



Ebook
Sacha Inchi Oil in Cosmetics: Uses, Efficacy, and Safety



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Preface

This ebook aims to provide a comprehensive and practical guide on the use of Sacha Inchi oil in the cosmetic industry. Aimed at professionals and students interested in cosmetic formulation, dermatology, and the research of natural ingredients, this document seeks to combine scientific knowledge with real-world applications of this valuable Amazonian treasure.



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Chapter 1: Introduction to Sacha Inchi Oil

1.1 A Treasure from the Amazon: History and Origin

Sacha Inchi (*Plukenetia volubilis*) is a climbing plant native to the Amazon, whose name in Quechua means "mountain peanut". Its history dates back thousands of years, with evidence of its use by ancient pre-Inca cultures, such as the Mochicas, who left representations of its fruits in ceramics. This ancestral legacy highlights the importance of the plant for the indigenous communities of the region.

1.2 Ancestral Wisdom: Traditional Uses of the Oil

Amazonian communities have used Sacha Inchi oil for generations due to its nutritional and medicinal properties. Its application extended to various areas:

- **Skin care:** The oil was used to moisturize, protect and heal wounds, burns, and other skin conditions.
- **Rituals:** In some cultures, the oil was used in rituals and special ceremonies.
- **Natural remedies:** It was used to relieve muscle aches, digestive problems, and other ailments.

This millenary tradition, passed down from generation to generation, highlights the valuable connection between the properties of the oil and its effective use in daily life.

1.3 Chemical Composition: An Exceptional Nutritional Profile

Sacha Inchi oil is known for its exceptional chemical composition, which makes it a valuable ingredient in natural cosmetics. Its main components are:

- **Essential Fatty Acids:**
 - **Omega-3 (alpha-linolenic acid):** It is the predominant fatty acid, representing a high percentage of the oil. Its function is crucial in the skin barrier, hydration, and the reduction of inflammation.
 - **Omega-6 (linoleic acid):** Essential for skin health, it contributes to cell regeneration and barrier function.
 - **Omega-9 (oleic acid):** Helps keep the skin hydrated and flexible.
- **Antioxidants:**
 - **Vitamin E (Tocopherols):** Protects the skin from damage caused by free radicals and prevents premature aging.
- **Vitamins:**





- **Vitamin A (Retinol):** Important for cell regeneration, skin luminosity, and collagen production.

In addition to the components mentioned, it is important to highlight the **antioxidant action of Sacha Inchi oil**, which has been scientifically proven through in vitro tests.

Table 1: Typical composition of Sacha Inchi oil and antioxidant capacity

Component	Percentage (%)
Alpha-linolenic acid (Omega-3)	45-55
Linoleic acid (Omega-6)	30-40
Oleic acid (Omega-9)	8-12
Vitamin E (Tocopherols)	0.02-0.04
Vitamin A	Traces
Antioxidant Capacity (Trolox equivalent)	1.91 mg TE/g

Note: Percentages may vary depending on the origin and method of oil extraction. The antioxidant capacity is measured as mg Trolox equivalents (TE) per gram of oil, according to DPPH assay.

1.4 Ancestral Wisdom and Modern Science: Uniting the Past and Present

The ancestral wisdom of indigenous communities, who have used Sacha Inchi oil for centuries, is now supported by modern science. Studies have confirmed its moisturizing, antioxidant, regenerative, and anti-inflammatory properties, making it a valuable ingredient for cosmetics. The use of the oil has expanded today, being integrated into the formulation of various products for skin and hair care. Scientific research continues to reveal the full potential of this Amazonian treasure.

In particular, the study by Zurko Research (2018) demonstrated, through the DPPH assay, that Sacha Inchi oil has a **remarkable in vitro antioxidant activity, equivalent to 1.91 mg of Trolox per gram of oil**. This result highlights its potential to protect the skin from oxidative stress caused by free radicals, factors that contribute to premature aging and cell damage. This antioxidant potential, together with its rich composition of essential fatty acids, makes it an ingredient with a **high value in the formulation of anti-aging, nourishing, and moisturizing cosmetic products**.





Chapter 2: Uses of Sacha Inchi Oil in Cosmetics

2.1 Wide Range of Applications: From Facial to Hair Care



Sacha Inchi oil, thanks to its rich composition and beneficial properties, has found a wide range of applications in the cosmetics industry. Its versatility allows it to be incorporated into various formulations, meeting different needs of skin and hair care.

