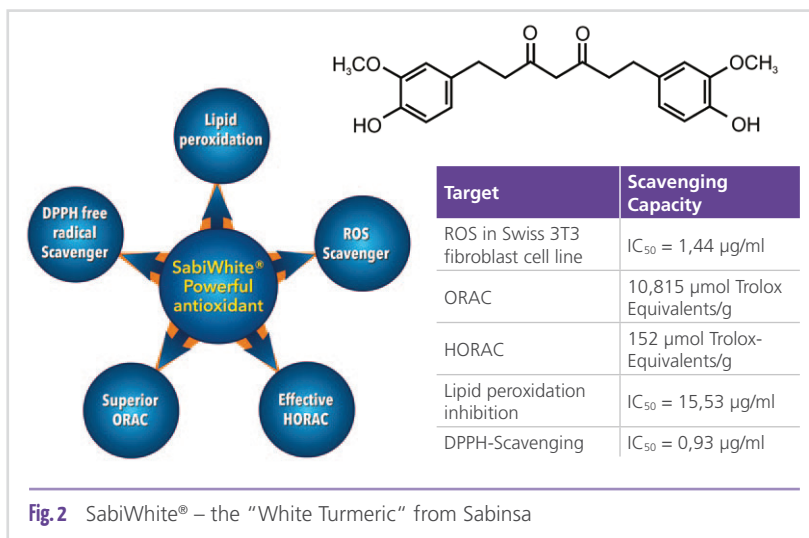


Fig. 2 SabiWhite® – the "White Turmeric" from Sabinsa

ture, efficiently preventing the formation of free radicals, while quenching pre-formed ones as well. This dual action protects the skin cells from damage by UV radiation, and the resultant inflammation and injury, with far-reaching beneficial effects on overall health and well-being. The free radical scavenging activity of SabiWhite® was found to be superior to that of kojic acid, arbutin and vitamin C.

The antioxidant activity of SabiWhite® could also slow down melanogenesis, thereby lightening the skin tone. SabiWhite® was also shown to inhibit the action of tyrosinase, which is involved in melanin formation.

Clinical Study: In a randomised, double-blind, placebo-controlled study in 50 human subjects, 0.25% tetrahydrocurcumin cream was an effective and safe alternative to 4% hydroquinone cream in a depigmenting formulation. SabiWhite® is safe for topical use, with no irritant or sensitisation side effects [1]. (Fig. 3)

pTeroWhite®

pTeroWhite®, is a natural skin-lightening ingredient containing a minimum of 90% pterostilbene from a purely natural source. It is obtained from dried heartwood of *Pterocarpus*



Fig. 1 Registered trademark SabiWhite®

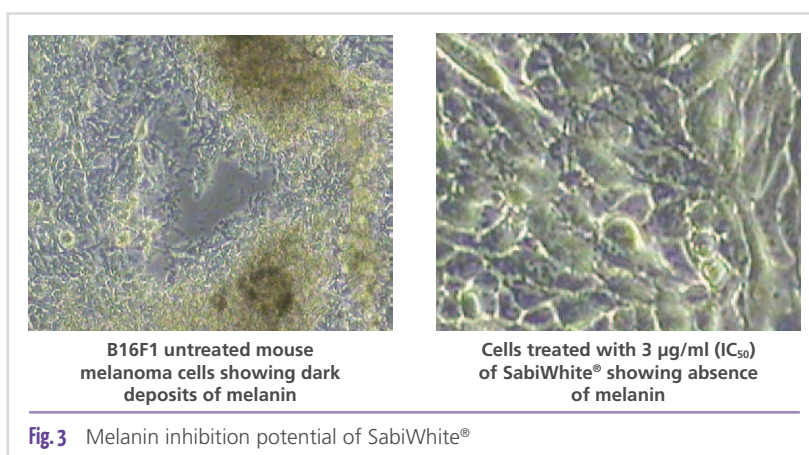
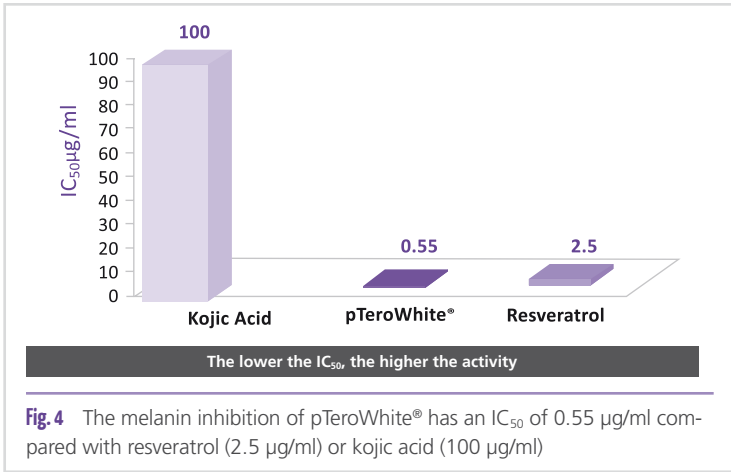


