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A REVIEW ON POLYHERBAL WHITENING FACE CREAM

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ABSTRACT

Usually applied topically to the skin, creams are semi-solid dosage forms. Most of the creams that are currently on the market are made from synthetic drugs and provide additional facial fairness, but they have a number of negative effects, including allergic reactions and itching. These side effects are absent from herbal creams, which also give the skin a more radiant appearance. The herbal cream is essentially an emulsion of water and oil. Neem, liquorice root, aloe vera, and turmeric are the natural ingredients used to make the herbal cream. These ingredients were chosen based on their unique qualities. In essence, the cream is made using the cream base, which consist of methylparaben, liquid paraffin, beeswax, and borax. For example, accelerated stability studies, patch tests, smear tests, after feel, washability, physical properties, dye tests, in vitro diffusion studies, viscosity, irritancy, spreadability, microbial growth, thermal stability, homogeneity, acid value, saponification value, etc., can be used to evaluate these formulations. Cream containing herbal extracts significantly improved skin hydration and elasticity while lowering skin melanin. The main topics of this study are the manufacturing and evaluation of herbal creams, as well as some of the typical herbs utilized in these types of formulation.

INTRODUCTION

The Greek word "cosmetics" is the root of the English word "cosmetics," which means "to adorn." Since then, the term “cosmetic” has been used to describe any material used to improve or enhance appearance. In fact, the word “cosmetics” was originally used in ancient

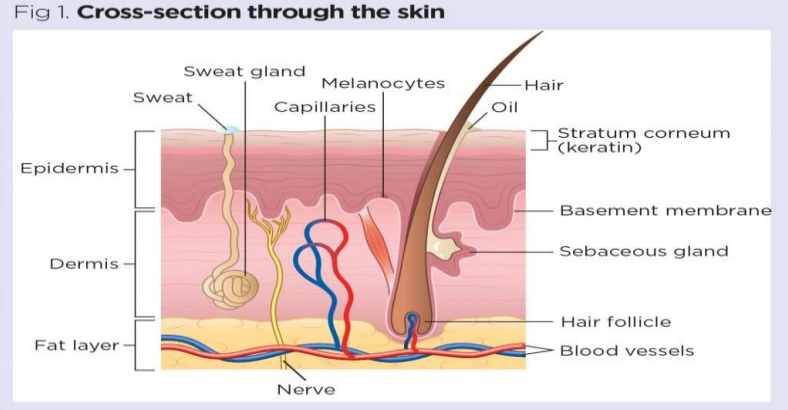
Rome. They are created with the appropriate quantity of cocoa butter and wax. The ingredients in the skin care formulation give this cosmetic its long-lasting ability to alter the characteristics of the skin and dramatically lower the accumulation of free radicals in the skin. Cosmetic products are the best choice whenever it comes to avoiding needless skin flaws, particularly hyperpigmentation, aging, wrinkles, and rough skin texture, among others. The demand for herbal beauty products among consumers is rising quickly. When making cosmetics, plant ingredients should have a range of properties, such as antibacterial, emollient, antiseptic, anti-inflammatory, and antioxidant properties. Natural products are thought to have fewer negative effects than those that contain synthetic compounds. In contrast to synthetic products, which are detrimental to human health, the term "herbal" emphasizes safety. The herbal cosmetics industry significantly contributes to the global demand for herbal products, and market data indicates that the herbal industry is steadily growing.

SKIN STRUCTURE

The skin, also called the cutaneous membrane, which covers the outside of the body, is the largest organ in terms of weight. The weights in group-ups range from 4.5 to 5 kg, or 7% of the total body weight, and the skin covers an area of 2 square meters. The eyelids are 0.5 mm thick, while the heels are 4.0 mm thick. It is between one and two millimetres thick over most of the body. The pH of the skin, which varies between 4 and 5.6, is the pH of the water and other soluble substance film that covers the skin's exterior. The pH of the skin's surface is affected by sweat and the fatty acids released by sebum. It is advised that skin causticity aids in limiting or preventing the growth of pathogens and other organisms. The epidermis, dermis, and hypodermis are the three functional layers that make up the skin.