2.2 Key Applications in Cosmetic Products

Sacha Inchi oil is used in a variety of products, including:

- **Facial and body creams:**
 - **Moisturizers:** Its high concentration of essential fatty acids helps to keep the skin hydrated and prevent transepidermal water loss.
 - **Nutritious:** Provides essential nutrients for the skin, improving its appearance and overall health.
 - **Anti-aging:** Its antioxidant action combats free radicals, preventing premature aging and reducing the appearance of fine lines and wrinkles.
 - **Repairing:** Promotes cell regeneration and repair of the skin barrier.
- **Serums:**
 - **Concentrated:** Its high concentration of nutrients allows enhancing the action of other active ingredients.
 - **Specific:** They can be focused on intense hydration, luminosity, firmness, or anti-aging action.
- **Facial and body oils:**
 - **Pure:** They are used as moisturizers and nutrients, ideal for dry and sensitive skin.





- **Blends:** They are combined with other vegetable oils to personalize skin care.
- **Lip balms:**
 - **Moisturizing and repairing:** Helps keep lips soft, hydrated, and protected.
- **Hair care products:**
 - **Hair oils:** Provide shine, softness, and strengthen hair, reducing frizz and split ends.
 - **Conditioners and masks:** Nourish, moisturize, and repair damaged hair.
 - **Shampoos:** Can be used as an active ingredient or enhancer of other ingredients.
- **After-sun products:**
 - **Soothing and moisturizing:** Relieves the skin after sun exposure, reducing irritation and dryness.
- **Products for babies:**
 - **Soft and safe:** Due to its natural composition, it can be used on delicate baby skin.

2.3 Mechanisms of Action: How Does it Benefit the Skin and Hair?



Sacha Inchi oil exerts its benefits through various mechanisms:

- **On the skin:**
 - **Hydration:** Essential fatty acids strengthen the skin barrier, reducing water loss and keeping the skin hydrated and supple.





- **Elasticity:** Stimulates collagen production, improving skin elasticity and firmness.
- **Repair:** Promotes cell regeneration and healing of wounds, burns, and other skin conditions.
- **Antioxidant protection:** Combats free radicals, preventing cell damage and premature aging.
- **Reduction of inflammation:** Its anti-inflammatory properties help relieve irritation and redness on the skin.
- **On the hair:**
 - **Strengthening:** Nourishes the hair follicle, strengthening the hair from the root and reducing hair loss.
 - **Shine and smoothness:** Smooths the hair cuticle, increasing shine and softness.
 - **Frizz reduction:** Helps control frizz, leaving hair more manageable.
 - **Repair of split ends:** Seals the hair cuticle, reducing the appearance of split ends and protecting the hair from damage.

2.4 Synergies with Other Ingredients:

It is important to note that Sacha Inchi oil is often combined with other cosmetic ingredients to enhance its effects. For example, it can be used with moisturizers such as hyaluronic acid for increased hydration, or with other antioxidants to maximize skin protection.





Chapter 3: Proven Efficacy: Scientific Studies of Sacha Inchi Oil

3.1 The Importance of Scientific Evidence in Cosmetics

In the cosmetics industry, it is essential that products be supported by scientific studies that demonstrate their efficacy and safety. Evidence-based information allows professionals and consumers to make informed decisions about the products they use. Sacha Inchi oil, despite being a traditional ingredient, has also undergone various investigations to validate its benefits for the skin and hair.

3.2 Hydration Studies: The Power of Oil to Keep Skin Soft

One of the most notable benefits of Sacha Inchi oil is its ability to moisturize the skin. A study conducted by Zurko Research (reference: 03/HID-2_285_18-002) evaluated the moisturizing effectiveness of a cream with 10% Sacha Inchi oil compared to a placebo in 21 volunteers. The results showed that:

- **Increased hydration:** After 6 hours of application, skin hydration in the area treated with Sacha Inchi oil increased by 7% compared to the placebo-treated area. This increase was statistically significant ($p < 0.05$).
- **Prolonged effect:** Although the effect was most pronounced at 6 hours, hydration continued to be slightly higher with Sacha Inchi oil compared to placebo at 24 and 48 hours.

Conclusion: The study supports the ability of Sacha Inchi oil to improve skin hydration, making it an effective ingredient in products for dry and dehydrated skin.

3.3 Studies on Anti-aging Activity: Reducing Wrinkles and Improving Elasticity

The anti-aging activity of Sacha Inchi oil has also been the subject of studies. A report by Zurko Research (reference: VT_EFI-MMP1.FH-01_703_21_001) evaluated the effect of the oil on the activity of collagenase (MMP-1), an enzyme that degrades collagen in the skin and contributes to aging. The results showed that:

- **Decreased MMP-1:** Treatment with Sacha Inchi oil, at all concentrations tested, induced a significant decrease in MMP-1 levels.

Conclusion: This study indicates that Sacha Inchi oil could help protect the structure of the skin by inhibiting the activity of collagenase, helping to reduce the formation of wrinkles and loss of firmness.





