



Exploring the Role of Oils in Herbal Cosmetic Products: A Comprehensive Review

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Received: 22-05-2024; Revised: 26-08-2024; Accepted: 08-09-2024; Published on: 15-09-2024.

ABSTRACT

Herbal cosmetics have growing demand in worldwide market because of lesser or nil side effects. The current review is on the oils used in formulation of various herbal cosmetics such as for the skin treatment and hair care treatment. E.g., Coconut oil, Sandalwood oil, Almond oil, etc. Cosmetics alone are not sufficient to take care of skin and body parts, it requires association of active ingredients to check the damage and aging of the skin. Herbal cosmetics are the preparations, which represent cosmetics associated with active bio-ingredients, nutraceuticals, or pharmaceuticals. There are mainly two types of oils: volatile oils & essential oils. Both have wide significance in cosmetics formulations. Oils for skin treatment are used for moisturizing and soothing purpose. Oils in hair care preparations used for the prevention and treatment of baldness or other ailments, aggression of hair. They also promote the luxurious growth of hairs. Hair oil containing herbal drugs are used as hair strengthens for centuries. Their potential to treat various skin diseases and disorders to soothe and improve the skin appearance is well known. The beginning of 21st century has been significant progress in the herbal industry. Herbal ingredients are preferred over chemical substances because of their easy availability and lesser side effects.

Keywords: Almond oil, bio-ingredients, Coconut oil, Herbal cosmetics, nutraceuticals, skin treatment.

INTRODUCTION

The Greek word "Kosm Tikos" is a Greek term that implies, having the capacity to plan and decorate, and is the source of the English word "Cosmetic".¹

A recurring story throughout human history may be used to track the development of cosmetics. Around 3000 BC, man used color as an ornament to lure the ancient creatures he wished to pursue. He also decorated his body and painted his skin to make an opponent (whether a man or an animal) fear him to defend himself from hostile assault. Finally, the information was related to pharmacy from a medical perspective.²

According to Drug and Cosmetic Act 1940 and rules related to it 1945, "Any article intended to be rubbed, poured, sprinkled or sprayed on, introduced into or otherwise applied to the human body or any part thereof for cleansing, beautifying, promoting attractiveness or altering the appearance" is known as "Cosmetics".

Health, lifestyle, employment, climatic factors, and maintenance have an impact on a person's skin and hair appearance. During the summer, the skin will become dehydrated from too much heat exposure, which will result in wrinkles, freckles, blemishes, pigmentation, and sunburns. Skin damage from the harsh winter includes cracks, wounds, maceration, and infections. Skin conditions affect people of all ages often and can be brought on by exposure to environmental toxins such as microorganisms, chemicals, and biological agents as well as, to a lesser extent, starvation.³

Herbal cosmetics

"Herbal cosmetics are those that are made from plant materials that have cosmetic properties. The term "Natural Cosmetics" is also used for them.

Ayurvedic science has long harnessed the power of plants and herbs to craft cosmetics, not only for protection against the elements but also to enhance aesthetics. The beauty of Ayurvedic cosmetics lies in their reliance on natural botanical components, which pose no harm to the human body. Instead, these botanical ingredients serve as enriching sources of vitamins, minerals, and various other beneficial substances. The term "herbal cosmetics" aptly describes these products, as they are meticulously designed with phytochemicals sourced from a diverse array of botanical sources. These phytochemicals play a pivotal role in providing essential nutrients for healthier hair and skin, while also regulating skin functions. This holistic approach to beauty and well-being exemplifies the time-tested wisdom of Ayurveda, offering both protection and nourishment for the body's largest organ – the skin.