EPIDERMIS

It is the outermost layer. The epidermis is roughly 0.1 mm thick in many places on the body. However, the palms of the hands and the bottoms of the feet may have a thickness of 1 mm or more. The primary skin cell that constitutes the epidermis is called a keratinocyte, so named because it produces the potent protein known as keratin. Additionally, keratin is the protein that is used to make hair and nails. It makes skin water-resistant and provides a great deal of protection against physical wear and tear.



There are five layers in the epidermis.

1. CORNEUM STRATUM

Corneocytes are the cells that make up the stratum corneum layer. The stratum corneum, which makes up the majority of the cells, appears to be simple, but it plays a major role in maintaining the integrity and hydration of the skin.

2. LUCIDUM STRATUM

The stratum lucidum layer is merely tough kin that reduces rubbing and shearing forces between the stratum corneum and stratum granulosum.

3. GRANULOSUM STRATUM

The stratum granulosum, or granular layer, of the cell has disappeared and/or is depicted by faint cytoplasmic substance punches. The production of waterproofing lipids and keratin proteins is currently organized in a red contract of action.

4. STRATUM SPINOSUM

Cells that transition from columnar to polygonal to the spinosum layer are currently producing keratin.

5. BASALE STRATUM

The stratum, base layer of the keratinocytes in the epidermis, is responsible for the ongoing renewal of the epidermal cells. This layer is composed of a single line of undifferentiated columnar branch cells that regularly split apart. Half of the cells divide and move on the next layer to start the development process. The other half remains a basal layer and repeatedly divides it to the basal layer.

DERMIS

The dermis is about four times thicker than the epidermis and is immediately beneath it. Similar to the blood vessels, sweat glands, hair roots, and nerves it has a variety of specialized supporting tissues. Proteinaceous connective tissue fibers that are linked to mucopolysaccharides or glycosaminoglycans are the main components of the dermis. There are essentially two zones in the dermis: The papillary region, which is shallow, and the reticular region, which is deep, are located close to the epidermis.

1. Region of the papillae

Loose areolar connective tissue makes up the papillary region. It gets its name from the papillae, which are finger-like projections that extends close to the epidermis. The papillae give the dermis a rough surface that blends with the epidermis, enhancing the stratum's bond between the two skin layers.

2. Reticular areas

The reticular region is typically much thicker and is located somewhere in the papillary region. The grouping of collagenous, flexible, and reticular fibers that intertwine throughout its thick, uneven connective tissue gives it its name.

THE HYPODERMIS

The subcutaneous fat layer is located beneath the dermis. Starting with one person and moving on to the next, this layer's depth varies. It is made up of collections of fat-filled cells called adipose cells and has larger veins and nerves. The skin can move naturally because the connection is calm.

FUNCTION OF SKIN

1. Absorption

A small number of drugs that can be applied topically as adhesive patches, ointments, etc., and are absorbed by the skin.

2. Defense

Langerhans cells are immune system components that fight off infections.

3. Storage

Holds lipids, water, and blood.

4. Resistance to water

It prevents supplements from washing off the skin.

5. Reduce the loss of water

By disappearing, the skin prevents water from escaping.

6. Feeling

Vibration, touch, pressure, temperature, and injury are all detected by nerve endings.

7. Thermocontrol

"Goosebumps" and vein constriction help us retain heat; while sweating and dilating veins help the skin keep the body cool.

8. Synthesis

Vitamin D synthesis.

9. Removal

Drugs, toxins, and other natural substances are eliminated through transpiration, cellular desquamation, sebaceous secretion, and sweating.

CREAMS

Creams are semisolid dosages made of one or more drug substances that have been dissolved or distributed in an appropriate base. Creams, which are either o/w or w/o types of emulsions, are topical preparations that are typically applied to the skin. Creams made from herbal plants are effective for the skin because they contain herbs. The main purpose of both medicated and non-medicated creams is to treat dermatoses and other skin disorders. In a cream, one or more drug ingredients are dispersed or dissolved in an appropriate base.

