

Omega Butter

DI-OB-03

Nutrient-loaded non-hydrogenated butter, 100 % natural. High omega 3, 6 and 9 botanical origin concentration, combined with olive oil triglycerides

OMEGA BUTTER is a 100% natural butter, no chemicals or additives added, non-hydrogenated, which contains one of the highest concentrations of polyunsaturated fatty acids from *Plukenetia Volubilis* seed oil, combined with a mixture of triglycerides enriched in fatty acid esters with saturated C16-C18 chain, and an unsaponifiable fraction, from olive oil, with natural lipogelling properties, obtained through a patented method, sustainable and environmentally friendly.

Its Inca Omega Oil content, extracted entirely only using **cold pressure techniques**, in order to maintain all its natural components with no degradation, has one of the highest amounts of polyunsaturated fatty acids (PUFA) among all oily seeds used for human consumption.

It reaches an average of **48%** content of alfa-linolenic acid (**Omega 3**) and an average of **37%** content of linoleic acid (**Omega 6**). Additionally it contains approximately **8%** of oleic acid (**Omega 9**). It also very important its high concentration of **tocopherols**, with gamma and delta-tocopherol contents rarely seen at other seeds.

The olive oil triglyceride fraction content, emollients, thickening agents, skin protective, nutritive and humectants agents, promote a greater stability to the emulsion.

INCI name

Plukenetia Volubilis Seed Oil C10-18 Triglycerides

Description

Sacha Inchi oil; Components and functions:



FAMILY: Euphorbiaceae

GENUS: *Plukenetia*

SPECIES: *Plukenetia Volubilis* Linneo sp.

SYNONYMS: *Plukenetia peruviana* muell. arg., *Plukenetia macrostyla* Ule

COMMON NAMES: Inca peanut, Sacha Inchi, Sacha Yuchi

BOTANICAL NAME: *Plukenetia volubilis*, *Tetracapidium conophorum*

HABITAT: Highland tropical jungles. Plant native to the high altitude rain forests of the Andean region of South America

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DESCRIPTION

An herbaceous vine native to the high altitude rain forests of the Andean region of South America, the Inca peanut is a legume with branched nitrogen fixing root nodules. The white flowers develop into a tetra-globular fruit containing one seed, with a nut like coat in each fruit. The pods sundry on the vine. The seeds or nuts are flattened spheres about the size of a penny. The individual seeds weigh 6.6g and the kernels make up 63% of the seed weight. The seeds contain a heat labile substance which gives them a bitter taste if not roasted. The seeds are valued for their high oil content, 35 – 60% of which 90% is unsaturated and protein (33%) content. Inca peanut seeds contain a nutritionally complete and a highly digestible water soluble (albumin) storage protein (IPA) that accounts for 31% total seed proteins. To our knowledge IPA is the first plant protein to contain all the essential amino acids required by an adult human¹. The rather viscous oil is yellow to orange in color.

The harvest and collection of the seeds from were INCA OMEGA OIL® is extracted is done following strict methods to guarantee the best quality. These strict methodologies continue at the storage and **cold pressure extraction** to assure oil with the **lowest acidity**, and maintaining all its natural components.

TRADITIONAL USES

It is known that this plant was used by the Pre Incas civilizations, because it was found in pots inside their tombs. The Inca peanut has been used traditionally by the Chancas Indians of Peru as a food.

Secoyas, Chandosas, Amueshas, Cashibos, Dapanahuas and Boras natives, eat the toasted nut in order to recover strength and as a tonic for the hard work. With the oil they rub their bodies to heal from muscle and rheumatic pain. The indigenous societies Sharanahua, Amuesha, Amahuaca, Aguaruna, Arabela, Chayahuita, Yagua, Shipibo, Huitoto, Murui, Campa, of the Gran Pajonal, Machiguenga, Asháninca, Mayoruna, Arabela, Quechua of San Martín region, Quechua of Tigre region, etc., extract, crafts manly, oil from Inca peanut to use it as food and as a fuel. They also produce flour from the cake by an empirical process.

