



## Review on Scientific and Therapeutic Significance of Traditional Formulations in hair Cosmetics

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### KEYWORDS

Traditional hair care, Natural Ingredients, Hair Growth, Scalp Nourishment, Herbal Cosmetics.

### ABSTRACT:

**Background:** Traditional hair care formulations, rooted in cultural heritage, utilize natural ingredients known for promoting hair health, growth, and protection. Remedies from regions like China, India, Egypt, and Africa are recognized for their effectiveness, safety, and environmental sustainability.

**Introduction:** This review explores the scientific and therapeutic significance of traditional hair care formulas, highlighting their potential in improving hair quality and meeting the rising demand for natural, eco-friendly cosmetics.

**Objectives:** Lacinia at quis risus sed vulputate odio ut enim. Orci porta non pulvinar neque laoreet suspendisse interdum. Consequat mauris nunc congue nisi vitae suscipit. Morbi quis commodo odio aenean.

**Methods:** A comprehensive analysis of literature on ingredients such as coconut oil, amla, henna, aloe vera, bhringraj, shea butter, and argan oil was conducted. Their benefits for scalp nourishment, hair strengthening, and protection against damage are discussed alongside challenges like standardization, intellectual property rights, and regulatory barriers.

**Results:** Studies show traditional formulations enhance hair texture, promote growth, and offer reduced irritation compared to synthetic alternatives. Their biodegradable nature and local sourcing support environmental sustainability.

**Conclusions:** Traditional hair care products provide an effective, sustainable, and culturally valuable option in modern cosmetology. Ensuring quality control, ethical sourcing, and scientific validation will be key to their broader acceptance and integration into global markets.

### 1. Introduction

Around the world, hair care has long been considered an essential part of personal cleanliness, beauty, and grooming. Hair health and attractiveness have been highly valued culturally and aesthetically by cultures throughout history. Everyone has been concerned about keeping their hair healthy and well-groomed, whether for religious, social, or symbolic reasons. Hair was frequently connected to identity, strength, and vitality in ancient societies, and hair care customs varied as much as the cultures themselves. From the Egyptian pharaohs to the Indian sages and African queens, hair care practices were closely linked to social mores and cultural customs.[1]

A wide range of techniques and materials emerged as hair care evolved over time. Traditional formulae, which were initially based on natural resources including herbs, plant oils, and mineral extracts, became essential to holistic beauty treatments. Frequently found in spiritual or medical teachings, these early formulations were handed down through the years.[2] They were created with the aid of empirical knowledge and astute observation, and they were founded on a profound comprehension of the healing potential of nature. However, the hair care sector started to undergo a significant change as a result of industrialization and the development of contemporary cosmetic science. The market has been overrun by synthetic goods with artificial perfumes, silicones, sulfates, and preservatives



during the past century. [1,3] These products, which promise immediate benefits like straightening, volumizing, or color enhancement, frequently put appearance before long-term health. Many of these advances have made things more convenient and accessible, but they have also raised issues about hair damage, irritation of the scalp, and the impact on the environment because of packaging waste and chemical buildup.

Both producers and customers are reexamining the advantages of conventional hair care as a result of increased awareness of these problems. Inspired by a larger movement toward clean beauty, sustainability, and holistic wellbeing, there is a noticeable comeback in the use of natural components and traditional recipes.[3] Traditional hair care, which has its roots in indigenous wisdom and long-standing cultural customs, is a profound fusion of wellbeing and beauty. It highlights how the body, mind, and nature are all intertwined.[2] Additionally, it exhibits reverence for biodiversity and legacy, frequently integrating practices that encourage calmness and awareness. The beauty industry is starting to incorporate these age-old cures into modern products as more scientific research confirms the therapeutic benefits of traditional components. This article explores the many facets of traditional hair cosmetic formulae significance. It looks into how they were developed historically, what natural substances are frequently employed, and whether there is scientific proof that they work. It also explores the cultural significance of these customs and talks about the advantages and disadvantages of implementing them into contemporary hair care routines.[3]

## 2. Historical Perspective of Traditional Hair Care Formulas

Traditional hair care practices have been shaped over centuries by the natural resources available in different regions and the collective wisdom of local communities. These practices were closely tied to religious beliefs, medicinal systems, and cultural traditions. In ancient Egypt, castor and almond oils were commonly used to nourish the scalp and hair, while natural resins and fragrant oils maintained wigs and elaborate hairstyles. In India, Ayurvedic medicine emphasized the use of herbal-infused oils such as coconut, sesame, and almond combined with botanicals like amla,

bhringraj, brahmi, and neem to promote hair growth, prevent premature greying, and treat scalp conditions. Traditional Chinese medicine incorporated ingredients like He Shou Wu, ginseng, and rice water to strengthen hair, improve its shine, and reduce hair loss. Similarly, indigenous African hair care relied on shea butter, black soap, and oils such as castor and baobab to protect and moisturize tightly coiled hair textures. These ancient methods laid the foundation for what is now recognized as traditional hair cosmetics. The knowledge, passed down orally through generations, was not only a means of beauty enhancement but also an integral part of the community's overall health and wellness practices.[4]