Fig. 3 Melanin inhibition potential of SabiWhite®



its antioxidant potential, which was found to be comparable with that of resveratrol. pTeroWhite® also showed a high ORAC value of 12,500 µmol Trolox Equivalents/g. (Fig. 7)

Licorice Extract 40 %

Licorice extract 40 % is obtained from the dried roots of *Glycyrrhiza glabra* (Fig. 8) and it is standardised to contain a minimum of 40 % glabridin, a potential molecule known for its skin-lightening properties.

Glabridin may inhibit melanogenesis by one of two mechanisms:

marsupium. With significant antioxidant and anti-inflammatory effects, pTeroWhite® shows improved anti-ageing effects. pTeroWhite® is safe and non-irritant at the reported levels of use.

- Inhibition of the production of active oxygen species
- Inhibition of tyrosinase [2]

pTeroWhite®: Skin Lightening Potential

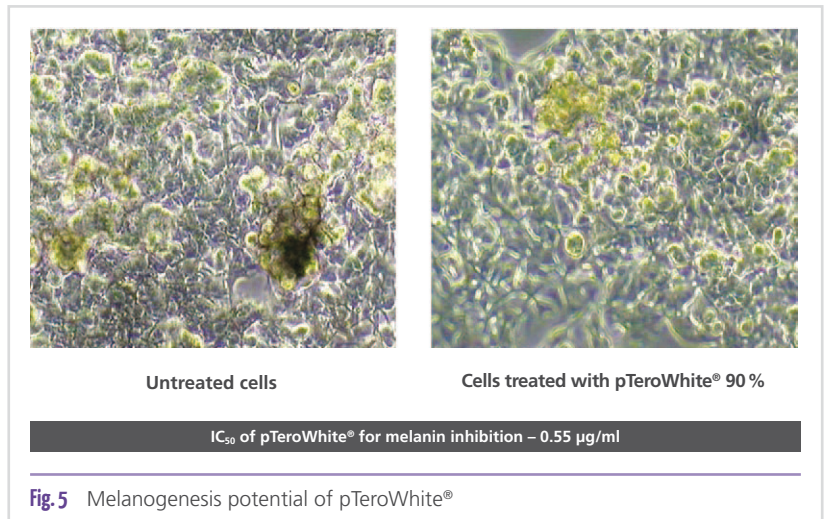
In cell based assay pTeroWhite® showed a good melanogenesis potential when compared with kojic acid and resveratrol. This is an important feature in skin lightening. (Fig. 4 & 5)

pTeroWhite®: UVB Protection Potential

pTeroWhite® also shows mild to moderate UV protection potential comparable with that of resveratrol. (Fig. 6)

