

TECHNICAL DATA SHEET

Product Name: Batana Oil

INCI Name: Elaeis Oleifera Kernel Oil

CAS: 8002-75-3

Botanical Name: Elaeis oleifera (HBK) Cortés

Synonyms: Batana oil, Olej batana, American oil palm kernel oil, Aceite de batana

Origin: Honduras (La Moskitia)

Chemical Classification: Fats and Oils

Functional Category: Skin conditioning agent; conditioner for normal, dry, and dehydrated hair; emollient

Method of Obtaining: Batana oil is obtained through a traditional, predominantly manual process that begins with boiling the fruits of the American oil palm, followed by removal of the outer layer and separation of the kernels. The kernels are washed, sun-dried, manually crushed, and cold-pressed to produce a brown, smooth paste that remains semi-solid at room temperature. The resulting raw material is then fractionated, a process in which lighter liquid fractions rich in unsaturated fatty acids are separated, while heavier saturated components are reduced. This yields an oil that remains liquid at room temperature and has a significantly lighter texture.

Description: Batana oil is a natural lipophilic cosmetic ingredient known for its rich nourishing and conditioning value. It is characterized by a high content of fatty acids, primarily oleic and linoleic acids, along with palmitic and stearic acids, which provide pronounced softening properties and support restoration of the skin and hair lipid barrier. In addition to fatty acids, it contains natural tocopherols, phytosterols, and other lipophilic bioactive compounds that contribute to antioxidant protection and formulation stability. On the skin, Batana oil acts as an effective emollient that improves elasticity, reduces transepidermal water loss, and enhances the sensation of nourished, smooth skin without a pronounced occlusive effect, particularly in its fractionated form. Its compatibility with the skin's hydrolipid layer makes it suitable for formulations

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intended for normal, dry, and dehydrated skin, including daily care and regenerative products. In hair care applications, Batana oil is valued for improving fiber flexibility, reducing breakage, and enhancing visible shine. It is especially suitable for dry, damaged, and chemically treated hair, where it contributes to cuticle smoothing and improved manageability without excessive weight. The fractionated variant further enhances the sensory profile, offering a lighter texture, improved spreadability, and a non-greasy finish. Due to its good oxidative stability and compatibility with other vegetable oils, ester emollients, and active substances, Batana oil integrates easily into creams, balms, masks, oil serums, and hair care systems. Its natural origin and traditional reputation in hair care increase its market value in formulations that emphasize botanical and functional characteristics.

Phytochemicals: The most significant phytochemicals are natural tocopherols, particularly alpha-, beta-, and gamma-tocopherol, which act as antioxidants, protect lipid structures from oxidative stress, and support oil and formulation stability. Tocotrienols may also be present in smaller amounts, representing biologically active forms of vitamin E with strong antioxidant potential and membrane-protective properties. Phytosterols, including beta-sitosterol, campesterol, and stigmasterol, are important bioactive components. These plant analogues of cholesterol help reinforce the skin barrier, reduce transepidermal water loss, and soothe irritation, contributing to good tolerability and regenerative potential. Squalene may also be present in minor amounts. This natural triterpene is compatible with skin lipids and contributes to softness, elasticity, and protection from environmental stressors. Depending on the degree of processing and fractionation, traces of carotenoids such as beta-carotene may be present, contributing to antioxidant activity and natural coloration. Minor amounts of other lipophilic phytochemicals, including trace phenolic compounds and low levels of coenzyme Q10, may also be detected. The combined activity of these bioactive components makes Batana oil more than a simple emollient; it serves as a source of protective, regenerative, and stabilizing phytochemicals, particularly valuable in formulations intended for dry, sensitive, and damaged skin and hair.

Physicochemical Properties: At room temperature, Batana oil appears as a clear to slightly turbid liquid, depending on the degree of fractionation and saturated fatty acid content. At lower temperatures, slight cloudiness or partial solidification may occur, typical of vegetable oils containing palmitic and stearic acids.

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Color ranges from light yellow to amber. The odor is mild and characteristically oily, without pronounced or unpleasant notes, making it suitable for formulations where fragrance should not dominate. Chemically, Batana oil is a complex mixture of triglycerides predominantly composed of oleic and linoleic acids, with smaller proportions of saturated fatty acids that contribute to structural stability. It is practically insoluble in water but shows excellent compatibility with vegetable oils, ester emollients, fatty alcohols, and other lipophilic components. It does not require special technological conditions and may be incorporated into the oil phase without high temperatures, especially in fractionated form. Compared to highly polyunsaturated oils, Batana oil demonstrates good oxidative stability, supported by its natural tocopherol content. However, like all vegetable oils, it is sensitive to prolonged exposure to light, oxygen, and elevated temperatures. Storage in tightly closed containers in a cool, dark place is recommended. Under proper storage conditions, it maintains stable quality, uniform texture, and functional performance.

Benefits:

- Provides intensive softening of skin and hair due to its rich lipid composition.
- Restores and strengthens the skin lipid barrier, reducing moisture loss.
- Enhances skin elasticity and smoothness without a heavy occlusive effect.
- Offers antioxidant protection against oxidative stress.
- Soothes irritation and improves tolerability in sensitive skin.
- Improves hair fiber flexibility and reduces breakage.
- Contributes to cuticle smoothing and enhances natural hair shine.
- Facilitates detangling and improves manageability of dry and damaged hair.
- Supports formulation stability due to natural antioxidants.
- Provides a light sensory profile, especially in fractionated form.

Method of Use: Batana oil is used as a lipophilic functional ingredient and is introduced into the oil phase, alone or combined with other vegetable oils and ester emollients. It may be added during the heating phase or cooling phase, depending on formulation type and desired sensory properties. The fractionated form allows easier processing without elevated temperatures. In skin care emulsions such as creams and lotions, typical concentrations range from 2–10%. In richer regenerative formulations for dry and dehydrated skin, usage may increase to approximately 15%, with balanced lipid composition. In oil serums, balms, and body oils, it is typically used at 5–30%, depending

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on whether it serves as a supportive or primary oil component. In hair care products such as masks, conditioners, and leave-in treatments, usual concentrations range from 1–5%. In intensive oil treatments, concentrations of 10–20% may be applied.

Comparative Advantages: Compared with many vegetable oils, Batana oil combines a rich bioactive profile with a favorable sensory feel. It provides intensive nourishment without a heavy occlusive sensation, particularly in fractionated form. Compared to lighter oils such as sunflower or almond oil, it offers a more pronounced conditioning effect due to phytosterols, tocopherols, and squalene. Unlike highly polyunsaturated oils prone to rapid oxidation, Batana oil demonstrates improved oxidative stability. In hair care, compared to heavier oils such as castor oil or shea butter, it provides comparable conditioning and shine with a lighter texture and better distribution. Its multifunctional role as emollient, conditioner, and natural antioxidant source reduces the need for multiple additional lipophilic ingredients. Its natural origin, good tolerability, and traditional reputation further enhance its market positioning.

Animal Testing: In accordance with current European Regulation (EC) No. 1223/2009 on cosmetic products, the substance has not been tested on animals. The safety assessment is based on available toxicological data, scientific literature, and validated alternative testing methods (in vitro and in silico). The term in silico refers to computer-based modeling and simulation methods rather than in vivo or in vitro testing. This statement confirms compliance with the animal testing ban and is provided for informational purposes.

GMO: Non-GMO

Vegan: Does not contain ingredients of animal origin

Storage and Shelf Life: Stable when stored in a cool, dry place. Shelf life: 2 years.

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