## 3. Key Ingredients in Traditional Hair Formulas

The natural, tried-and-true components of traditional hair cosmetics—many of which are made from plants, seeds, and other organic materials—are their real strength. In order to preserve the integrity and potency of their bioactive compounds, these ingredients are usually utilized in their purest or least processed forms.[5] Traditional components provide holistic benefits by feeding the scalp and hair from the inside out, in contrast to synthetic options that frequently only address the surface appearance of hair. Because of their delicate nature, they can be used on sensitive scalps and a range of hair types, reducing the possibility of irritation or negative reactions. Some of the most cherished traditional ingredients are listed below in Table 1, They are praised for both their cultural value and their scientifically proven effectiveness.[3]

**Table1 Key Ingredients in Traditional Hair Care Components**

Ingredient	Origin/Culture	Key Active Compounds	Benefits
Coconut Oil	South Asia, Pacific	Lauric acid,	Moisturizes, reduces



		Vitamin E	protein loss
Amla	India (Ayurveda)	Vitamin C, antioxidants	Promotes growth, reduces dandruff
Henna	Middle East, India	Lawson, tannins	Natural colorant, conditions hair
Aloe Vera	Various, globally	Enzymes, vitamins	Soothes scalp, conditions hair
Bhringraj	India (Ayurveda)	Flavonoids, alkaloids	Stimulates hair growth, reduces fall
Shea Butter	Africa	Fatty acids, vitamins A & E	Moisturizes, protects textured hair
Argan Oil	Morocco	Vitamin E, fatty acids	Repairs damage, nourishes hair

#### 4. Benefits of Traditional Hair Formulas

Traditional hair care formulations offer holistic benefits that extend beyond aesthetics to support scalp health, hair

strength, reduced chemical exposure, environmental sustainability, and cultural connection. Ingredients like aloe vera, neem, henna, and tea tree possess anti-inflammatory, antifungal, and antibacterial properties that soothe the scalp and treat conditions such as dandruff and infections.[7] Botanicals such as amla, hibiscus, and bhringraj provide essential nutrients and antioxidants, promoting hair growth, reducing breakage, and enhancing follicle strength. Unlike synthetic products loaded with sulfates, parabens, and silicones that may irritate the scalp or cause long-term harm, traditional formulas rely on natural, biodegradable components,[1] making them safer for sensitive individuals. Their sustainable nature, using locally sourced and renewable materials like soapnuts, coconut oil, and henna, minimizes environmental impact and supports eco-friendly practices.[3] Furthermore, these formulations preserve cultural heritage, fostering a sense of identity and mindfulness through ancestral rituals like oil massages or community hair grooming practices, thereby reinforcing the bond between beauty, well-being, and tradition.[8,2]

#### 5. Scientific Validation of Traditional Ingredients

The effectiveness of conventional hair care substances has been more and more confirmed by current scientific studies, closing the knowledge gap between traditional wisdom and modern science. These studies offer verifiable proof in favor of the centuries-old cultural practices that have valued the usage of natural substances.[5] Scientists are determining the mechanisms underlying the efficacy of herbs, oils, and plant extracts by examining their bioactive ingredients. This will increase the products legitimacy and attractiveness in the current global beauty market.

Coconut oil is among the most well researched traditional substances. Several scientific studies have verified that the low molecular weight and straight-chain structure of coconut oil provide it a special capacity to enter the hair shaft.[2] According to a well-known study that was published in the Journal of Cosmetic Science, using coconut oil both before and after hair washing dramatically lowers protein loss. Compared to mineral oil and sunflower oil, which tend to coat the hair rather than provide it with inside nourishment, this preventive effect is significantly superior. Additionally, coconut oil has antibacterial qualities that help keep the area around the scalp healthy and guard against infections and dandruff.

Another potent component that has drawn interest in dermatological studies is amla (Indian gooseberry). Amla, which is high in vitamin C, polyphenols, and flavonoids, has strong



antioxidant qualities that shield hair follicles from oxidative damage brought on by aging and pollution.[7] According to studies, amla may also increase the production of collagen, which is essential for supporting hair development and fortifying the scalp. Over time, the stronger hair roots that result from the increased collagen synthesis may lessen hair breakage and loss.