A new era is drawing in the cosmeceutical industry, driven by growing awareness among consumers. The widespread belief that cosmetics containing chemical bases can be harmful to the skin has fueled this transformation. Simultaneously, consumers are increasingly recognizing the benefits of herbal products. This dual awareness has given rise to a surge in demand for natural products within the industry, opening up exciting new opportunities and prospects for growth. Simultaneously, consumers are increasingly recognizing the benefits of herbal products. This dual awareness has given rise to a surge in demand for natural products within the industry, opening up exciting new opportunities and prospects for growth. However, it's



essential to note that herbs and essential oils employed in cosmetics are subject to regulations outlined in the Drug and Cosmetic Act, which restricts them from making claims about penetrating beyond the epidermis or processing therapeutic advantages.³⁻⁵

In the 16th century, a Roman physician by the name of Cornelius Celsus, who lived from 7 B.C. to 53 A.D., discussed the state of skin cleansers. During this era, Queen Elizabeth played a pivotal role in assisting women with the creation of various cosmetic products such as powders, sachets, and scented washes. These scented washes were composed of floral essences combined with other aromatic ingredients. Queen Elizabeth also encouraged women to cultivate gardens for sourcing these botanical elements. In the same period, makeup trends included the frequent use of red ocher or vermilion as rouge, and crushed orris was a common component in face powder formulations. This historical account reflects the significant influence of both medical knowledge and royal patronage on cosmetics during the Renaissance period.

The pimples were effectively addressed through a method that involved applying a mixture of turpentine and sulfur powder and allowing it to sit for an hour. This treatment was designed to alleviate the issue, demonstrating a proactive approach to dealing with skin imperfections.⁶⁻⁷ The rhubarb, turmeric, and burberry bark were added after the hair had been soaked in a heated alum solution, creating the golden reddish, reddish, and brown, yellowish hair that became fashionable. On the basis of herbs and herbal oils, numerous cosmetic compositions have been developed.

Indian women have long used henna to dye their hair and herbs like sandalwood and turmeric to care for their complexion. In ancient times, various natural substances played a significant role in rituals, perfumery, and medicinal practices. Aloes, Costus, Frankincense, Lac, Myrrh, Musk, and Saffron, as well as the application of rose water, attar, and sandalwood, held widespread importance. These materials were employed in diverse ways, ranging from religious ceremonies to personal grooming and healing traditions. Their use reflected the deep cultural and historical significance of these botanical and aromatic resources, enriching the tapestry of early civilizations with their fragrant and therapeutic contributions.

Cassia and nutmeg are two herbs that are utilized in perfumes. Body decorations included saffron, alkanet, agar, nettle plant chlorophyll green, and indigo. Since ancient times, it has been normal practice to use betel leaves to darken lips, vermilion, and other colors and waxes to mark people's castes on their faces, almond paste in place of soap for the entire body for all cultural and social occasions, fragrances, and aromatics.^{8,9}

The ancient Ayurvedic texts Charaka Samhita and Varnya Kashya described the use of herbs for achieving a radiant complexion. Chandana, Nagkeshara, Padmak, Khus,

Yashtimadhu, Manjistha, Sariva, Payasa, Seta (Sweta Durva), and Lata (Shyama Durva) were some of the herbal ingredients that were incorporated into various traditional remedies. These herbs have a long history of use in traditional medicine systems, and their therapeutic properties have been recognized for centuries. In different cultures and regions, these botanicals have been harnessed for their unique medicinal benefits. Their inclusion in herbal formulations reflects the rich diversity of natural remedies and the profound knowledge that ancient healers possessed about the healing potential of plants. Today, these herbs continue to be studied for their potential health benefits and remain an important part of holistic healthcare practices. These Ayurvedic medicines are used to cleanse the blood and get rid of the body's vitiated doshas, which are mostly to blame for illnesses and skin conditions including vata, pitta, and kapha.

The herbs mentioned in Khushtanga Mahakashaya have long been recognized for their therapeutic properties in addressing various illnesses and skin conditions. Among the notable botanicals detailed in this ancient text are Khadira, Abhaya, Amalaki, Haridra, Bhallataka, Saptaparana, Karavira, Vidanga, and Jati, all of which have proven efficacy in tackling skin issues. Additionally, the application of Indigo and Raktachandan as Bindi/Tika, Madder Root for enhancing lip and cheek color, shoeflower to maintain and darken hair color, Aleo as a skin protectant, and the use of Chandan, Vetiver, and Haldi as face packs are just a few examples of the natural remedies employed in antiquity. These traditional remedies have stood the test of time and continue to offer valuable solutions for skin and health concerns. Ayurvedic herbs are used to enhance the cosmetic value of items.¹²

Advantages

- Abundance presence.
- Easily found.
- Natural fragrance.
- Safe to use.
- Compatible for all skin types.
- Cheaper as compared to synthetic.
- Side effects are less to no.
- Natural products.
- Side effects are less than synthetic.