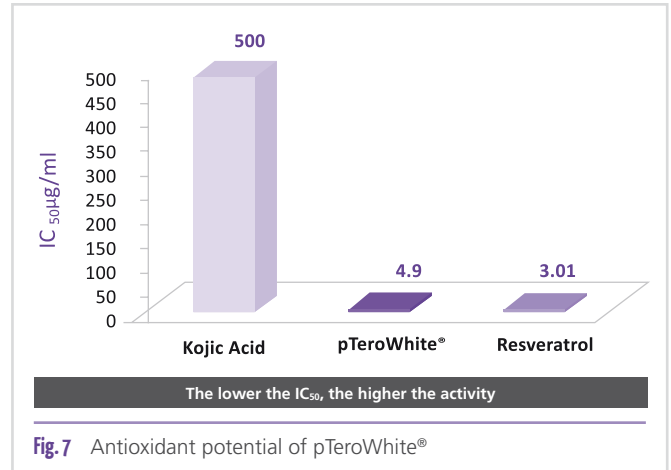
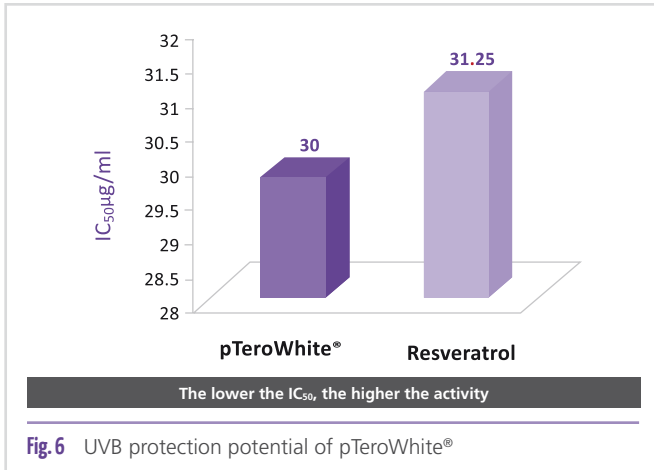
pTeroWhite®: Antioxidant Potential

pTeroWhite® was found to inhibit DPPH radical at very low concentrations. This reflects



dermosoft® GMCY
wetting agent and
booster for organic
acids, because
teamwork brings
the best results!

drstraetmans
intelligence behind beauty



Licorice Extract 40 % – <i>in vitro</i> Studies	
Tyrosinase inhibition (IC ₅₀ µg/ml)	0.25
Melanin inhibition (IC ₅₀ µg/ml)	3
DPPH inhibition (IC ₅₀ µg/ml)	49
ORAC (µmol Trolox Equivalents/g)	3256

MelaLite DC_x: Preclinical and Clinical Studies

In vitro Studies

MelaLite DC_x has been found to be a potent tyrosinase and melanogenesis inhibitor. *In vitro* studies report an IC₅₀ value of 3.62 µg/ml and 10.19 µg/ml for the anti-tyrosinase and melanogenesis inhibition of MelaLite DC_x, respectively. In comparison to well known skin-lightening ingredients such as kojic acid, the skin-lightening potential of MelaLite DC_x is significantly higher, as indicated by lower IC₅₀ values. (Fig. 9)

Human Study Results

A human efficacy study was carried out on 20 volunteers (age 18 to 55 years) for a duration of 30 days. The treatment regimen included application of a MelaLite DC_x 1 % skin-lightening cream, used twice a day (morning and night).