Clinical testing has also been done on Bhringraj (Eclipta alba), referred to as the "king of herbs" for hair in Ayurvedic medicine. Bhringraj extracts have been shown to stimulate hair follicles, hence boosting the proliferation of dermal papilla cells—an key component of hair formation.[10] Bhringraj has been demonstrated in laboratory models to extend the hair cycle's anagen phase, or the active growth phase, which is necessary to maintain long, healthy hair. When applied regularly over time, this prolongation may help produce noticeably denser and thicker hair.

Aloe vera has long been employed in many traditional treatment systems, and its calming and regenerative qualities are now acknowledged by science.[6] Proteolytic enzymes included in aloe leaf gel aid in the restoration of dead skin cells on the scalp, enhancing its health and lowering the incidence of diseases like seborrheic dermatitis and dandruff.[11] Aloe vera also functions as a natural conditioner, enhancing shine, reducing frizz, and smoothing the hair cuticle. Its nourishing effects on the scalp and hair are also attributed to its high vitamin content, which includes vitamins A, C, and E. The increasing amount of scientific data supports the trust that consumers have in conventional hair care products as shown in Table 2. The scientific community is increasingly acknowledging what was previously thought to be only folklore, which makes it possible for traditional formulas to be more generally accepted in domestic and foreign markets.[12] The beauty and hair care sector is promoting a new generation of comprehensive, efficient, and sustainable solutions that appeal to both environmentally concerned and health-sensitive consumers by fusing traditional expertise with contemporary research.

## 6. Cultural Significance and Social Identity

In many cultures, traditional hair care practices hold deep cultural and social significance, woven into the fabric of daily life and special occasions. Oils, herbs, and natural preparations are not only used for grooming but also play symbolic roles in rituals such as weddings, religious ceremonies, and coming-of-age events. These practices serve as expressions of blessings, purification, and happiness, reinforcing cultural identity and connecting individuals to their heritage during important life moments. Beyond personal care, traditional hair treatments foster community bonding.[9] In several societies, the preparation and application of herbal oils or pastes involve family members and neighbors, creating opportunities for shared experiences and intergenerational knowledge transfer. These collective activities strengthen family ties, preserve ancestral wisdom, and keep traditional beauty practices alive across generations. Moreover, embracing traditional hair care methods encourages self-acceptance and cultural pride. By

valuing natural hair textures and rejecting the pressure to conform to Western beauty standards, these practices promote an authentic sense of beauty rooted in one's cultural background. This celebration of natural appearance not only enhances personal confidence but also supports the preservation of unique cultural identities. [7]

## 7. Traditional Formulas in the Modern Hair Care Industry

The resurgence of interest in traditional hair care methods has significantly influenced the strategies of modern cosmetic industries worldwide. Many brands are now incorporating traditional ingredients into their product lines, responding to the growing consumer demand for natural, sustainable, and ethically sourced beauty solutions.[5] This shift aligns with the broader "clean beauty" movement, which emphasizes overall wellness and the exclusion of harsh chemicals from personal care products. One prominent example is the development of herbal shampoos and conditioners featuring traditional botanicals like neem, shikakai, and hibiscus. These ingredients, long valued for their cleansing, nourishing, and strengthening properties, [2] are now marketed as gentle alternatives to conventional formulations that typically contain sulfates and synthetic detergents. Similarly, the hair oil segment has expanded, with companies offering blends of Ayurvedic herbs such as amla and bhringraj combined with popular oils like coconut, argan, and almond. These products are praised not only for enhancing scalp health and promoting hair growth[10] but also for providing consumers with a deeper, more culturally rooted self-care experience. In addition, many brands support the use of DIY hair masks and treatments as part of their "back to roots" campaigns was listed in Table 3.[6] These initiatives encourage consumers to rediscover the simplicity and effectiveness of traditional, home-based beauty rituals using natural ingredients. Such marketing approaches emphasize cultural heritage, sustainability, and the sensory richness of natural hair care, making them especially appealing to environmentally conscious and health-aware customers.[11] The widespread sharing of traditional knowledge via social media and global communication platforms further amplifies this trend, bridging cultural practices across geographical boundaries.[12]

**Table 2 | List of Hair Care Product with Bioactive Components**

Ingredient	Bioactive Components	Scientific Findings
		Penetrates the hair shaft due to low



Coconut Oil	Lauric acid (medium-chain fatty acids)	molecular weight and straight-chain structure; reduces protein loss significantly compared to mineral and sunflower oils (Journal of Cosmetic Science).
Amla (Indian Gooseberry)	Vitamin C, Polyphenols, Flavonoids	Exhibits antioxidant activity; protects hair follicles from oxidative stress caused by pollution and aging; enhances collagen production that supports hair growth and scalp health.
Bhringraj (Eclipta alba)	Wedelolactone, Flavonoids	Stimulates hair follicles and dermal papilla cell proliferation; prolongs the Anagen (growth) phase of the hair cycle; laboratory models show potential for denser and thicker hair.
Aloe Vera	Proteolytic enzymes, Vitamins A, C, E	Restores dead scalp cells; improves scalp health; reduces conditions like seborrheic dermatitis; smoothens hair cuticle; natural conditioner that enhances shine and reduces frizz.