Disadvantages

- Slow action/effect.
- May not suit some people.
- Processing is difficult as compared to synthetic.

Skin

- Skin is the largest organ of the human body.
- It has hair, nails, and nerve glands.



- It acts as a barrier between the outside and inside environment.
- It has different textures and thicknesses. E.g., eye, feet & palm.

Layers of Skin

- Epidermis: It is the outermost layer of the skin.
- Dermis: It is the centermost layer of the skin.
- Hypodermis: It is the innermost layer of the skin.

Table 1: Skin types and their care

Skin type	Features	Suitable Skin Care	
		Herbal	Essential Oils
Normal	The skin possesses a consistent and even tone, boasting a gentle and silky texture with no discernible pores or imperfections. It exhibits a flawless surface that is clear, finely textured, and remarkably supple, devoid of any greasy patches or dry, flaky areas.	Pomegranate leaves juice, Herbal face packs, Gingili oil	Chamomile Geranium, Lavender, Lemon, Rose, Sandalwood, Patchouli.
Dry	Skin with a low level of sebum and heightened sensitivity often exhibits a parched appearance, accompanied by a sensation of tightness. Additionally, the presence of chapping and cracking serves as indicative signs of extreme dryness and dehydration in the skin.	Aloe Vera, Olive Oil, Calendula, Comfrey	Chamomile, Fennel, Geranium, Lavender, Lemon, Rose, Sandalwood, Patchouli, Almond, Avocado.
Oily	Chronically oily skin is characterized by a shiny, thick texture and a dull-colored appearance. This skin type often presents with coarse pores, pimples, and various embarrassing blemishes, making it prone to the development of blackheads.	Hosetail, Oat, Straw, Thyme, Lavender. Lemon Grass, Liquorice, Rose Buds, Witch Hazel, Cucumber, Cedar Wood	Bergamot, Cypress Frankincense Germanium, juniper, Lavender, Lemon, Sage Evening Primrose
Combination	Combination skin is characterized by a unique blend of skin conditions, often featuring dry or flaky patches in certain areas of the face, while the central region, including the nose, chin, and forehead, tends to be oily.	Witch Hazel, Menthol, Aleo Vera, Turmeric, Wheat Germ, Sweet Flag	Citrus Oils, Jasmine

Table 2: Skin problems and special herbal remedies

Skin problem	Features	Remedies
Chapped skin	Uneven surface leads to occasional skin cracking.	Consider using either olive oil or mashed avocado after your bath for skin hydration. For a pre-bath treatment, massage your skin with mustard oil, or coconut oil about half an hour before bathing.
Withered skin	Rough and wrinkled texture.	Creating a blend of carrot juice combined with a honey mixture.
Sallow skin	The absence of color gives the skin a dull appearance, lacking its natural radiance and vitality.	Implementing a diet rich in Vitamin B to promote overall health and well-being.
Sensitive skin	Respond promptly to changes in temperature, whether it's hot or cold.	Oils like Chamomile, Lavender, Rose, Sandalwood, etc.
Acne	Inflamed red sores, painful boils, and unsightly pimples.	Oil extracted from Red Sandalwood.