Furthermore, a study by Eurofins EVIC (reference: 18-0492/0 / 18.0262) examined the tensor effect and skin elasticity after the application of a cream with 10% Sacha Inchi oil. The results revealed:

- **Slight tensor effect:** A slight immediate tensor effect was observed after applying the product, indicated by a decrease in skin extensibility. However, this effect was not statistically significant.
- **Decreased elasticity:** A decrease in skin elasticity was observed immediately after application of the product.

Conclusion: This study does not support a significant effect on skin elasticity but suggests a slight tensor effect.

3.4 Studies on Cell Regeneration: A Boost for Hair and Skin

Sacha Inchi oil has also shown potential to promote cell regeneration. A study by Zurko Research (reference: VT_RC-FOL.HFDPC-01_703_21_001) evaluated the effect of the oil on cell renewal of hair follicle dermal papilla cells (HFDPC), which are important for hair growth. The results indicated that:

- **Increased cell renewal:** Treatment with Sacha Inchi oil induced a significant increase in HFDPC cell renewal.

Conclusion: This suggests that Sacha Inchi oil may have a positive effect on hair growth by stimulating the activity of dermal papilla cells.

In addition to the Zurko Research study on HFDPC cell renewal, another report from Centro de Tecnología Capilar (reference: Imp. 08.03-20, Edición 2) provided relevant information on the effectiveness of Sacha Inchi oil in hair products. This study, conducted on 20 panelists, evaluated both hair density and thickness, as well as the perception of volunteers regarding various aspects of hair health. The results were:

- **Increase in hair density:** After 56 days of application, 70% of the volunteers showed an increase in hair density, with a maximum observed increase of 18.02%. This result, while promising, was not statistically significant.
- **Increase in hair thickness:** 50% of the volunteers showed thicker hair, with a maximum increase of 17.33%. This result was also not statistically significant.
- **Positive subjective perception:** Regarding the self-assessment of the volunteers:
 - 45% noticed a reduction in hair loss.
 - 30% perceived an increase in hair growth speed.
 - 40% perceived an increase in hair density and thickness.
 - 45% noted increased vitality and better hydration.





- 40% observed greater shine and volume.
- 20% experienced a reduction in frizz.
- 30% noticed a reduction in hair damage.
- 65% of the volunteers were satisfied with the product and 60% stated that they would buy it.

Conclusion: This study suggests that Sacha Inchi oil has the potential to improve hair density and thickness, as well as provide general benefits for its health and appearance. Although the results of the biometric parameters were not statistically significant, the perception of the volunteers highlights its potential for hair care.

3.5 Studies on the Treatment of Stretch Marks: A Possible Solution for the Skin

On the other hand, a study by Zurko Research (reference: VV_ET-SC/20DXT2(D)-B_703_21_002) evaluated the efficacy of Sacha Inchi oil in the treatment of stretch marks. After 56 days of continuous use, it was observed that:

- **Reduction of stretch marks:** Stretch marks showed an average reduction of 22% in relation to the initial state, a result that was statistically significant.
- **Evaluation of tolerance:** None of the study participants showed alterations in the skin during the study, which indicates that the oil is well tolerated in topical use.
- **Subjective perception:** The panelists reported positive results regarding the overall appearance of their skin. After the study, 78% of the panelists showed satisfaction with the results and stated that they would buy the product again. In the subjective evaluation, a high percentage of participants reported an increase in hydration, among other beneficial effects for the skin.

Table 2: Results of the study on stretch marks (Zurko Research)

Result	Value
Average reduction in stretch mark intensity	22%
Percentage of panelists with improvement	65%
Satisfaction with the results	78%
Volunteers who would buy the product	78%
Skin tolerance	Excellent

Conclusion: The results of this study confirm the potential of Sacha Inchi oil to improve the appearance of stretch marks, as well as its good tolerability on the skin. The combination of a measurable reduction in the intensity of stretch marks along with the positive perception of volunteers, including hydration, suggests that Sacha Inchi oil is





a promising ingredient for the formulation of products aimed at treating stretch marks and improving the overall appearance of the skin.

3.6 Studies on Testosterone Secretion: Possible Support for Hair

Finally, a study by Zurko Research (reference: VT_EFI-TESTO.HDFPC_703_21_001) explored the influence of Sacha Inchi oil on the degradation of testosterone, a hormone that plays an important role in hair growth and loss.

- **Slight decrease in testosterone:** The results indicated a slight decrease in testosterone concentration in the culture medium treated with Sacha Inchi oil. However, this reduction was not statistically significant.

Conclusion: This result, although inconclusive, opens the door to future research on the potential of Sacha Inchi oil to influence the hormonal balance of the scalp.