In Peru the crop of *Plukenetia volubilis* is being promoted for edible oil extraction and the oilcake as an animal feed. Mayorunas, Chayuhuitas, Campas, Huitotas Shipibas, Yaguas and Boras women mix the oil with the flour meal and make a special cream to revitalize and give youth to the skin.

In some woodland communities the Inca peanut cake is used not only as human food, but also as animal food to replace the soy cake. It appears as an important economic alternative for the Peruvian Amazon peasants.

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Olive oil triglycerides extract; Components and functions:



FAMILY: Oleaceae
GENUS: Olea
SPECIES: *O. europaea*
BOTANICAL NAME: *Olea europaea*

HABITAT

Growth of *Olea europaea* is most prolific in semi-arid to sub-humid warm-temperate regions, usually with winter-dominant rainfall and hot, relatively dry summers. It grows on a range of soils (Parsons & Cuthbertson 1992) but prefers sandy loam soils of moderate depth (Spennemann & Allen, 2000a)

DESCRIPTION

The olive tree, *Olea europaea*, is an evergreen tree or shrub native to the Mediterranean, Asia and Africa. It is short and squat, and rarely exceeds 8–15 metres (26–49 ft) in height. However, the *Pisciottana*, a unique variety comprising 40,000 trees found only in the area around Pisciotta in the Campania region of southern Italy often exceeds 8–15 metres (26–49 ft) with correspondingly large trunk diameters. The silvery green leaves are oblong, measuring 4–10 centimetres (1.6–3.9 in) long and 1–3 centimetres (0.39–1.2 in) wide. The trunk is typically gnarled and twisted. The small white, feathery flowers, with ten-cleft calyx and corolla, two stamens and bifid stigma, are borne generally on the previous year's wood, in racemes springing from the axils of the leaves.

The fruit is a small drupe 1–2.5 centimetres (0.39–0.98 in) long, thinner-fleshed and smaller in wild plants than in orchard cultivars. Olives are harvested in the green to purple stage. Canned black olives may contain chemicals (usually ferrous sulfate) that turn them black artificially.

The olive tree is one of the oldest traditional crops of temperate Europe and warm. It is very difficult to pinpoint the exact spot where it was cultivated for the first time, and although the research seems to suggest that its origins must be sought 4000 BC in ancient Mesopotamia, politically coinciding more or less with the present nations of Iran and Syria, the truth is that there are historical references to its cultivation in most cultures of the Middle East and Eastern Mediterranean.

It frequently appears on Egyptian monuments, as the tomb of Tutankhamun where figures were wreaths made with its branches. The Greeks, who along with the Phoenicians were responsible for the expansion of this crop in the Iberian Peninsula, gave it paramount importance, considering it a sacred and magical tree.

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The city of Athens was completely decorated with gardens where the olive tree was the main floor and no one could cut or hurt them without suffering the penalty of banishment. The vencederos were rewarded at the Olympics with a crown made of olive leaves. This same veneration was continued by the Romans and by the people who made this plant successors, not only a symbol of peace and fertility, but a fundamental culture of the Mediterranean culture.

TRADITIONAL USES

Olive oil has been produced throughout the Mediterranean for several millennia and has potential to grow in other parts of the world as in Australia, South Africa, California and South America. But, without question, some of the most flavorful and highest quality oils come from the region of Tuscany in Italy

Olive oil has become a symbol of Tuscany and is known as "liquid gold". In Tuscany, the olives are hand-picked while still attached to the branches of the tree and before reaching complete ripeness. This process, known as "brucatura", usually lasts from mid-November to mid-December.

Tuscany olive oil results from the first cold-pressing, using the traditional method of mill-stone or disk pressing. It's decanted in little jars several times and then bottled. Tuscan oil has a distinct green color and a fruity flavor with hints of aromatic herbs.

In ancient Greece, athletes ritually rubbed it all over their body. Its mystical glow illuminated history.

Drops of it seeped into the bones of dead saints and martyrs through holes in their tombs.

Olive oil has been more than mere food to the peoples of the Mediterranean: it has been medicinal, magical, an endless source of fascination and wonder and the fountain of great wealth and power.