Results

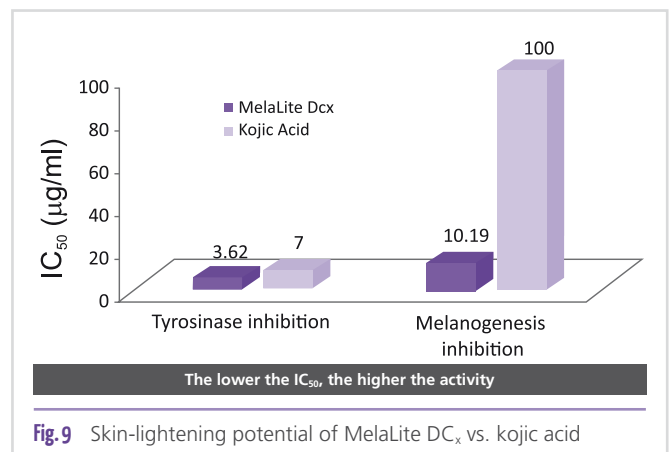
- 73 % of volunteers agreed that the product reduced their dark spots
- 80 % of volunteers agreed that the product improved their skin complexion

Users also reported an improvement in skin clarity, skin tone and glow when using MelaLite DC_x cream.

Key Benefits of MelaLite DC_x

As observed through *in vitro* and clinical studies, MelaLite DC_x has major potential for use in skin-lightening, brightening and anti-hyperpigmentation formulations. Its perceived benefits include:

- Imparting fairness to the skin
- Supporting an even skin tone
- Nourishing skin to make it bright and radiant
- Protecting skin against harmful UV radiation



Overall, MelaLite DC_x's ideal blend of natural standardised phytonutrients with multifaceted benefits offers a promising new product for skin radiance.

DerMoist DC_x

Dry skin, or "xerosis", is a common problem that can be efficiently treated with moisturisers. Moisturisers or emollients are complex mixtures of potent ingredients specially designed to make the external layers of the skin (epidermis) softer and more pliable. They increase the skin's hydration (water content) by reducing evaporation. Moisturisers prevent and treat dry skin, protect sensitive skin, improve skin tone and texture and mask imperfections.

Moisturisers help repair the lipid barrier of the skin and restore hydration. They reinforce the skin's barrier function, prevent moisture loss through the epidermis, provide structural integrity to skin damaged by external influences and are anti-inflammatory. They also help to soften and smoothen the skin.

DerMoist DC_x is a balanced composite of proven nutrients that help to gently calm sensitive skin while keeping it moist, nourished and healthy. Enriched with a powerhouse of micro-nutrients such as Cococin™, it acts as an effective skin barrier.

Ingredient Rationale

Cococin™ CG

Cococin™ CG, obtained from green tender coconut water (*Cocos nucifera*) is nutrient rich and supports cell rejuvenation. It is a novel preparation to ensure its compatibility for use in clear formulations. Cococin™ is packed with high potency micronutrients.

Coconut water, the liquid endosperm of green coconuts, has many applications and is one of the world's most versatile natural products. There is increasing scientific evidence to support the role of coconut water in health and medicinal applications. Coconut water is traditionally used as a growth supplement in plant tissue culture/micropropagation. The wide applications of coconut water can be justified by its unique chemical composition of sugars, vitamins, minerals, amino acids and phytohormones [3].

It has good wound-healing potential, thanks to its ability to promote the proliferation of fibroblasts. It also has excellent moisturising properties and helps promote healthy blood circulation. In view of its inherent nutritional value, it has been rightly trademarked by Sabinsa as "The Nourishment Factor®" (Tab. 1), which provides a valuable nutrient pool for enhancing food and beverages, as well as cosmetic product formulations.

Coconut water is a refreshing beverage, a natural rehydration medium and is used as a supplement in nutrient media for plant tissue culture.

Possible Role of Cococin™ in Hydration Balance

Unbalanced desquamation (shedding of *stratum corneum*) leads to skin dryness. This dryness may be countered by improving epidermal proliferation, which helps to maintain dermal thickness, and promotes both the maintenance of extracellular matrix collagen levels and the structural integrity of the skin. Studies report that an increase in epidermal thickness, helps reduce trans-epidermal water loss (TEWL) and restores hydration.

Young coconut water is rich in phytohormones, a group of naturally occurring organic compounds that play crucial roles in regulating plant growth in a wide range of developmental processes. Coconut water contains auxin, various cytokinins, gibberellins and abscisic acid. While phytohormones play an important role in cell division and proliferation, they also enhance nutrient mobilisation and counter stress. Cococin™, from green tender coconut water, is thus rich in phytohormones, as well as proteins, amino acids, sugars, vitamins and minerals that are essential in promoting tissue growth.

