



## Formulation and Evaluation of Herbal Face Cream

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### Research Article

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### Abstract

Herbal cosmetics are the preparations used to enhance each person's look. The cream is made with many crude drugs, such as liquid paraffin, stearic acid, turmeric, *Aloe barbadensis* (aloe vera leaves), *Azadirachta indica* (neem plants), bees wax, and rose oil. A number of evaluation criteria are applied to the ingredient selection process, which is based on the various therapeutic qualities of the agent in the cream. The current study set out to create an herbal cream that may be used to nourish, moisturize, and treat a variety of skin conditions. Prepared formulation was evaluated for various parameters like colour, appearance, consistency, pH, viscosity, stability studies and consumer acceptance.

**Keywords:** *Aloe barbadensis*; *Azadirachta indica*; Bee wax; Rose Oil

**Abbreviations:** W/O: Water in Oil; O/W: Oil in Water; WHO: World Health Organization.

### Introduction

The public is paying more attention to herbal formulations due to their superior qualities and few adverse effects. Furthermore, it supplies the skin with essential nutrients. Worldwide acclaim is being accorded to polyherbal cosmetic formulations due to their enhanced perception of efficacy, purity, and protection. There is a lot of cream available on the market that is labeled as natural, organic, protected, and herbal. The majority of creams sold in bazaars today include a base made of synthetic polymers, thickeners, pigment, emulsifiers, perfumes, and surfactants. Cream is a sort of semisolid emulsion that is meant to be applied externally. It comes in two varieties: water in oil (W/O) and oil in water (O/W) [1].

Its primary function is to stay longer at the application site when applied to the outer or superficial layers of the

skin. Different types of creams are available, including ones for hand and body massages, vanishing, night, cleansing, cold, and foundation. The sea, the land, and the kingdom of plants are the sources of this novel bioactive component. Chinese herbs, vitamins, minerals, antioxidants, enzymes, hormones, and a variety of natural ingredients are popular ingredients. These substances were selected based on their unique qualities. Aloe vera is applied as an anti-acne and hydrating agent. Aloe vera lotion has been demonstrated to help lessen skin irritation and complaints while also having a calming impact on the skin [2].

Cosmetics are a type of utilitarian product that is widely used worldwide to maintain and enhance the general appearance of the face and other body parts, such as the hands, eyes, skin, and hair. Herbal cosmetics are preparations that resemble cosmetics containing medicines, nutraceuticals, and active bio-ingredients "Cosmetics are skin-cleansing and skin-beautifying preparations. In 4000 B.C., Egyptians are credited with using cosmetics for the first time in history. Pharmaceuticals are fundamentally drug items, which are



defined as goods that alter the body's structure or function and prevent, mitigate, treat, or cure disease [3].

There are several therapeutic plants in Varnya Kashaya, according to Ayurvedic literature, particularly the Chark Samhita. Herbs that are utilized to achieve a luminous complexion include chandan, haldi, khas, nagkleshara, manjistha, and yastimadhu. Kustaharan herbs include arusa, amla, bavchi, guduchi, and chakmard. Herbs with varying potential from Khshthagna and Mahakashiya, such as amalaki, haridra, khadira, vidyanga, jati saptaparna, and karavira, are cited as useful in treating skin disorders. The various qualities of herbs employed in cosmetic preparations include antibacterial, antiseptic, anti-inflammatory, and antioxidant effects [4].

### Herbal Cosmetics

"Natural cosmetics" is another term for herbal cosmetics. Since the dawn of civilization, people have been drawn to making an impression on others by their appearance. There were no sophisticated fairness creams or cosmetic procedures available at the time. Their only resource was the natural knowledge contained in the Ayurveda. Many plants and herbs were used to create effective Ayurvedic cosmetics using the science of Ayurveda. Ayurvedic makeup not only made the skin seem beautiful, but it also protected the body from outside influences. The excellent qualities of Ayurvedic cosmetics, also referred to as herbal cosmetics, are still present in the contemporary period. Herbal cosmetics come in a variety of forms and are frequently used in everyday life.

The public is very fond of herbal cosmetics, including herbal face wash, conditioner, soaps, shampoos, and many more. The fact that herbal cosmetics are produced entirely of herbs and shrubs is their best feature. The natural ingredients in the herbs provide the body with nutrients and other beneficial minerals without having any negative effects on it. Plants like as ashwagandha, sandal (chandan), saffron (kesar), and many others are used in herbal cosmetics, and they are enhanced with nutrient-rich sand.

Herbs are utilized in cosmetics, either in their raw or extracted form. The fundamental principles of skin care cosmetics are deeply ingrained in the medical systems of the Rigveda, Yajurveda, Ayurveda, Unani, and homeopathy. In the present day, the expertise and experience of using herbs are being combined with cutting edge cosmetic technology to create a sophisticated and safe beauty product that is more acceptable to a larger spectrum of people. In essence, beauty is created by nature and refined by technology [5].

