

OVERVIEW ON NATURAL INGREDIENTS FOR FACE CREAM

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ABSTRACT

The use of natural ingredients in face creams has gained significant attention due to their safety, efficacy, and alignment with sustainable practices. These ingredients, including aloe vera, honey, turmeric, green tea, shea butter, rosehip oil, chamomile, jojoba oil, coconut oil, and licorice root extract, are rich in bioactive compounds like antioxidants, anti-inflammatory agents, and anti-aging molecules. This review explores their benefits for skin health, focusing on hydration, acne control, brightening, and wrinkle reduction. It also highlights scientific evidence supporting their efficacy while discussing industry trends such as clean beauty and sustainability. Challenges like ingredient stability and ethical sourcing are examined alongside future perspectives for innovation in skincare formulations.

KEYWORD:- Natural ingredients, Face Cream, Anti-aging, antioxidant, Skin Health, Clean beauty, Skincare, Sustainability.

INTRODUCTION

Natural skincare ingredients have become a cornerstone of modern cosmetic formulations due to their ability to address diverse skin concerns while minimizing adverse effects associated with synthetic chemicals. These ingredients often contain bioactive compounds such as antioxidants (e.g., polyphenols), anti-inflammatory agents (e.g., curcumin), and anti-aging molecules (e.g., retinoids) that provide targeted benefits.^{[1][2][3]} The growing consumer demand for clean beauty products further underscores the importance of natural components in skincare.^[4] In recent years, cosmeceuticals have emerged as a prominent and rapidly expanding segment within the natural personal care industry. There is a growing trend toward incorporating plant-based extracts into cosmetic formulations, driven in part by the declining acceptance of animal-derived ingredients due to health concerns such as bovine spongiform encephalopathy. While alternatives to animal products are needed, synthetic substitutes often fail to match the efficacy of their natural counterparts. Plant-derived bioactive compounds, therefore, present a promising avenue for innovation in cosmetic science. Nevertheless, their use poses several formulation challenges. Variability in extraction methods, inconsistencies in plant-to-solvent ratios, and fluctuations in active compound concentrations can hinder reproducibility and effectiveness. Additionally, factors such as alterations in color, aroma, clarity, and the long-term stability of phytochemicals can impact product quality. Unlike purified pharmaceutical agents,

plant extracts are typically less concentrated and may contain multiple bioactives that function synergistically or enhance the action of a principal component.^[5]

Popular natural ingredients

Natural ingredients are selected for their unique properties and bioactive compounds:

1) Aloe Vera: Contains polysaccharides that hydrate the skin and promote healing. Its anti-inflammatory properties make it effective in soothing conditions like psoriasis.^{[2][3]} Aloe vera (*Aloe barbadensis* Miller) is a perennial succulent plant belonging to the Asphodelaceae family (Formerly classified under Liliaceae). Recognized for its thick, fleshy, pea-green leaves and shrubby or tree-like form, it is well-adapted to arid environments. The plant flourishes in dry regions and is distributed across Africa, Asia, Europe, and the Americas. In India, it is commonly cultivated in states such as Rajasthan, Andhra Pradesh, Gujarat, Maharashtra, and TamilNadu.^[6]



Fig. 1: Aloe Vera.

2) Honey: Rich in glucose oxidase enzymes that produce hydrogen peroxide for antibacterial effects. Honey also contains flavonoids with antioxidant properties that combat free radicals.^{[2][3]} Honey is a natural and health-promoting substance known for its antioxidant, anti-inflammatory, and antimicrobial activities, primarily attributed to its rich content of phenolic compounds. Honey is widely valued not only as a natural sweetener but also for its health-enhancing properties.^[7]



Fig. 2: Honey.

3) Turmeric: Curcumin is the active compound responsible for its potent anti-inflammatory and antioxidant effects. It is widely used for brightening the skin and reducing hyperpigmentation.^{[1][3]} Turmeric (*Curcuma longa*) is a popular spice used around the world, known not just for its flavor but also for its health benefits. Studies have shown it has anti-inflammatory, antimicrobial, antioxidant, and even anticancer properties. One of its key compounds, curcumin, is gaining attention for its potential to help treat various skin conditions.^[8]



Fig. 3: Turmeric.

4) Green tea: made from the leaves of *Camellia sinensis*, is well known not just as a healthy beverage but also as a beneficial ingredient in skincare. One of its most powerful compounds, epigallocatechin gallate (EGCG), acts as a strong antioxidant that helps protect the skin from damage caused by free radicals. This helps slow down signs of aging like fine lines and wrinkles. EGCG also supports collagen production, keeps the skin firm, and calms inflammation, making green tea a popular choice in products designed to soothe and rejuvenate the skin.^{[2][3]}



Fig. 4: Green Tea.

5) Shea Butter: Packed with fatty acids and vitamins A and E, shea butter deeply moisturizes the skin while improving elasticity.^[3] Shea butter is a highly valued ingredient in skincare and cosmetic formulations due to its wide range of skin benefits. Known for its rich moisturizing properties, it helps hydrate dry skin and restore the natural balance between oil and moisture. Packed with vitamin E and antioxidants, shea butter also plays a role in protecting the skin from free radical damage, which can contribute to premature aging. Its natural anti-inflammatory and calming effects make it especially beneficial for sensitive skin and individuals dealing with irritation or certain skin conditions.^[9]



Fig. 5: Shea Butter.