**Table 3 | Traditional Elements used in the Modern Hair Care Applications**

Category	Traditional Elements Used	Modern Industry Applications
Herbal Shampoos & Conditioners	Neem, Shikakai, Hibiscus	Incorporated into shampoos and conditioners for cleansing, nourishing, and strengthening hair
Hair Oils	Amla, Bhringraj, Coconut Oil, Argan Oil, Almond Oil	Blended in hair oils targeting scalp health, hair growth, and nourishment
DIY Hair Masks	Various herbs, plant extracts, oils	Encouraging at-home hair masks and treatments using simple natural ingredients

### 8. The Future of Traditional Hair Formulas

The future of traditional hair care formulations appears promising, driven by growing consumer demand for sustainable and holistic beauty solutions. Scientific innovation is expected to enhance the



stability, safety, and shelf life of these products without compromising their natural purity,[14,15] using advanced extraction and preservation techniques. Eco-friendly packaging also plays a pivotal role, as environmentally conscious consumers favor recyclable and biodegradable materials that align with the sustainable nature of these formulations. Furthermore, inclusive marketing strategies that highlight the cultural origins and adaptability of traditional hair care products for diverse hair types can broaden their appeal.[3,6] By embracing cultural authenticity and promoting diversity, brands can connect with a wider audience, fostering respect and appreciation for time-honored beauty traditions in the global market.[10]

## 9. Discussion

Growing consumer demand for natural and sustainable hair care products has spurred extensive research on herbal formulations, many of which draw from traditional knowledge systems. These formulations, particularly herbal oils and serums, are valued for promoting hair growth, moisturizing the scalp, and strengthening hair follicles with minimal side effects. Studies indicate that such products maintain desirable physicochemical properties like pH, viscosity, and saponification values, ensuring stability, shelf life, and user comfort.

Herbal ingredients also offer strong antioxidant activity due to the presence of flavonoids, phenolics, and vitamins, protecting hair follicles from oxidative stress and preventing premature hair loss. Additionally, their natural antibacterial and antifungal properties help manage scalp conditions such as dandruff and infections, enhancing their therapeutic value without relying on synthetic antimicrobials. Safety assessments consistently show low irritation potential, aligning with the gentle and non-toxic nature of traditional remedies. In vivo studies further support the efficacy of herbal products, demonstrating improvements in hair density, length, and shine through the synergistic action of bioactive compounds that nourish the scalp and stimulate microcirculation. The growing preference for eco-friendly, biodegradable, and ethically sourced products has also revived interest in these formulations, which address environmental concerns while preserving cultural heritage.

## 10. Conclusion

Traditional hair cosmetic formulations embody a harmonious blend of nature, culture, and science, offering far more than surface-level beauty. These age-

old practices, preserved and perfected over generations, represent a holistic approach that nurtures not only the hair and scalp but also overall well-being. Rooted deeply in cultural traditions, these formulations carry with them the wisdom, rituals, and stories of communities, fostering a profound sense of identity and connection with heritage. In today's world, where consumers are increasingly mindful of the products they use and their impact on health and the environment, traditional hair care methods resonate strongly with values such as sustainability, purity, and ethical sourcing. By avoiding harsh synthetic chemicals and embracing biodegradable, naturally derived ingredients, these formulations meet the demand for safer, eco-friendly personal care.

The integration of traditional knowledge with modern scientific research has opened new possibilities for creating effective, reliable, and safe hair care products. This synergy not only enhances consumer trust but also expands the global appeal of traditional formulations in the beauty market. By embracing these time-honored practices, the modern hair care industry has the unique opportunity to promote an inclusive and culturally respectful vision of beauty one that celebrates diversity in hair types and aesthetics across different societies. Moreover, this movement supports ethical business models that ensure fair recognition and benefit-sharing with local and indigenous communities, honoring their invaluable contributions. Ultimately, traditional hair cosmetic formulations pave the way for a conscious and compassionate beauty philosophy—one that cherishes cultural richness, prioritizes environmental care, and nourishes both body and spirit, transforming everyday hair care into a meaningful and mindful ritual.

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