Green tender coconut water also contains other essential ingredients that are significant in growth and development. The alicyclic acids (shikimic acids and quinic acids) are found in maximum concentrations in young green coconuts. These acids are involved in the synthesis of various aromatic com-

Compound	mg/ltr
Nicotinic acid	0.64
Pantothenic acid	0.52
Biotin	0.02
Riboflavin	0.01
Folic acid	0.003
Thiamine	traces
Pyridoxine	traces
Auxin	0.07
1,3-Diphenylurea	5.8
Sorbitol	15
M-inositol	0.01
Scyllo-inositol	0.05
mg/100 g	
Potassium	312
Chloride	183
Sodium	105
Phosphorus	37
Magnesium	30
Sulphur	24
Iron	0.10
Copper	0.04

Tab. 1 Chemical composition of coconut water

pounds in the growth and development of immature coconuts.

Cococin™, a powerhouse of nutrients and phytohormones, thus rejuvenates skin by promoting epidermal proliferation and in turn preventing moisture loss.

Dexapanthenol

Dexapanthenol is the stable alcoholic analogue of pantothenic acid, a component of coenzyme A that is essential to normal epithelial function. Topical application of dexapanthenol improves *stratum corneum* hydration and reduces transepidermal water loss. *In vitro* and *in vivo* experiments have also demonstrated its role in the activation of fibroblast proliferation, which is an indicator of intact epidermal barrier function. It is also reported to have potent anti-inflammatory properties.

In a double blind placebo-controlled clinical study, dexapanthenol was shown to improve tissue regeneration that implicates a direct role in prevention of transepidermal water loss and thus improves skin hydration. It is also shown to significantly reduce damage to the *stratum corneum* barrier [4].

Hyaluronic Acid

Hyaluronan, or hyaluronic acid, is a mucopolysaccharide in the epidermis responsible for maintaining overall hydration and elasticity of the skin. A decline in epidermal hyaluronan content occurs during ageing, contributing to decreased turgidity and increased wrinkle formation.

Jojoba Oil

Jojoba oil is the liquid waxy material produced from the seeds of *Simmondsia chinensis*. It improves skin lubrication, retards water loss and enhances the flexibility and suppleness of the skin.

Jojoba oil resembles sebum in its structure, thus making it suitable for both oily and dry skin.

The structure of jojoba oil closely resembles that of natural sebum. A healthy sebum balance helps trap moisture in the skin. Additionally, the skin absorbs the oil quickly and easily on account of its structural similarity. Application of jojoba oil can assist in reducing oil production in the skin owing to the structure-mimicking properties [5]. The anti-inflammatory properties of jojoba oil reduce redness caused by dryness of the skin.

Zinc Gluconate

Zinc is an essential trace element and plays a vital role in a large number of biological processes. Zinc gluconate is the

zinc salt of gluconic acid, and zinc supplements have been shown to help to reduce inflammation and acne.

DerMoist DC_x: Human Study Results

A human user study was carried out on 20 volunteers (6 men and 14 women) for 4 weeks. The volunteers applied a DerMoist DC_x 3% cream, twice a day.

Results

- 90% of volunteers agreed that, after using the product, their skin had a healthy glow.
- 85% of volunteers agreed that the moisturiser immediately hydrated their skin.

Key Benefits of DerMoist DC_x

With its potential to restore natural moisturising factors in the skin, DerMoist DC_x offers the following benefits for a wide range of formulations:

- Hydrates the skin
- Moderates and modulates sebum production
- Improves skin immunity
- Supports skin rejuvenation

The range of cosmeceutical blends from D’Cosmix is thus incisive prescriptions to formulators with each blend offering multifaceted benefits for various applications.

Literature

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