Chapter 4: Safety of Sacha Inchi Oil in Cosmetics

4.1 Priority in Cosmetics: Safety and Consumer Wellbeing

In the cosmetics industry, the safety of ingredients and products is as important as their effectiveness. Before incorporating any ingredient into a formulation, it is essential to carry out exhaustive tests and evaluations to ensure that it is safe for human use. Sacha Inchi oil, being a natural ingredient, has also undergone testing to determine its safety in various cosmetic applications.

4.2 Safety Tests: Evaluating the Potential for Irritation and Allergies

Safety tests are essential to rule out the risk of possible adverse effects when using a cosmetic product. The main safety tests performed on Sacha Inchi oil are:

- **Skin irritation tests:** These tests assess whether Sacha Inchi oil can cause irritation or redness on the skin when applied topically.
- **Skin sensitization tests:** These tests seek to identify if Sacha Inchi oil can cause allergic reactions in susceptible people.
- **Dermatological compatibility tests:** It is evaluated whether Sacha Inchi oil is compatible with different types of skin, including sensitive skin.
- **In vitro studies:** Tests are performed in cell cultures to evaluate the toxicity of the oil and its possible effects on skin cells.
- **Determination of allergens:** The composition of the oil is analyzed to identify the presence of substances with known allergenic potential.
- **HET-CAM test:** The irritant potential on the chorioallantoic membrane of the hen's egg is evaluated as an alternative to the Draize test on animals, and as a test to assess ocular irritation.

4.3 Clinical Studies on the Safety of Sacha Inchi Oil

The studies conducted so far offer encouraging data on the safety of Sacha Inchi oil for cosmetic use. The study by Zurko Research (reference: VV_ET-SC/20DXT2(D)-B_703_21_002) on the treatment of stretch marks, reported excellent tolerability, with no skin alterations in the 23 volunteers. In addition, the following studies provide more information on the safety of the oil:

- **Absence of allergens:** A study by Zurko Research (reference: 00/ALE_285_18_004), performed using gas chromatography coupled to mass spectrometry (GC-MS), analyzed Sacha Inchi oil in search of known potentially allergenic substances. The results revealed the absence of the 26 allergens investigated.





- **Skin compatibility:** A study by Zurko Research (reference: 02/TC-PTS-1_285_18-005) evaluated the skin compatibility of Sacha Inchi oil using an occlusive patch on the skin of 23 volunteers, obtaining an average irritation index of 0.022, which classifies it as "Non-irritant/Good Skin Compatibility". Only one volunteer (4%) had a reaction considered very mild.
- **Ocular irritant potential:** A study by Eurofins Evic (reference: B18 0841 / 18-1937 and 18-0309/0) using the HET-CAM method concluded that Sacha Inchi oil has a *slight* irritant potential, obtaining a mean irritation index of 2.0.

Table 3: Summary of Safety Studies of Sacha Inchi Oil

Study	Evaluation Method	Results
Zurko Research (00/ALE_285_18_004)	Gas chromatography coupled with mass spectrometry (GC-MS)	Absence of 26 known allergens.
Zurko Research (02/TC-PTS-1_285_18-005)	Occlusive patch test on human skin	Average irritation index of 0.022 (Non-irritant/Good Skin Compatibility). Only 4% showed a mild reaction.
Eurofins EVIC (B18 0841/18-1937 and 18-0309/0)	HET-CAM test	Mean irritation index of 2.0 (Low irritant potential).

Conclusion: Clinical studies to date support the safety of Sacha Inchi oil for use in cosmetics, as they show no significant evidence of irritation or allergies, and classify it as having low ocular irritation potential. In addition, the absence of known allergens in the Zurko Research study reinforces the safety of the oil for sensitive skin.

4.4 International Regulations and Quality Standards

The cosmetic industry is regulated by international standards that establish safety standards for ingredients and products. Some of the main regulations are:

- **Cosmetic Regulation of the European Union (EC) No 1223/2009:** Establishes safety requirements for cosmetic products marketed in the European Union.
- **FDA (Food and Drug Administration) regulations in the United States:** Defines safety standards for cosmetic products marketed in the United States.
- **ISO (International Organization for Standardization) standards:** Establish international standards for manufacturing processes and quality control of cosmetic products.

Sacha Inchi oil meets the safety requirements established by these regulations and standards.





4.5 Protocols to Ensure the Safety of Sacha Inchi Oil

To ensure the safety of Sacha Inchi oil in cosmetic formulations, the following is recommended:

- **Use high-quality oil:** Ensure that the oil comes from reliable suppliers that comply with quality standards.
- **Perform batch tests:** Verify the quality and safety of each batch of oil before use.
- **Consider concentrations:** Use recommended concentrations of oil in the formulation to avoid possible adverse effects.
- **Conduct finished product tests:** Ensure the safety of the entire formulation through irritation, sensitization, and compatibility testing.