The requirements for basic skin care:

- **Cleansing agents:** These products effectively remove dust, dead skin cells, and grime that can clog the pores of the skin. Vegetable oils such as coconut, sesame, and palm oil are among the main cleaners.¹³
- **Use of toners:** Toners play a vital role in skincare routines as they provide multiple benefits for the skin. They not only tighten the skin but also offer protection against a wide range of environmental pollutants and the numerous chemicals found in the air. Some common botanical ingredients toners typically consist of a blend of natural ingredients, such as witch hazel,

geranium, sage, lemon, and various essential oils. These natural components not only contribute to the toning effect but also bring additional skincare advantages.¹⁴

- **Moisturizing:** Moisturizing plays a crucial role in enhancing the skin's softness and smoothness, imparting a supple and silky texture. This skincare practice not only promotes a healthier appearance but also contributes to reducing the signs of aging. By keeping the skin well-hydrated, moisturizing helps to maintain its youthful vitality and resilience, making it less susceptible to the effects of aging.



Herbal moisturizers encompass a wide range of natural ingredients renowned for their hydrating properties. The ingredients list comprises vegetable glycerin, sorbitol, rose water, jojoba oil, aloe vera, and iris extract. These natural substances are commonly incorporated into skincare products to provide deep and nourishing hydration to the skin.¹⁵

Evaluation: The best-grade ingredients should be used in cosmetics to minimize irritability and sensitive reactions. Color, odor, test type, and grittiness are some of the physical examination criteria utilized for herbal cosmetics. Both diagnostic testing and predictive testing can be used to administer the irritancy and sensitivity tests.¹⁶

A variety of patch tests are typically used in diagnostic procedures to identify the origin of dermatitis brought on by cosmetics. This covers irritancy tests on humans, tests

for animal skin irritancy, and tests for eye irritation (such as the rabbit eye test).¹⁷

The particle's size and shape, color, adhesiveness, pH, net content, odor, and moisture content are among the physical properties.¹⁸

The evaluation of dentifrices involves a comprehensive assessment that encompasses various factors. One can evaluate various characteristics when assessing a substance, such as its abrasiveness, capacity to produce shine, uniformity, pH levels, density, flavor, fragrance, hue, moisture levels, and aroma. This multifaceted analysis ensures a thorough examination of these oral care products, aiding in their quality assessment and improvement.

For assessing the cosmetic items, microbiological tests, toxicity tests, and stability studies were also carried out.¹⁹

Table 3: List of plants with cosmetic applications for skin care

Scientific name	Common name	Part used	Uses
<i>Aloe vera</i> (Liliaceae)	Aloe vera	Leaf	Moisturizer, Sunscreen, Emollient
<i>Azadiracta indica</i> (Meliaceae)	Neem	Leaf	Antiseptic, reduce dark spots, Antibacterial
<i>Citrus aurantium</i> (Rutaceae)	Orange	Peel	Anti-acne, Antibacterial
<i>Citrus limonis</i> (Rutaceae)	Lemon	fruit	Regulation of pH, Antioxidant
<i>Crocus sativus</i> (Iridaceae)	Saffron	Floral filaments	Antiallergenic, Imparts smoothness to skin
<i>Curcumis sativus</i> (Cucurbitaceae)	Cucumber	Fruit	Refreshes, Invigors and cools the skin
<i>Curcuma longa</i> (Zingiberaceae)	Turmeric	Rhizome	Anti-microbial, Antioxidant
<i>Dacus carota</i> (Umbelliferae)	Carrot	Root	Essential oil from the plant seed are used in cosmetic creams for reducing wrinkles
<i>Jasminum spp. J Sambac</i> (Oleaceae)	Jasmine	Flower	Fragrance
<i>Matricaria chamomila</i> (Compo sitae)	Chamomile	Flower	Skin cleanser, soothing, and skin regeneration
<i>Mimosa pudica</i> (Leguminosae)	Lajalu	Leaves	Skin disorders

HAIR

- Hair is a simple structure made up of protein; 'Keratin'.
- Hair acts as foreign particles.
- An important part of appearance.
- It creates gender identity.

Structure of hair-

Hair is made up of two-

1. Hair Shaft
2. Hair Root

1. **Hair Shaft-** Hair shaft is a visible part of hair.
2. **Hair Root-** Hair root is under the skin.

Some common oils used in herbal cosmetics for hair care:

- Coconut oil
- Amla oil
- Olive oil
- Almond oil
- Castor oil
- Jasmine oil
- Mustard oil

Coconut Oil: The coconut palm tree's fruit or seeds are used to make coconut oil, which is widely available in both solid and liquid form.