Herbs offer the benefit of having a broad range of consumer compliance and negligible to no negative effects.

Out of an estimated Rs 2000 crores, the herbal cosmetic sector represents around Rs200crores of the nation's entire cosmetic business. The entire cosmetics market is expanding between 20 and 25 percent a year. About 60% of this growth is in the herbal cosmetics market. Liquid and other kinds of herbal extracts have shown to be a panacea for a number of ailments, including heart issues, digestive issues, and mental exhaustion. Herbal extracts have occasionally been shown to be more accurate than English medications, which are typically made up of complicated chemicals. Compared to other medications, herbal extracts have incredibly low potential for adverse reactions.

For this reason, it is believed that herbal extracts are just as frequent as medications and pharmaceuticals. Herbal extracts have demonstrated business potential as well. Worldwide cultivation of herbal extracts has made them well-known in the horticultural industry. Nowadays, a lot of people are drawn to nature, and many cosmetics, trendy goods, and other products are made from it. Subsequently, the liquid juice is combined with other ingredients to create the herbal extracts. A vast array of herbal extracts is available; some examples are *Andrographis Paniculata* (Kalmegh), *Asparagus Racemosus* (Shatawari), *Boswellia serrata* (Salai Guggal), *Asphalt* (Shilajit), and so on. Other commonly utilized herbal extracts include *Camellia Sinensis* (green tea), *Bacopa Monnieri* (brahmi), and *Azadirachta Indica* (neem). Moreover, some of the most popular herbal extracts used are *Chlorophytum Borivilianum* (Safed Musli), *Cassia Angustifolia* (Seena), and *Centella Asiatica* (Mandukparni) [6].

Herbal cosmetics are maintained in effective manner with following benefits

- Being natural, least harmful effect on the skin or other body part
- Relatively more safe
- More placebo effect to the consumers due to its use in tradition and culture
- Flexibility in formulation
- Population proves effects from ancient time
- Present status

The global market for cosmetics and toiletries reached nearly \$150billion (€125m) in 2004, up by more than 4 percent from 2003, according to a new study that also highlights major growth in key developing markets.

The herbal market has been boosted by increasing demand for natural alternative medicines world demand for herbal product has been growing at the rate of 10%-15% per annum. The medicinal plant related trade in India alone is approximately Rs.5.5billion. World Health Organization (WHO) has forecasted that the global market for herbal product would be worth trillion by the year 2050. Global

sales of herbal product are expected to reach 2 billion dollars in 2007. Europe and the United States are the two major herbal product markets in the world, with a market share of 41 percent and 20 percent respectively.

According to World Bank the global market of medicinal plant and their products includes the potential sectors of Pharmaceuticals, Nutraceuticals, Cosmeceuticals to be estimated of worth US billion, offers a plethora of opportunities for the Indian pharma and cosmetics companies. Today a new hot topic in the cosmetic industry is 'cosmeceuticals', which is the fastest growing segment of the natural personal care industry. Cosmeceuticals are topical cosmetic pharmaceutical hybrids intended to enhance the beauty through ingredients that provide additional health-related function or benefit. They are applied topically as cosmetics, but contain ingredients that influence the skin's biological function.

These Cosmeceuticals, serving as a bridge between personal care products and pharmaceuticals, have been developed specifically for their medicinal and cosmetic benefits. Tracing the origin of cosmetics, the first recorded use of cosmetics is attributed to Egyptians, circa 4000BC. The ancient Sumerians, Babylonians and Hebrews also applied cosmetics.

In other cases, such as European cosmetic known as Ceruse was used from the second century to the 19th century. Cosmeceutically active ingredients are constantly being developed by big and small corporations engaged in pharmaceuticals, biotechnology, natural products, and cosmetics, while advances in the field and knowledge of skin biology and pharmacology have facilitated the cosmetic industry's development of novel active compounds more rapidly.

These cosmeceuticals serve as a bridge between personal care product, pharmaceutical and phyto-material. Cosmeceutically active ingredient are now being used by large and small manufacturers engaged in cosmetics, pharmaceuticals, biotechnology and natural extracts in cosmetics formulation. The advantage in the field of cosmetics and knowledge of skin biology and pharmacology have facilitated the formulation of cosmetics [7].

### Consumer Trends

Changes the gender divide the market share of men's cosmeceutical products is starting to be significant but they have long way to go before they rival those for women. A report published by the natural marketing institute NMI in 2007 showed that fastest growing segment today is the

men's cosmeceuticals range. The demand for looking good and maintaining youthful healthy skin has no longer just for women. The first major wave of men's skin care product appeared in the mid 1990's and has since grown steadily to a projected billion in sales for 2008 [8].

### Herbal Extracts Used in Cosmetics

Herbal extracts are primarily added to the cosmetic preparations due to several associated properties such as antioxidant properties. These antioxidant botanicals are generally classified into three categories depending upon the nature of their constituents as carotenoids, flavonoids and polyphenols. The carotenoids are structurally related to vitamin A and constitute various retinols like retinoic acid. Flavonoids, in addition to the antioxidant action, impart the UV protection and metal chelating properties. The polyphenolics is a large class and contains various molecules like rosmarinic acid, hypericin [9].

