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Review Article

The Review on Cosmetic Science Formulation and Evaluation of Herbal Anti-Aging Cream

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ABSTRACT

The present review focuses on the formulation and evaluation of herbal anti-aging creams, emphasizing the growing importance of natural ingredients in cosmetic science. Aging of the skin is a complex biological process influenced by both intrinsic (internal) and extrinsic (external) factors such as genetics, hormonal changes, sun exposure, and pollution. Synthetic anti-aging products, though effective, often pose risks of irritation and side effects, leading to increased interest in herbal alternatives. Herbal ingredients such as Aloe vera, Curcuma longa (Turmeric), Centella asiatica, Emblica officinalis (Amla), and Glycyrrhiza glabra (Licorice) are rich in antioxidants, vitamins, and bioactive compounds that help protect against oxidative stress, promote collagen synthesis, and improve skin elasticity and hydration. These natural formulations not only reduce wrinkles and fine lines but also enhance overall skin texture and tone. The review highlights that herbal anti-aging creams, due to their safety, biocompatibility, and multifunctional properties, represent a promising and sustainable approach to skincare and age management.

INTRODUCTION

Cosmetics play an important role in enhancing skin appearance while protecting it from both internal and external stressors. Along with beautification, they help in managing common skin issues and maintaining skin health. Everyone desires youthful and attractive skin, free from wrinkles, acne, pimples, and other signs of aging. The aging of skin mainly occurs due to damage in

cellular DNA and proteins. These creams are typically moisturizer-based emulsions made of water and oil, intended for topical application. Along with improving skin hydration, they deliver active ingredients that enhance elasticity, promote collagen production, and stimulate cell regeneration, thereby supporting the skin's natural repair process. Everyone desires youthful and healthy-looking skin, which is why cosmetics are

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widely used to improve tone, reduce acne, wrinkles, tanning, and other age-related changes. Although synthetic cosmetics can be effective, their potential side effects raise health concerns. As a result, people are increasingly turning towards herbal cosmetics, which are considered safer and more natural alternatives. Aging of the skin is a natural process influenced by internal factors and external triggers like sun exposure, pollution, and oxidative stress. Problems such as inflammation, glycation, and free radical damage play a big role in how the skin changes over time. While many chemical-based anti-aging products exist, their long-term use can cause side effects. Because of this, people are turning more toward herbal alternatives. Herbal ingredients like aloe Vera, turmeric, amla, green tea, and Centella asiatica are rich in antioxidants, vitamins, and bioactive compounds that protect the skin, boost collagen, and improve elasticity. These plant-based creams are usually prepared with natural bases, stabilizers, and preservatives to ensure effectiveness and safety. Recent research highlights the growing use of single and multi-herbal formulations that combine different extracts for better results. Overall, herbal anti-aging creams are emerging as a safer and more effective option for skin care compared to synthetic ones.

Key Functions of Anti-Aging Creams

- **Reduction of Wrinkles and Fine Lines:** Anti-aging creams are formulated to Minimize the appearance of Wrinkles by stimulating collagen production, which helps maintain skin Firmness and smoothness.
- **Enhanced Hydration:** To combat dryness, a key factor in aging, these creams Often contain humectants and Emollients to keep the skin moisturized and Supple.
- **Improved Elasticity:** Certain ingredients enhance the skin's elasticity, Resulting in a firmer and more youthful Appearance.
- **Even Skin Tone:** By promoting cell turnover and inhibiting melanin Production, anti-aging creams reduce the Appearance of age spots, sun Damage, and hyperpigmentation.
- **Antioxidant Protection:** Many formulations include antioxidants that shield The skin from environmental Damage caused by free radicals, which Contribute to premature aging.

Classification of the Skin:

(The skin is classified into generally four types are.)

1. Normal skin
2. Dry skin
3. Oily skin
4. Combination skin



1. Normal skin:

It is worth noting that there is no definition of Normal skin, the latter being qualified in Comparison with the other skin types: a normal Skin is not a dry skin, not an oily skin, not a Mixed skin, and no more a pathological skin Therefore, considering its structure and its Functions, a normal skin should be a smooth Skin, pleasant to touch, because of the cohesion Of The cells of its more superficial layers; a firm And supple skin because of the existence of a Dense supportive tissue and of the presence of Numerous elastic fibers of good quality.

2. Dry Skin

Dry skin is often described differently depending on how people experience it. For some, it's Mainly the sensation of tightness, roughness, and reduced flexibility of the skin. This condition Usually occurs due to changes in skin enzymes or an imbalance in skin pH, which disrupts Normal function and results in dryness.