Coconut oil works wonders to hydrate and soften skin. Extra virgin coconut oil serves as a reliable and safe choice when



applied as a moisturizer. Its effectiveness in hydrating the skin has been widely acknowledged, making it a popular natural remedy in skincare routines according to a study, and there are no negative side effects.

According to a study, using coconut oil for fourteen hours helped decrease protein loss when combing wet hair.

Because coconut oil is high in lauric acid, which has potent antiviral, antibacterial, and antifungal properties, you can avoid scalp infections as a result.^{20,21,22}

Amla Oil: Amla oil is made from the fruits of the *Phyllanthus Emblica* (also known as *Emblica Officinalis*) family of plants, or *Phyllanthaceae*.

Amla oil promotes the growth of hair. Hair graying can be avoided by drinking green vegetable juice along with two or three amla fruits.

It has a powerful, amazing effect on both hair and skin.

Amla increases hair growth by stimulating the hair follicles.

It provides hair roots with total nourishment.²³

Olive Oil: Olive oil comes from the fruits of the *Olea Europaea* family (*Oleaceae*).

Due to a variety of benefits, olive oil is fantastic for hair-

It contains nourishing oil that penetrates the hair shaft significantly better than other oils.

It works well to moisturize.

It also works well as a hair conditioner.

It also encourages hair growth.²⁴

Almond Oil: *Prunus Dulcis* produces almond oil.

Approximately 78% of this fat is made up of almond oil.

This particular oil contains an exceptionally low level of super-unsaturated Omega-3 essential fatty acids.

Its Omega-3 content is notably minimal, making it less suitable for those seeking a significant source of these essential nutrients.

It turns out to be incredibly nutritious for the hairs.

It strengthens and softens hair.²⁵

Castor Oil: Castor oil effectively eliminates the microorganisms on your scalp.

The scalp will not develop dandruff.

Castor oil can help you recover from a chemical treatment product's negative effect.

Oil is pure and beneficial for hair roots because it has emollient properties.

Castor oils can be used as a conditioner for your hair, making it supple and beautiful.²⁶

Jasmine Oil: The perfume of jasmine essential oil is sweet and fragrant.

One ounce of jasmine essential oil requires a tremendous amount of flower petals to produce.

This oil is incredibly pricey.

The hair benefits greatly from the nourishing and hydrating properties of this oil.

Hair that is dry and frizzy can be smoothed.

It gives hair a healthy shine and a fresh bounce.²⁷

Mustard Oil: The seeds of the mustard plant are used to make mustard oil.

Mustard seeds are a good source of antioxidants.

Herbal treatment for thinning hair.

Excellent for hair growth.

Combining this herbal cure with a small amount of henna can reduce hair loss.

Muscles in the head can be strengthened by massaging with mustard oil on the scalp.²⁸

Some common oils used in herbal cosmetics for skin care:

Rose oil

Chamomile oil

Sandalwood oil

Amla oil

Rose Oil: It is an essential oil.

It was initially found in Persia.

It's taken out of *Rosa damascena*.

It comes in two varieties: rose water and rose oil.

Both of these are utilized in a variety of preparations, most notably for face and skin treatments.

It also has moisturizing properties.

It also appears in skin toner.²⁹

Chamomile Oil:- Used in a variety of cosmetic items.

Used mostly in the creation of facial products.

Used in facial steams to minimize skin puffiness.

Pore cleaning effectiveness.

Used in lotions for skin care

In hair products as a massage oil.³⁰

Sandalwood Oil: It costs a lot for the oil.

It has moisturizing qualities.

It has antiseptic properties.

Suggestions for dry skin.

Herbal treatment for skin aging.

The sandalwood paste's cooling qualities make it useful for treating skin burns.



Used to lessen skin tanning and blotching effects.

For a clear, smooth, and spotless face.³¹

Amla Oil: Obtain from the *Emblca officinalis* fruits.

Protects against skin damage.

Protects from the sun's UV rays.