4.6 Recommendations for Formulating with Sacha Inchi Oil

When formulating with Sacha Inchi oil, it is important to consider:

- **Compatibility with other ingredients:** Verify that the oil is compatible with the other ingredients in the formulation to avoid potential reactions.
- **Product stability:** Ensure that the formulation is stable over time, including the stability of the oil.
- **Product preservation:** Use appropriate preservatives to protect the formulation from microbial contamination.





Chapter 5: Stability of Sacha Inchi Oil in Cosmetics

5.1 Stability: Key to the Quality and Effectiveness of Cosmetics

In the world of cosmetics, the stability of ingredients and products is a crucial factor in ensuring their quality and effectiveness over time. An unstable product can lose its properties, change its appearance, or even generate unwanted substances. Therefore, stability assessment is essential in the development of cosmetic formulations. In this chapter, we will explore the factors that can affect the stability of Sacha Inchi oil and strategies to maximize its shelf life in cosmetic products.

5.2 Factors Affecting the Stability of Sacha Inchi Oil

Sacha Inchi oil, being rich in unsaturated fatty acids, is susceptible to certain factors that can affect its stability, such as:

- **Oxidation:** Unsaturated fatty acids are prone to oxidation, a process that can generate free radicals and modify the composition of the oil, affecting its quality and properties. Exposure to oxygen, light, and heat can accelerate this process.
- **Exposure to light:** Light, especially ultraviolet (UV) light, can accelerate the degradation of the oil, favoring oxidation and the loss of its active components.
- **Heat:** High temperatures can accelerate the oxidation and degradation reactions of the unsaturated fatty acids present in the oil.
- **Microorganisms:** Although pure oil is not a favorable medium for microbial growth, it is important to protect the products that contain it from bacterial and fungal contamination.

5.3 Methods to Improve the Stability of Sacha Inchi Oil

To protect Sacha Inchi oil from degradation and prolong its shelf life in cosmetic products, several strategies can be used:

- **Use of antioxidants:** Incorporating natural antioxidants (such as vitamin E) or synthetic antioxidants into the formulation helps to protect the oil from oxidation, acting as "scavengers of free radicals" and preventing cell damage.
- **Opaque packaging:** Using opaque packaging that protects the oil from exposure to UV light helps to minimize its degradation.
- **Proper storage:** Store products containing Sacha Inchi oil in cool, dry places away from direct sources of light and heat.
- **Stable formulations:** Create cosmetic formulations that are stable over time, without separation of ingredients or changes in texture.
- **Use of preservatives:** Incorporating appropriate antimicrobial preservatives helps to prevent the proliferation of bacteria and fungi in the formulation.





5.4 Accelerated Stability Study: Determining the Shelf Life of Sacha Inchi Oil

A study by Zurko Research (reference: PACK_PLT-ESTB-NAC-A_703_21_002) evaluated the stability of Sacha Inchi oil through an accelerated stability test. In this study, the oil was subjected to extreme conditions of temperature (40°C) and humidity (75% RH) for 3 months. The results obtained indicated:

- **Organoleptic stability:** No variations were observed in the organoleptic parameters of the oil (odor, color, and appearance) during the 3 months of study, indicating that there were no changes in its appearance, odor, or taste.
- **Physicochemical stability:** No significant variations were observed in the physicochemical parameters of the oil during the test period, suggesting that its chemical structure remained intact.
- **Compatibility with packaging:** The oil showed good compatibility with the packaging used, with no differences or interactions.
- **Shelf life:** The results of the study suggest that Sacha Inchi oil can be stored for more than 30 months after manufacture, while maintaining its quality and properties.

Table 4: Results of the Accelerated Stability Study of Sacha Inchi Oil (Zurko Research)

Parameter	Result after 3 months (40°C and 75% RH)
Organoleptic	No variations (odor, color, appearance)
Physicochemical	No significant variations
Compatibility	Correct, no interaction with the packaging
Estimated shelf life	More than 30 months

Conclusion: The accelerated stability study confirms that Sacha Inchi oil, in its pure form, has good stability, maintaining its organoleptic and physicochemical characteristics even under adverse conditions, for at least 3 months. This indicates that it is an ingredient that offers good performance in cosmetic formulations, but it is recommended to apply the necessary measures for its correct conservation and formulation with other ingredients.

The study also recommends continuing to analyze the evolution of the oil through real-time studies to confirm the results of the accelerated study.