Sun, stone, drought, silence and solitude: these are the five ingredients that, according to Italian traditions, create the ideal habitat for the olive tree.

99% of its composition consists of different fatty acids:

- Oleic Acid between 63 and 83%
- Palmitic acid 7-17%
- Stearic acid 1.5 to 5%
- Palmitoleic acid 0.3 to 3%
- Linoleic acid 3-14%
- Linolenic acid less than 1.5%
- The remaining 1% is Vitamin E and natural antioxidants, polyphenols, pigments, aromas, etc.

Its ingredients are particularly prized for its antioxidant, moisturizing and protective properties and its high dermo compatibility.

These components help restore the natural hydro-lipid protective skin layer and prevent damage from free radicals.

OMEGA BUTTER mixtures a 70% *Plukenetia seed oil* with a 30 % triglycerides fraction, enriched in fatty acid esters with saturated C16-C18 chain, and an unsaponifiable fraction, from olive oil, with natural lipogelling properties, obtained through a patented method, sustainable and environmentally friendly.

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The components of the unsaponifiable fraction are hydrocarbons (mainly terpenes, among them predominantly squalene), waxes (present in small quantities in the extra-virgin oil, and in greater quantities in olive pomace), triterpenic alcohols, sterols (mostly beta-sitosterol), pigments (mainly carotenoids and chlorophyll), hydro- and lipo-soluble antioxidants (polyphenols and tocopherols). They have a recognized dermocosmetic activity, due to e.g. the soothing and protective properties of squalene, and the anti-ageing protection by the lipophilic and hydrophilic antioxidant components, and they enjoy wide commercial use.

This C16-C18 triglycerides from olive oil fraction, have the property of being able to generate a natural and solid butter at a temperature of 23 °C, with an optimum consistency, but that melts quickly at body temperature.

This butter is a factor of great consistency and gelling agent for the lipophilic phase of cosmetic emulsions at room temperature and up to 30 C, thereby obtaining a 100% natural butter, 100% vegetal origin, non-hydrogenated, stable against oxidation, no chemicals added, suitable for all skin types and especially for sensitive and sensible skin.

Effects in Cosmetic Products

LIPIDS IN SKIN CARE

Natural lipids are important ingredients in all skin care categories and of special importance for dry and sensitive skin, for anti-aging, protecting and caring skin care formulation.

Dry skin have become a wide spread occurrence. Each time there is more people suffering from this problem. There is an important demand for re-lipidating and smoothing skin care products.

The skin functions as a barrier to protect the body from excessive water loss and from penetration of foreign substances. The optimal state of the skin is typified by a balanced ratio of skin lipids to skin moisture. The health of the skin depends on the moisture retention supplied by the outer layer of the epidermis.

Dry skin is characterized by a reduced content of water and a deficient lipid composition. A defect skin barrier results in increased water evaporation and an enhanced sensitivity to the environment. Thus, an ideal skin care formulation should contain ingredients that improve the barrier function and repair as well as supplement the natural epidermal lipids.

ESSENTIAL FATTY ACIDS

The essential fatty acids are the polyunsaturated fatty acids (PUFA). They are necessary for good health, taking part at many important processes, like controlling blood pressure, reducing the cholesterol or playing a role at inflammatory processes and allergic responses. The PUFAs cannot be synthesized in the body.

The Stratum Corneum requires three main types of lipids to perform its barrier function: Ceramides, Cholesterol and Polyunsaturated Fatty Acids. If these lipids are tightly packed into the spaces between the keratinocytes, the alienate substances cannot penetrate the skin surface and enter the body. On the contrary, if there is a disruption in the number or tightness of the intercellular lipids, the skin barrier becomes permeable



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Deficiency of PUFA leads to skin disorders such as:

- * Dry skin
- * Desquamation (scaly skin)
- * Wounds fail to heal
- * Loss of humidity
- * Erratic keratinisation process (blocking of follicles)
- * Increase of rate of mitosis (disorganized skin layers)
- * Tendency towards eczema and itchiness

Linoleic acid is an important precursor of ceramides and it is essential for the skin's barrier function¹. Both topical application and dietary intake of essential fatty acids have been shown to restore dry skin conditions as well as therapeutic effects on skin disorders² such as atopic dermatitis, psoriasis and acne³.