**Turmeric:** Turmeric (*Curcuma longa*, *Zingiberaceae*) is best known as a spice used primarily in Asian cuisine, particularly curry, and in prepared mustard. It is also used in some traditional Indian communities as topical burn treatment. Curcumi (Diferuloylmethane), the key biologically active component of turmeric, has shown great potency against acute inflammation and has been shown to exhibit significant wound healing and antioxidant properties. The paste of turmeric powder has been used as antiseptic and for skin nourishment. Curcumin the active compound of turmeric is a polyphenol used in skin care preparations.

**Aloevera:** It is also known as Lily of the desert or the Plant of Immortality. It is recommended for sunburn, minor burns, wrinkles, insect bites, skin irritations minor cuts and scratches. Research has shown that the clear gel has a dramatic ability to heal wounds, ulcers and burns by putting a protective coating on the affected areas. It also clears away blemishes protects the skin against infections and reduces wrinkles. It is also cited as being a prophylactic for dry skin, which is prone to inflammation, bacteriostatic.

**Neem:** Neem oil has a wide history of use as a folk remedy around the world and has been used to treat many conditions. Although it has a harsh odor, it's high in fatty acids and other nutrients and it's used in a variety of beauty products like skin creams, body lotions, hair products, and cosmetics. Not only in Ayurvedic medicines, neem tree extracts have been a part of many home remedies that Indians have been following since time immemorial. We use neem to treat hair and skin issues. Neem leaves are used to treat fungal and bacterial infections. They are used to treat warts as well as chicken pox [10].

## Materials and Methodology

### Materials

The plant material like Aloe vera, Neem, and Turmeric was collected and the formulation was prepared.

### Methodology

The cream was prepared by melting required quantity of beeswax and stearic acid on a water bath. Then liquid paraffin was added to the mixture. Heat the mixture heated was to 70°C. Add aloe vera gel, turmeric, neem powder, almond oil and fragrance in it with continuous stirring. Cool the mixture with stirring to 40°C. Then fill the formulation in suitable container and label it [11].

Sr. No.	Ingredients	Observations		
		F1	F2	F3
1	Turmeric (gm)	1.8	2	2.2
2	Neem Powder (gm)	1.7	2	2
3	Aloe vera gel (gm)	3.3	3	3
4	Bees Wax (gm)	3.6	3.5	4
5	Stearic acid (gm)	2.8	3	3.5
6	Rose Oil (ml)	1.6	1	0.5
7	Almond Oil (ml)	1	1	1.5
8	Liquid Paraffin (ml)	3.6	3.5	3

**Table 1:** Formulation of Herbal Cream.

### Evaluation Parameters for Herbal Cream

**pH Determination:** The pH meter was calibrated using standard buffer solution about 0.5g of the cream was weighed and dissolved in 50.0ml distilled water and its pH was measured.

**Colour and odor:** The physical parameters like Colour and odor are examined by visual examinations.

**Type of emulsion under the dye test:** The scarlet red dye is mixed with the herbal cream. A drop of the cream was cited on microscopic slide, then enclosed with cover slip and observed under the microscope. If the disappear globules appears red and ground is colorless, the cream is O/W type, the reversed condition occurs W/O type cream i.e. the disappear globules appears colourless in the red ground [11].

**Type of smear:** After the application of herbal cream type of film or smear formed in skin was checked.

**Irritancy test:** Marked an area (1sq.cm) on the left-hand dorsal surface. The cream was applied to the specific area and time was noted irritancy was checked if any for regular intervals up to 24hrs and noted [12-20].

Parameters	Formulations		
	F1	F2	F3
pH	6.2	6.7	7.1
Colour	Greenish	Greenish	Greenish
Type of Emulsion	o/w	o/w	o/w
Type of Smear	Non-greasiness	Non-greasiness	Non-greasiness
Irritancy Test	NIL	NIL	NIL

**Table 2:** Observations of Evaluation Parameters.

## Conclusion

The best-performing, nutritionally dense, and chemical-free prepared herbal cream shielded the skin from a range of skin conditions. Because it was made using basic ingredients and a straightforward process, the cream was also reasonably priced. The herbal cream can be applied to the skin as a protective barrier. Three distinct iterations of the herbal moisturizing lotion were created, and every result was found to be within the recommended range. After calculating the evaluation parameters based on those outcomes, we find that F2 produces good results.

## Author's Contributions

All authors contributed equally

## Conflict interests

There are no conflicts of interest many of the authors concerning the publishing this manuscript.

## Consent for Publication

All authors agree to have read the manuscript and authorize the publication the final version of the manuscript.

## Availability of Data and Material

The data used in this study are available and will be provided by the corresponding author on a reasonable request.

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Not applicable.

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