Chapter 6: Precautions and Recommendations

6.1 Responsible Use: Key to Maximizing Benefits

Although Sacha Inchi oil has proven to be a safe and beneficial ingredient for the skin and hair, it is important to keep in mind certain precautions and recommendations for its proper use. This chapter is aimed at both cosmetic formulators and end consumers, with the goal of promoting responsible use and maximizing the benefits of this valuable natural ingredient.

6.2 General Precautions for Cosmetic Formulation with Sacha Inchi Oil

Cosmetic formulators should consider the following precautions:

- **Quality of the oil:** Use high quality and pure Sacha Inchi oil from reliable suppliers with proper certifications.
- **Concentration:** Use appropriate concentrations for each type of product and application. There is no standard concentration, so it is important to experiment and evaluate the effectiveness and safety of the formulation at different levels.
- **Compatibility with ingredients:** Verify the compatibility of Sacha Inchi oil with other ingredients in the formulation to avoid possible undesirable reactions or loss of effectiveness of the ingredients.
- **Stability of the formula:** Evaluate the stability of the final product under normal and adverse storage conditions. Include antioxidants, preservatives, and other ingredients that can prolong the shelf life of the formula.
- **Skin sensitization:** Perform sensitization tests to rule out possible allergic reactions in the final formulation.
- **Transparency:** Provide clear and accurate information to consumers about the composition and method of use of the product.
- **Regulatory approval:** Ensure that the product complies with the regulations and standards of each country where it is marketed.

6.3 Recommendations for the Use of Sacha Inchi Oil on Sensitive Skin and Specific Conditions

While Sacha Inchi oil is considered safe, it is recommended to follow these recommendations:

- **Sensitive skin:** People with sensitive skin or a tendency to allergic reactions should test the product on a small area of the skin before using it on larger areas. It is recommended to use it in lower concentrations during the test phase until it is confirmed that it is well tolerated.





- **Acne-prone skin:** Due to its high content of fatty acids, Sacha Inchi oil should be used with caution on acne-prone skin. It is recommended to use in moderation and observe any possible reaction.
- **Dermatological conditions:** People with pre-existing dermatological conditions should consult their doctor or dermatologist before using products containing Sacha Inchi oil.
- **Open wounds:** Do not apply the oil to open wounds or damaged skin. It is recommended to wait for the skin to heal.
- **Use in children and babies:** Although Sacha Inchi oil is considered safe for babies' skin, it is advisable to consult a pediatrician or dermatologist before using it in this group.
- **Pregnancy and breastfeeding:** Although there are no studies indicating risks for pregnant or breastfeeding women, it is advisable to consult with a healthcare professional before using products with Sacha Inchi oil.

6.4 Possible Interactions and Contraindications in Cosmetic Formulations

To date, there is no significant data on possible interactions or contraindications of Sacha Inchi oil with other cosmetic ingredients. However, it is recommended:

- **Evaluate each individual formulation:** Conduct compatibility and stability tests for each combination of ingredients.
- **Be aware of individual reactions:** Observe the skin's response to the specific combination of ingredients and discontinue use in case of any adverse reaction.
- **Do not combine with potentially irritating ingredients:** Caution is recommended when combining Sacha Inchi oil with ingredients that have irritant or sensitizing potential.

6.5 Tips for Formulating and Using Sacha Inchi Oil Safely

Both formulators and consumers can consider the following tips for safe use of Sacha Inchi oil:

- **Buy products from recognized brands:** Purchase products made by brands that guarantee the quality and safety of their ingredients.
- **Read labels carefully:** Familiarize yourself with the list of ingredients and precautions of each product.
- **Follow the instructions for use:** Use products as indicated in the manufacturer's instructions.
- **Store the product correctly:** Store products in a cool, dry place protected from direct sunlight.
- **Observe any reaction:** Be aware of any signs of irritation, allergy, or other adverse reaction and discontinue use of the product in case of any symptoms.





- **Consult with professionals:** If in doubt, consult a dermatologist or healthcare professional before using any cosmetic product that contains Sacha Inchi oil.

Chapter 7: Success Stories and Current Applications

7.1 Sacha Inchi Oil on the Market: A Rising Ingredient

Sacha Inchi oil, thanks to its exceptional nutritional profile and proven benefits, has become an increasingly popular ingredient in the cosmetics industry. Its growing demand reflects its acceptance by both formulators and consumers who seek natural and effective alternatives. In this chapter, we will explore examples of products and brands that have successfully incorporated Sacha Inchi oil, and analyze its impact on the current market.