Skin displays highly active metabolism of PUFAs, but is not able to perform all desaturation / elongation steps. PUFAs can be incorporated into the structure of the skin through topical application. Fatty acids can be metabolized by the skin.

Cutaneous application of PUFAs leads to:

- * Reduction of Trans-epidermal Water Loss
- * Improvement of "Normal" Barrier Function of the Skin
- * Normalization of Keratinization Process

ANTI-FREE-RADICAL ACTIVITY

Free-Radicals are chemical elements with a high oxidant capacity. It can have exogenous origin (contamination, cigarettes ...) but also endogenous (stress, tiredness...)

At normal conditions, a healthy skin can keep a balance between free-radicals and systems to neutralize their actions. If this balance is not maintained, the oxidative stress is produced attacking the skin's tissues and cells, causing premature skin aging.

Free-Radicals will specially harm the cell membranes, destroying them. These membranes are the delicate support of the genetic map of our cells, which nucleus contains the DNA. The integrity of the cell's membrane protects the DNA and the existence of the cells.

OMEGA BUTTER will help the prevention of the DNA destruction with two actions: First its PUFA will reinforce the lipids of the cell's membranes. Secondly, its rich composition in tocopherols, natural anti-oxidants, will help to reduce the mechanisms of formation of free-radicals.

Tocopherols are the main substances with anti-oxidant activity found naturally in seed oils. There are four chemical forms called alpha, beta, gamma, and delta tocopherol. The action of the tocopherol consists in the stabilization of the biological membranes, particularly those rich in PUFA content. Oxidation of the unsaturated lipids produces lipidic peroxides which interfere with the structure and functions of the biological membranes. Tocopherol operates as anti-oxidant, and can inhibit the formation of free radicals. A deficiency in tocopherols, on the contrary, will accelerate this process, causing chain reactions of free-radicals at the membrane lipids.

It is quite significant the high concentrations of delta and gamma-tocopherol found in OMEGA BUTTER. Many laboratory tests show that these two forms of tocopherol have both a high anti-oxidant capacity followed, at long distance, by alpha-tocopherol.

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Non delta and gamma-tocopherol can be chemically synthesised while alpha-tocopherol can be produced industrially. The first two tocopherols must be extracted from natural products. It is thus, quite interesting the high concentrations that can be found at OMEGA BUTTER.

Dosage – Solubility – Processing

A- DOSAGE:

1- 100 %.

B- SOLUBILITY:

Lipo-soluble.

C- PROCESSING:

OMEGA BUTTER is compatible with most of the raw materials normally used in cosmetics, nevertheless, it is the duty of the formulator to make sure of the stability of the formulae with the necessary tests.

It would be preferably incorporated into cosmetic preparations during the oil phase preparation.

Analytical Data

- APPEARANCE: Waxy mass, White – Mellow Yellow
- PRESERVATIVES: None. Natural product
- ACIDITY (mg KOH/g): <5
- SAPONIFICATION VALUE (mg KOH/g): 170,00 – 210,00
- MICROBIOLOGY:
 - Total Germs <100 CFU/g
 - Pathogen: Absence
- TOLERANCE: Excellent.
- STORAGE: Store at room temperature, away from direct sun light in closed original container. Temperatures between + 5 °C and + 10 °C.

If original container is opened, to avoid secondary microbiological contamination handle with special care and keep refrigerated.

1 Basnayake V, Sinclair HM. Skin permeability in deficiency of essential fatty acids. J. Physiol 1954, 126: 55-68

2 Hartop PJ, Prottey C. Changes in trans-epidermal water loss and the composition of epidermal lecithin after applications of pure fatty acid triglycerides to the skin of essential fatty acid deficient rats. Br. J Dermatol 1976; 95: 255-64

3 Downing DT et al Essential fatty acids and acne. J Am Acad Dermatol