3. Oily Skin

Unlike dry skin, oily skin is caused by the sebaceous glands producing too much sebum. This Excess oil spreads across the surface, making the

skin look shiny and greasy, often with enlarged Pores.

4. Combination Skin:

Combination skin is a mix of both dry and oily types, appearing in different zones of the face or Body. A common example is the "T-zone" of the face (forehead, nose, and chin), which tends to Be oily with visible pores, while the cheeks may remain more delicate, dry, or finely textured.

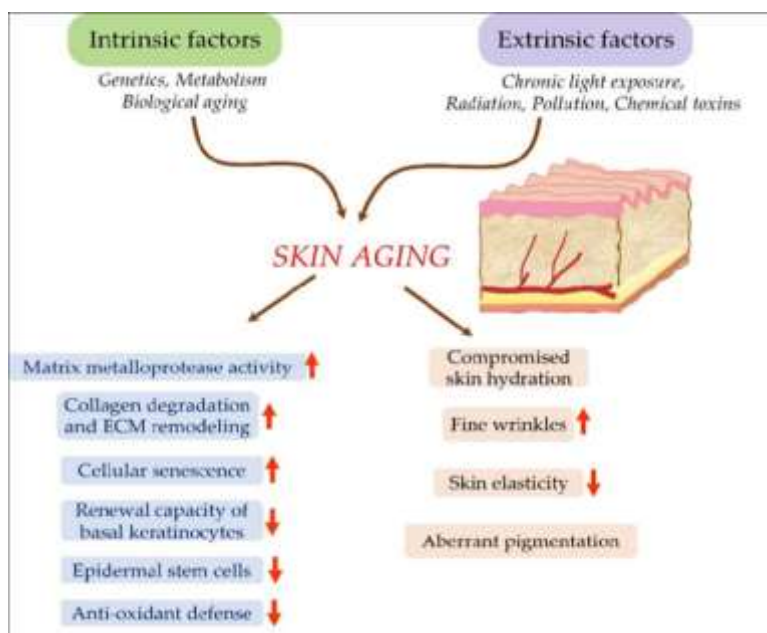
Types of Aging

1. Intrinsic (internal) aging:-

As we grow older, our skin naturally starts to show signs like fine lines and wrinkles. This type of aging, known as intrinsic aging, happens due to various internal biological processes such as: genes, hormonal changes, slower cell renewal, oxidative stress, and reduced repair capacity of the body.

2. Extrinsic (external) aging:-

Things around us, like spending too much time in the sun, harsh weather, and pollution, speed up the skin's natural aging. These factors make the skin look old faster, often causing sagging, dark spots, and more noticeable wrinkles.



Key Herbal Ingredients and Their Benefits:

Herbal Extract	Major Active Constituents	Anti-Aging Properties
Aloe vera	Aloin, vitamins, enzymes	Moisturizing, anti-inflammatory
Curcuma longa (Turmeric)	Curcumin	Antioxidant, inhibits collagen breakdown
Centella asiatica	Asiaticoside, madecassoside	Promotes collagen synthesis
Emblica officinalis (Amla)	Vitamin C, gallic acid	Antioxidant, skin brightening
Glycyrrhiza glabra (Licorice)	Glabridin, flavonoids	Reduces hyperpigmentation

1. Aloe Vera Gel (Ghritkumari, Kumari)



- **Kingdom** : Plantae
- **Order** : Asparagales
- **Division** : Spermatophyta
- **Class** : Monocotyledoneae
- **Family** : Liliaceae
- **Genus** : Aloe[9]
- **Botanical Name**: Aloe barbadensis miller

Chemical Constituents & Active Components:

- Vitamins – Vit-A,C,E,B1, B2,B6 and B12,
- Enzymes – Aliiase, Amylase, oxidase, catalase, lipase,
- Minerals – Calcium, copper, Potassium selenium,chromium,
- Sugars – Glucose, Polymannose, alprogen,,
- Organic Acids – salicylic acid sorbate,
- Anthraquinones -Aloin, anthranol, emodin.
- Fatty Acids & Steroids – Beta-sisosterol, Lupeol, cholesterol,
- Non-essential aminoacids – Arginine, Glycine, alanine,
- Essential aminoacids – Methionine, leucine, lysine,
- Hormones –Auxins, Gibberellin.