6) Rosehip Oil: Rich in essential fatty acids (omega-3 and omega-6) and vitamins A (retinoids) and C (ascorbic acid), rosehip oil promotes collagen synthesis for anti-aging benefits.^{[2][3]}



Fig. 6: Rosehip Oil.

7) Chamomile: Contains apigenin and bisabolol—bioactive compounds known for their calming effects on sensitive or irritated skin.^{[2][3]} Chamomile (*Matricaria chamomilla* L.), a member of the Asteraceae family, is one of the most ancient and well-researched medicinal herbs in the world. Traditionally used across various cultures, it remains a widely trusted remedy in both folk and natural medicine. Chamomile is chemically rich, containing over 120 identified secondary metabolites such as flavonoids, terpenoids, sesquiterpenes, coumarins, essential oils, and organic acids. This diverse chemical makeup contributes to its wide-ranging therapeutic effects, which include anti-inflammatory, antibacterial, antiseptic, antispasmodic, sedative, antioxidant, antitumor, and even neuroprotective properties. It has also demonstrated potential in managing allergic reactions, anxiety, pain, and digestive issues. In skincare, chamomile's effectiveness in treating irritation, inflammation, and various skin disorders is largely attributed to the synergistic action of its bioactive compounds.^[9]



Fig. 7: Chamomile Tea.

8) Jojoba Oil: Mimics human sebum due to its wax ester composition, making it ideal for balancing oily skin while providing hydration.^{[2][3]}



Fig. 8: Jojoba Oil.

9) Coconut Oil: Contains lauric acid with antibacterial properties alongside vitamin E for moisturizing benefits.^[3]



Fig. 9: Coconut Oil.

10) Licorice root extract: Glabridin inhibits melanin production to reduce hyperpigmentation while offering antioxidative capabilities.^{[2][5]}



Fig. 10: Licorice root extract.

Benefits for skin^{[1][2]}

Natural ingredients offer a variety of benefits due to their bioactive compounds:

- **Moisturizing:** Ingredients like aloe vera polysaccharides, shea butter fatty acids, jojoba oil wax esters, and coconut oil provide deep hydration.
- **Anti aging:** Green tea EGCG, rosehip oil retinoids, turmeric curcumin, and honey flavonoids reduce oxidative stress while promoting collagen synthesis to minimize wrinkles.
- **Brightening:** Curcumin in turmeric and glabridin in licorice root extract inhibit melanin production to reduce pigmentation.
- **Acne control:** Honey's hydrogen peroxide production alongside aloe vera's anti-inflammatory polysaccharides help soothe acne-prone skin.
- **Anti oxidant**
- **Anti-Inflammatory**

Scientific backing

The efficacy of these natural ingredients is supported by scientific research

- Aloe vera has been shown to reduce inflammation through its polysaccharides while hydrating the skin effectively.
- Green tea polyphenols improve skin elasticity by neutralizing free radicals responsible for aging.

- Turmeric's curcumin inhibits inflammatory pathways such as NF- κ B signaling.
- Honey's antibacterial effects against *Propionibacterium acnes* have been confirmed by studies published in *Journal of Cosmetic Dermatology*.

Trends in skincare industry

The skincare industry is evolving rapidly due to consumer demand for transparency and sustainability:

- **Clean beauty movement:** Consumers prefer products free from harmful chemicals like parabens or sulfates.^[4]
- **Sustainability practices:** Brands are adopting eco-friendly packaging solutions while ethically sourcing ingredients such as Shea Butter from fair-trade cooperatives.^[3]
- **Organic certifications:** Certifications like USDA Organic or COSMOS Organic validate product authenticity by ensuring adherence to stringent standards.^[1]

Challenges & Future Perspectives

- **Challenges:** While natural skincare ingredients offer numerous advantages, they come with challenges
- 1. **Stability issues:** Many natural compounds degrade quickly when exposed to light or air (e.g., vitamin C oxidation in rosehip oil).^{[1][3]}
- 2. **Sourcing difficulties:** Ethical sourcing of ingredients like chamomile can be challenging due to environmental concerns or exploitation risks.^[2]
- 3. **Formulation complexities:** Achieving consistent results requires advanced techniques such as encapsulation.^[3]
- **Future perspectives**
- 1. Biotechnology advancements could enhance ingredient stability through encapsulation technologies like liposomes or nanocarriers.^[1]
- 2. Sustainable cultivation methods using vertical farming many address sourcing challenges while minimizing environmental impact.^[4]

CONCLUSION

Natural ingredients have revolutionized face creams by offering safer alternatives to synthetic chemicals. Bioactive compounds such as antioxidants (EGCG from green tea), anti-inflammatory agents (curcumin from turmeric), and anti-aging molecules (retinoids from rosehip oil) address diverse skin concerns effectively. However, challenges related to stability and ethical sourcing require innovative solutions to ensure long-term success.

Natural skincare ingredients such as aloe vera, honey, turmeric, green tea, shea butter, rosehip oil, chamomile, jojoba oil, coconut oil, and licorice root extract offer multifaceted benefits for the skin due to their bioactive components like antioxidants, anti-inflammatory agents,

and anti-aging molecules, while clean beauty trends emphasize sustainability and organic certifications challenges related to ingredient stability remain significant hurdles. Continued innovation will shape the future of natural skincare formulations.

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