Having the effects of photo-aging.

It increases the suppleness of the skin.

Act against pimples.³²

Essential Oils:

Essential oils are multi-natural component complex mixes that contain volatile scent molecules derived from aromatic plants. Different plant parts, including leaves, grasses, flowers, wood, and shrubs, can be used to extract it. These have therapeutic, anti-microbial, and medical qualities. Steam distillation is utilized to extract essential oils, and solvent extraction techniques are used for greater oil recovery.

The cultivation of the herbs and the method used to extract the oils from the plants both affect the quality of the essential oil. Natural substances offer an alternative to synthetic pesticides that are safer or more effective and a means of disease prevention and treatment.

Aromatic plant production on a large scale provides farmers with a substantial source of income. It may be crucial to the expansion of the nation's economy.

In India, out of the total medicine raw material, 90% is collected from the forests that are controlled by the government. The proper utilization of medical plant resources requires a comprehensive approach. These are

various issues that are relevant to this area of activity. This comprises quantitative and economic appraisal, standardization of treatment practices, and resource augmentation through resource conservation, domestication, and mass manufacturing.

The economics of producing essential oils depend on both growing the herbs and extracting the oils from them. Oil has a solid reputation in aromatherapy thanks to its rich, musky, and sweet scent. The foundation of aromatherapy is the understanding that living in harmony with nature's principles makes man strong and healthy. It is an exotic aroma that can forever leave an imprint on the olfactory memory. Their application in pharmacy stems from the physiological impact of an individual or combination of essential oil components.

Natural medication preparation has been a cottage industry that employs a huge number of people and requires a high level of skill and labor. Even in low-rainfall, rain-fed regions, where growing food grain products is typically unprofitable due to high irrigation costs, medicinal and fragrant plants can be grown. In freshly created watersheds where water use must be as cost-effective as possible, medicinal and aromatic crops are excellent to be grown.

PHARMACOLOGICAL ACTION OF ESSENTIAL OILS

- ANTI-BACTERIAL
- ANTI-VIRAL
- ANTI-LICE
- ANTI-DANDRUFF
- ANTIOXIDANT
- INSECT/MOSQUITO REPELLANT³³

Table 4: Essential oils used in cosmetics

Common Name	Botanical Sources	Part used for essential oil extraction	Use
Camphor oil	<i>Cinnamomum camphora</i>	Wood	Rubefacient
Chamomile Oil	<i>Matricaria chamomilla</i>	Flower	Anti-inflammatory
Eucalyptus oil	<i>Eucalyptus globulus</i>	Fresh leaves	Antiseptic and deodorant
Garlic oil	<i>Allium sativum</i>	Compound bulb	Anti-inflammatory and antibacterial
Heena oil	<i>Lawsonia alba</i>	Flower	Falling and graying of hair
Jasmine oil	<i>Jasminum sambac</i>	Flower	In skin care, as deodorant
Lavender oil	<i>Levendula officinalis</i>	Flowering tops	In perfumes
Marigold oil	<i>Calendula officinalis</i>	Flower	Anti-inflammatory and Antiseptic
Peppermint oil	<i>Mentha piperita</i>	Flowering tops	Flavoring agent
Rose oil	<i>Rosa damascene</i>	Flower	In perfumery, in soaps & Aromatherapy
Sandalwood oil	<i>Santalum album</i>	Heart-wood	Deodorant and soap
Tulsi oil	<i>Ocimum sanctum</i>	Leaves	Anti-acne and used in soaps
Turmeric oil	<i>Curcuma Longa</i>	Rhizome	Anti-acne, anti-bacterial, used in soaps, creams



Table 5: Base oil used in cosmetics

Common Name	Botanical Sources	Part used for essential oil extraction	Use
Almond oil	<i>P. amygdalus</i>	Seed	Shampoos and skin lotions, Nourishes the skin
Castor oil	<i>Ricinus communis</i>	Seed	Skincare
Cotton seed oil	<i>Gossypium herbaceum</i>	Seed	Emollient
Joboba oil (Liquid Gold)	<i>Simmondsia chinensis</i>	Seed	Nourishes hair and skin.
Neem oil	<i>Azadiracta indica</i>	Seed	Skincare
Olive oil	<i>Olea europoea</i>	Fruit	Skin disorder
Wheat germ oil	<i>Triticum sativum</i>	Germ	Prevent skin dryness

In selecting the ideal approach, handling the data, and interpreting the outcomes, the analytical chemist continues to play a vital role. Enforcement and regulatory agencies often use analytical techniques to make sure that the items adhere to legal requirements, are safe, and correctly define what they are.