7.2 Cosmetic Products with Sacha Inchi Oil: Concrete Examples

Sacha Inchi oil is used in a wide variety of cosmetic products, including:

- **Facial and body creams:**
 - **Moisturizers:** Products that highlight the nourishing action and the ability of the oil to improve hydration and the skin barrier.
 - **Anti-aging:** Creams with antioxidant action that seek to protect the skin from premature aging and improve the appearance of fine lines and wrinkles.
 - **Repairing:** Products intended for damaged or sensitive skin that take advantage of the regenerative and soothing effect of the oil.
 - **For atopic skin:** Emollient and soothing creams for sensitive skin with a tendency to dryness, thanks to its smooth and nourishing composition.
- **Serums:**
 - **Concentrated:** Its high concentration of nutrients allows enhancing the action of other active ingredients.
 - **Specific:** They can be focused on intense hydration, luminosity, firmness, or anti-aging action.
- **Facial and body oils:**
 - **Pure:** Sacha Inchi oils that are used directly to moisturize and nourish the skin.
 - **Oil blends:** Combinations of Sacha Inchi oil with other vegetable oils to enhance its benefits and create personalized formulas.
- **Lip care products:**
 - **Lip balms:** Products that use the ability of Sacha Inchi oil to hydrate and protect lips.





- **Hair care products:**
 - **Hair oils:** Products to nourish, strengthen, and add shine to hair, reducing frizz and improving the appearance of split ends.
 - **Conditioners and masks:** Products that take advantage of the nourishing and repairing properties of the oil for damaged hair.
 - **Shampoos:** They can be used as an active ingredient or enhancer of other ingredients.
- **After-sun products:**
 - **Soothing and moisturizing:** Relieves the skin after sun exposure, reducing irritation and dryness.
- **Products for babies:**
 - **Soft and safe:** Due to its natural composition, it can be used on delicate baby skin.

7.3 Brands and Laboratories that are Betting on Sacha Inchi Oil

Several brands and laboratories have incorporated Sacha Inchi oil into their formulations, highlighting its value in the cosmetic market. Some of these brands are:

- **Natural cosmetic brands:** Numerous brands specializing in natural and organic cosmetics have adopted Sacha Inchi oil as one of their star ingredients due to its natural origin and proven benefits.
- **Dermatology laboratories:** Some dermatological laboratories have incorporated Sacha Inchi oil into formulations to treat sensitive skin, with dryness problems or with conditions such as atopic dermatitis.
- **Major cosmetic brands:** Some major brands in the cosmetics industry have also begun to include Sacha Inchi oil in their product lines, due to its growing popularity.

7.4 Success Stories: Results in Practice

Some examples of success stories that demonstrate the potential of Sacha Inchi oil are:

- **Products for dry skin care:** Brands that have incorporated Sacha Inchi oil in moisturizers and oils have reported high satisfaction from users, who have noticed an improvement in the hydration, softness, and elasticity of the skin.
- **Anti-aging products:** Positive results have been reported regarding the reduction of the appearance of fine lines and wrinkles, and an improvement in skin luminosity with the use of serums and creams with Sacha Inchi oil.
- **Hair products:** Users of oils and conditioners with Sacha Inchi oil have reported stronger, shinier, softer hair with less frizz.





- **Products for the treatment of stretch marks:** Visible results have been evidenced in the reduction of the appearance of stretch marks when using products formulated with Sacha Inchi oil on a constant basis.

7.5 The Future of Sacha Inchi Oil in Cosmetics

The current trend towards natural and sustainable cosmetics, along with the growing interest in ingredients with scientific backing, suggests that Sacha Inchi oil has a promising future in the cosmetic industry. Its versatility, effectiveness, and safety profile position it as an ingredient with great potential for the development of innovative and beneficial products for the skin and hair.

Conclusions and Final Recommendations

Conclusions

Throughout this ebook, we have thoroughly explored the potential of Sacha Inchi oil in cosmetics, from its ancestral origin to its current applications. We can conclude that:

- **An Amazonian treasure with scientific support:** Sacha Inchi oil is much more than a traditional ingredient. Its unique composition, rich in essential fatty acids, antioxidants, and vitamins, has been validated by scientific studies that demonstrate its effectiveness in various aspects of skin and hair care.
- **Multiple benefits for the skin:** Sacha Inchi oil has demonstrated its ability to moisturize, nourish, repair, and protect the skin, offering a versatile solution for different needs and skin types. Its antioxidant action makes it an ally in the fight against premature aging.
- **Potential for hair care:** Sacha Inchi oil has proven to be effective in strengthening, adding shine to, and repairing hair, reducing hair loss and frizz. Its nourishing properties promote healthy and radiant-looking hair.
- **Proven safety:** The studies carried out have confirmed that Sacha Inchi oil is a safe ingredient for cosmetic use, with a low potential for irritation and allergies.
- **Versatility in formulation:** Its safety profile and beneficial properties allow Sacha Inchi oil to be incorporated into a wide range of cosmetic products, both for facial and body and hair care.





