

General Skin Care



Natural e³
DavosLife Tocotrienols





Full Spectrum Skin Enhancing Properties for General Skin Care and Cosmetics

Vitamin E is well-known for its antioxidant, healing and reparative properties, that help to prevent skin ageing and certain cancers. Recent studies, however, have found that tocotrienol, a less common form of vitamin E that occurs in certain plant seeds such as oil palm, exhibit superior antioxidant activity compared to the common form of vitamin E, tocopherol.

As natural antioxidants, tocotrienol is granted GRAS status by the US FDA and can be readily incorporated in cosmetics and personal care products.

What is Tocotrienol?

Tocotrienol, along with tocopherol, is a form of vitamin E. Differences in their chemical structure confer tocotrienol's vastly superior antioxidant properties with report of up to 60 times greater antioxidant power than tocopherol in biological systems with cellular uptake up to 70 times higher.^[1,2]

Natural e³ Palm Tocotrienols

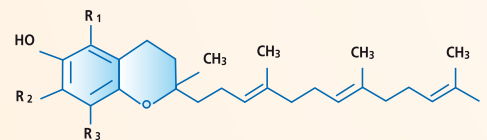
DavosLife produces Natural e³, a rich blend of tocotrienols extracted using state-of-the-art technology from GMO-free palm fruits fully traceable to its parent company's plantation (RSPO certified).

A growing body of evidence points to a promising future for tocotrienol in high value dermatological products for protecting the skin against free radicals that contribute to photoageing and skin cancer.



Oil Palm Fruit (*Elaeis guineensis*).

Photo Courtesy of MPOB



Tocotrienol Chemical Structure

Natural e³ Skin Care Benefits

Natural e³ supports skin health through well-rounded skin care benefits for a wide range of applications.

Skin Depigmentation

UV radiation, chemicals and acne can cause skin darkening or hyperpigmentation, a common skin condition of major cosmetic concern. Hyperpigmentation results from excessive melanin synthesis due to the over-activation of the protein tyrosinase.

Tyrosinase inhibition reduces melanin production by up to **55%**^[3]

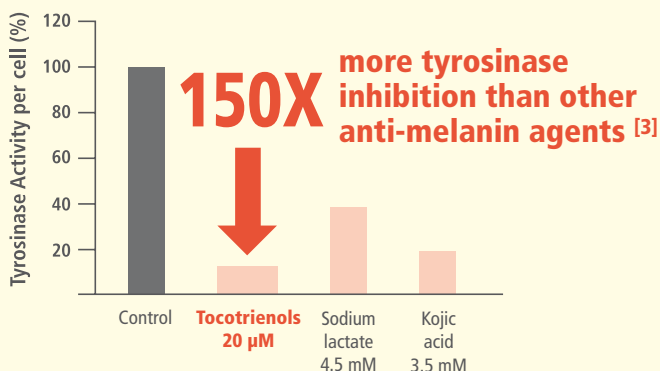


Fig. 1 Tyrosinase activity on day 9 after treatment with Natural e³, sodium lactate and kojic acid

Sun Protection

With a Radical Skin Factor (RSF) value of 4.15, tocotrienol dramatically reduces the amount of free radicals in the skin resulting from exposure to the sun's harmful UVA and UVB rays.^[4]

A high **RSF** value means greater reduction of free radicals in the skin.^[4]

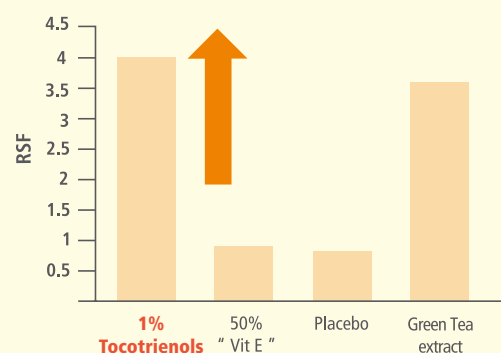


Fig. 2 RSF value of samples after UV irradiation

Anti-Ageing

Wrinkle formation takes place when unshielded skin is exposed to excessive UV light. The resulting oxidative stress encourages the formation of collagenase, a protein that causes the degradation of skin fibers vital for skin strength and elasticity.

Excellent antioxidation properties of up to 60 times greater than tocopherol confer tocotrienol the ability to help protect the skin from ageing and UV-induced damage caused by constant and prolonged sun exposure.^[1]

Skin Hydration

Tocotrienol reduces water loss from the skin and strengthens the skin's barrier function. Either singly or in combination with other ingredients, tocotrienol improves efficacy in skin hydration.^[4]

Tocotrienol demonstrates good efficacy on skin hydration enhancement.



Skin Repair

Tocotrienol triggers the movement of cells called fibroblasts suggesting tocotrienol's potential role in skin repair and wound healing.^[4]



Tocotrienol and Skin Cancer

Tocotrienol provides skin care benefits that go beyond its established antioxidation properties.

In addition to its ability to penetrate the skin's deepest layers and neutralize the damaging effects of UV-induced free radicals, tocotrienol acts on key proteins within skin cancer cells to induce cell death and to help prevent cancer cell growth. This mechanism suggests tocotrienol's potential role in supporting skin cancer prevention and treatment.^[5]

Reference:

[1] Serbinova E, et al. Free Radic Biol Med. 1991. 10(5):263-75. [2] Saito Y, et al. Ann N Y Acad Sci. 2004. 1031:368-75. [3] Yap WN, et al. Pigment Cell Melanoma Res. 2010. 23(5):688-92. [4] DavosLife. Data on File. [5] Chang PN et al. Nutr Cancer. 2009. 61(3): 357-66.

**Derived from Nature
Driven by Science**



World Leader in High Quality, High Purity Palm Tocotrienols

**DavosLife - No.1 Supplier Of
High Purity Palm Tocotrienols**

Stable Supply

DavosLife produces a 100% natural tocotrienol-rich complex extracted using standards of the highest quality from GMO-free palm fruit fully traceable to the plantations of its parent Company, the Kuala Lumpur Kepong Berhad Group. Natural e³ contains a balanced blend of all tocotrienol isoforms (alpha, beta, delta, gamma) at high concentration levels for maximum health benefits.

Science Driven

DavosLife has established the world's largest tocotrienol R&D center to spearhead cutting-edge tocotrienol research and innovation in chronic diseases and skin care. It was awarded the 2010 Asia Pacific Excellence in Research Award in the Natural Vitamin E Market by Frost and Sullivan.

Unrivalled Technical Support

Our team of experienced in-house scientists is available to support your technical needs ensuring that you meet the demands of today's market.

Custom Formulations

We offer custom formulations for higher potencies to meet your needs.



Natural e³
DavosLife Tocotrienols

Available Products:

High Purity Palm Tocotrienol Oil
Up to 95% (total vitamin E)

Palm Tocotrienol Powder
Up to 30% (total vitamin E)

T3Boost™ - Water Soluble Tocotrienol
Up to 1.5% (total vitamin E)

Tocotrienol Isomers
up to 97% (alpha, beta, gamma, delta)

**Palm Tocotrienol Analytical Test
and Cell Culture Kits**



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