Instrumental methods and classical methods are the two main categories of analytical procedures.

- Traditional methodologies are established through the careful observation and evaluation of the chemical reactivity of analytes in a solution.
- The basis for the instrumental methods is a thorough analysis of the physical or physiochemical characteristics of the analytes that are connected to their molecular or atomic structure.

These techniques will provide cosmetic items with certain ingredients. It is possible to evaluate the skin tanning chemicals used to develop healthy skin without running the risk of the acute and chronic harmful effects of extended UV exposure by eye inspection, using a Minolta Chromameter, or using a Dia-strom Erythema/Melanin Meter.³⁴

The parameters comprise comb-out on dry hair as well as wet hair, as well as shine, silkiness, the absence of static electricity, customization, bounce, spring back, and body. Sensory reflection can be used to quantitatively examine the evaluation of hair greasiness.

The Instrumental methods involving light reflection are used to measure the parameters of individualization and gloss. Utilizing an Instron Tester, Dia-strom Miniature Tensile Tester, and Automatic Carousel arrangement, the amount of force required to stretch and snap individual hair fibers may be determined.

Microscopy or measuring and weighing standard lengths of hair fiber can be used to determine the cross-sectional area of the hair fiber that contributes to the tensile strength.

Dia-strom Fibre Dimensional Analysis System is a tool that can be used to analyze the cross-sectional area.

Curl retention, friction, resin adhesiveness, and drying qualities are some of the instrumental factors used in the

examination of hair properties and how hair-care products affect them.

The anti-dandruff evaluations are often conducted in the early spring and autumn.

In the winter, dandruff production is at its peak.

The formulation of the product and the container in which it is packaged are both tested for stability during the storage of cosmetic products.

The content can be broken down into categories based on its physical characteristics, such as viscosity, texture, color, odor, pH, and loss of volatile components, uptake of water, oxygen, or carbon dioxide.^{34,35}

CONCLUSION

In conclusion, oils play a significant role in formulation of herbal cosmetics. These natural oils offer a wide range of benefits for skin and hair care due to their nourishing, moisturizing and healing properties. Whether used alone or in combination with other herbal ingredients, oils contribute to the effectiveness and appeal of herbal cosmetics.

The choice of oil can greatly impact the final product, as different oils possess unique characteristics and are suitable for various skin types and concerns. For instance, oils like jojoba, argan, and coconut oil are well suited for moisturizing and conditioning, while oils like tea tree and neem have potent antimicrobial properties that can be beneficial for acne-prone skin.

Additionally, the rich presence of antioxidants, vitamins, and fatty acids in herbal oils can help combat signs of aging, promote skin rejuvenation, and improve the overall health of the skin and hair. Their natural origins align with the growing consumer demand for eco-friendly and sustainable cosmetic options.

However, it is essential to consider individual skin types and sensitivities when formulating herbal cosmetics with oils, as some individuals may be prone to allergies or adverse reactions. Proper formulation, including compatibility testing and attention to ingredient proportions, is crucial to ensure the safety and efficacy of herbal cosmetics.



In a world increasingly concerned with the health and environmental impacts of cosmetic products, herbal cosmetics incorporating natural oils offer a compelling and sustainable alternative. As research and development in this field continue to evolve, we can expect to see even more innovative and effective herbal cosmetic products harnessing the power of oils for healthier, more radiant skin and hair.

In the creation of herbal cosmetics, oils play a key role.

Source of Support: The author(s) received no financial support for the research, authorship, and/or publication of this article

Conflict of Interest: The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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