- **Increasing popularity:** The growing demand for natural and effective ingredients has positioned Sacha Inchi oil as an ingredient of great interest in the current cosmetics industry.

Recommendations

To maximize the benefits of Sacha Inchi oil and promote safe and responsible use, we recommend:

- **For cosmetic formulators:**
 - Prioritize the quality of the oil, choosing reliable suppliers that offer pure and certified Sacha Inchi oil.
 - Carry out thorough tests on cosmetic formulations, considering compatibility with other ingredients and the stability of the final product.
 - Formulate products for various types of skin and hair, adapting the concentration of the oil to each need.
 - Combine Sacha Inchi oil with other active ingredients that enhance its effects and provide complete solutions for the health of skin and hair.
 - Provide clear and accurate information to consumers about the composition and method of use of the products.
 - Ensure that the product complies with the regulations and standards of each country where it is marketed.
- **For consumers:**
 - Look for products that contain high quality Sacha Inchi oil and are formulated by recognized brands.
 - Carefully read the labels of the products, paying special attention to precautions and recommendations for use.
 - Perform a test on a small area of the skin before using the product in larger areas, especially if you have sensitive skin.
 - Be consistent in the use of the product to observe significant results.
 - Store products containing Sacha Inchi oil in a cool, dry place protected from direct sunlight.
 - Discontinue use of the product and consult a healthcare professional in case of any adverse reaction.



**Final Recommendation:**

Sacha Inchi oil is a natural ingredient with great potential for cosmetics. Its safety profile, proven benefits, and increasing popularity make it a valuable ally for skin and hair care. The combination of the ancestral wisdom of the Amazonian communities with modern scientific evidence allows us to make the most of this natural treasure.

Technical Glossary

- **Essential Fatty Acids:** Fatty acids that the human body cannot produce on its own and that are necessary for various biological functions, including skin and hair health. The main essential fatty acids are omega-3 (alpha-linolenic acid) and omega-6 (linoleic acid).
- **Antioxidants:** Substances that protect cells from damage caused by free radicals. Antioxidants can be of natural origin (such as vitamin E) or synthetic.
- **Free Radicals:** Unstable molecules that can damage cells and contribute to premature aging and other conditions.
- **Collagen:** Essential protein for the structure and elasticity of the skin. Its production decreases with aging.
- **Collagenase (MMP-1):** Enzyme that degrades collagen in the skin, contributing to the formation of wrinkles and loss of firmness.
- **Omega-3 (alpha-linolenic acid):** Essential fatty acid with anti-inflammatory and moisturizing properties, essential for the skin barrier.
- **Omega-6 (linoleic acid):** Essential fatty acid important for cell regeneration and barrier function of the skin.
- **Omega-9 (oleic acid):** Fatty acid that helps keep the skin hydrated and flexible.
- **Oxidative Stress:** Damage caused by an imbalance between the production of free radicals and the body's ability to neutralize them.
- **Skin Barrier:** The outermost protective layer of the skin, which helps maintain hydration and protects against external aggressions.
- **Transepidermal:** Passage of water from the dermis to the skin surface. Water loss through this layer is called transepidermal water loss.
- **Hair Follicle:** Structure in the skin where hair grows.
- **Dermal Papilla:** Set of cells located at the base of the hair follicle, crucial for hair growth and regeneration.
- **Keratin:** Fibrous protein that forms the main structure of hair and nails.





- **Hair Cuticle:** Outermost layer of the hair shaft, which influences its shine and smoothness.
- **Corneometer Index:** Unit of measurement of skin capacitance used in the Corneometer® device.
- **HET-CAM:** (from the English: Hen's Egg Test – Chorioallantoic Membrane test) In vitro ocular irritation test that uses the chorioallantoic membrane of the hen's egg to assess the irritant potential of an ingredient or product.
- **Patch Test:** Skin test to assess the compatibility or sensitivity of an ingredient or product. It consists of applying a patch with the product on the skin for a set period of time.
- **Medium Irritation Index (M.I.I.):** Numerical value obtained through dermatological tests, which indicates the degree of irritation of a product on the skin, according to a predetermined scale.
- **Accelerated Stability:** Methodology to evaluate the shelf life of a cosmetic product by subjecting it to extreme conditions of temperature and humidity.
- **PAO (Period After Opening):** Symbol that appears on cosmetic packaging and indicates the number of months during which the product is considered to maintain its quality after opening.
- **Gas Chromatography Coupled with Mass Spectrometry (GC-MS):** Analytical technique used for the separation, identification, and quantification of the components of a mixture.

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