Uses: Anti-aging, Anti-fungal, Anti-oxidant, Wound healing, Anti-inflammatory, moisturize the skin

2. *Curcuma longa* (Turmeric)



Chemical Constituents :-

5% curcuminoids and around 6% essential oil. Among the colouring compounds, curcumin I is the major component, making up nearly 60%, along with smaller amounts of curcumin II, curcumin III, and dihydrocurcumin. Its essential oil fraction is rich in zingiberene (about 25%) and also includes α -phellandrene, sabinene, turmerone, ar-turmerone, borneol, and cineole

3. *Centella asiatica* :-

Chemical Constituents:- Asiaticoside, madecassoside

Uses:- Promotes collagen synthesis

4. *Emblica officinalis* (Amla)

Chemical Constituents:- Vitamin C, Gallic acid

Uses:- Antioxidant, Skin brightening

5. *Glycyrrhiza glabra* (Licorice)

Chemical Constituents:- Glabridin, flavonoids

Uses:- Reduces hyperpigmentation

USES:-

1. Turmeric naturally helps reduce inflammation.
2. It strengthens the heart and may protect against cancer and Alzheimer's disease.
3. It is packed with strong antioxidants that shield the body from damage.
4. Turmeric supports diabetes management and prevention.
5. It improves overall skin health, keeping it glowing.
6. It may also help in relieving depression.
7. Its antibacterial properties make it useful in treating acne.
8. It can reduce dark circles under the eyes.

Advantages of Herbal Anti-Aging Creams

1. Natural and Safe:

Herbal anti-aging creams are made from plant-derived ingredients, which are generally safer and cause fewer allergic reactions compared to synthetic chemicals.

2. Rich in Antioxidants:

Herbs such as Aloe vera, Turmeric, Amla, and *Centella asiatica* are abundant in antioxidants that neutralize free radicals, reducing oxidative stress and delaying signs of aging.

3. Improves Skin Texture and Elasticity:

The bioactive compounds in herbal extracts promote collagen synthesis, enhance skin elasticity, and restore firmness, giving the skin a smoother and more youthful appearance.

4. Moisturizing and Nourishing:

Herbal ingredients provide deep hydration and nourishment, maintaining the skin's moisture balance and preventing dryness or roughness.

5. Fewer Side Effects:

Unlike chemical creams that may cause irritation or dermatitis, herbal formulations are mild and biocompatible, making them suitable for long-term use.

6. Eco-Friendly and Sustainable:

The use of natural raw materials makes herbal cosmetics more environmentally sustainable, with less harm to ecosystems and reduced chemical waste.

7. Multifunctional Benefits:

Many herbal ingredients offer multiple benefits such as anti-inflammatory, antioxidant, antibacterial, and skin-brightening properties, contributing to overall skin health.

Disadvantages of Herbal Anti-Aging Creams

1. Gradual Effects

Natural ingredients work more slowly than synthetic chemicals, so visible results may take weeks or even months of consistent use.

2. Possibility of Allergic Reaction

Some individuals may be sensitive to specific plant extracts like Aloe vera, Turmeric, or Licorice, leading to irritation or redness.

3. Shorter Shelf Life

Because herbal creams often use fewer chemical preservatives, they can spoil faster and require careful storage.

4. Inconsistent Potency

The strength of herbal extracts can vary depending on the plant source, extraction method, and

manufacturing process, causing differences in effectiveness.

5. Limited Clinical Evidence

While many herbs have traditional or preliminary scientific support for skin benefits, not all have been rigorously tested in clinical trials.

6. Higher Cost for Quality Products

Well-formulated herbal creams using pure, standardized plant extracts may be more expensive than chemical-based creams.

7. Risk of Contamination

If proper quality controls are not followed, herbal creams may contain microbes, pesticides, or other impurities from plant materials.

CONCLUSION:-

Herbal anti-aging creams offer a natural, safe, and effective alternative to chemical-based cosmetic products for promoting youthful and healthy skin. These formulations contain herbal ingredients such as *Aloe vera*, *Turmeric (Curcuma longa)*, *Centella asiatica*, *Amla (Emblia officinalis)*, and *Licorice (Glycyrrhiza glabra)*, which are rich in antioxidants, vitamins, and essential nutrients. They help protect the skin from oxidative damage, boost collagen formation, enhance elasticity, and maintain proper hydration. In comparison to synthetic creams, herbal preparations are gentler on the skin and have fewer side effects. When combined, these natural extracts show synergistic effects that improve skin texture, reduce fine lines and wrinkles, and restore a youthful glow. Hence, herbal anti-aging creams can be considered a promising and sustainable solution for effective skincare and long-term skin health.



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