VARIOUS KINDS OF HERBAL CREAMS

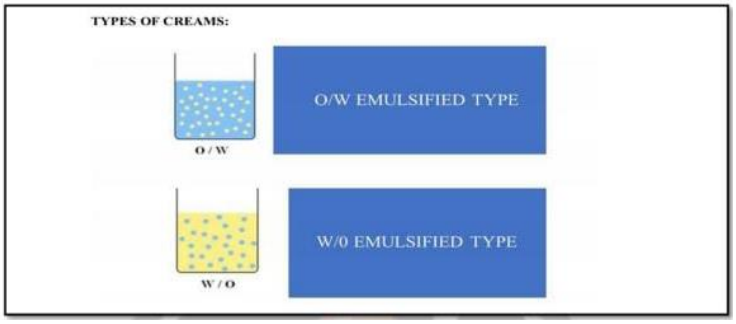
They fall into two categories

a) Creams made with oil and water (O/W)

Made up of tiny oil droplets scattered throughout a phase that is continuous phase. Oil-in-water creams are more comfortable and aesthetically pleasing because they are less greasy and easier to remove with water.

b) W/O (water-in-oil) creams

Made up of tiny droplets of water dispersed throughout an aqueous phase. Many medications added to creams are hydrophobic and will out of a water-in-oil cream more readily than an oil-in-water cream, despite the fact that working with water-in-creams is more difficult. Water-in-oil creams are also more moisturizing because they form an oily barrier that stops water loss from the stratum corneum, the skin's outermost layer.



ADVANDAGES

1. Free from harsh chemicals, they are suitable for sensitive and delicate skin types.
2. They hydrate the skin naturally and help to maintain its elasticity and softness.
3. Herbal creams are safer for long-term use.
4. It protects the skin caused by free radicals.
5. Steer clear of drug level variations when there is intra- and inter-patient variation.
6. Excellent patient compliance.

DISADVANTAGES

1. Herbal creams might not be strong enough to treat serious skin conditions like deep acne, or severe pigmentation.

2. It makes allergic reactions more likely.

3. High quality herbal creams can be more costly due to the use of pure and natural ingredients.

4. Due to fewer preservatives, herbal cream may expire quickly or degrade faster over time.

IDEAL PROPERTIES

1. It should be gentle on the skin and free from harsh chemicals, preventing allergic reactions or irritation.

2. It should spread easily on the skin and absorb quickly without leaving a greasy or sticky residue.

3. It should be hydrate and nourish the skin effectively, improving softness, elasticity, and tone.
4. It should have a PH close to that of normal skin (around 5.5) to maintain the skin health.
5. It should not clog pores or cause acne.
6. It should not contain parabens, sulfates, synthetic colors, or preservatives.

HERBAL CREAM

An herbal cream is a topical skincare product formulated with natural ingredients, primarily herbs and herb extracts, designed to moisturize, nourish, and potentially treat various skin conditions. Unlike synthetic skincare products, herbal creams minimize the use of artificial chemicals, making them safer and more suitable for sensitive or allergy-prone skin. Herbal cream often exhibits multiple benefits such as anti-inflammatory, antibacterial, antioxidant, moisturizing and anti-aging effects.

HERBS UTILIZED IN HERBAL CREAM

ALOE VERA

Synonyms

Aloe, Aloebarbadensismill, Aloeelongatamurray, Aloe Indica Royle.

Biological source

Aloe is the dried juice that is extracted from the bases of the leaves of different species of aloe through incision. (Aloe spicata, Aloe barbadensis)

Family

Liliaceae.

Chemical constituents

Salicylic acid, Aloesin, AloeresinA, AloeresinE, Isoaloeresin D.

Parts used

Leaves of Aloe barbadensis.

Uses

Soothes irritated skin.

TURMERIC

Synonyms

Curcuma longa, Safrron Indian, Rhizomacurcumae.

Biological source

It is made from the plant's dried rhizome.

It is the rhizamatous herbaceous perennial plant.

Family

Zingiberaceae.

Chemical constituents

Curcumin and curcuminoids.

Parts used

Dried rhizomes of curcuma longa.

Uses

It is used as an Anti-oxidant agent.

It is used as an Anti-inflammatory agent.

It is used to treat acne.

NEEM

Synonym

Azadirachta Indica, IndianLilae, Melia Indica.

Biological source

It is made from fully grown Azadirachta Indica Linn.

Family

Meliaceae.

Chemical constituents

Nimbidin, Nimbidal, Nimbin, Limonoids.

Parts used

Leaves of Azadirachta Indica.

Uses

It is used as an Anti-bacterial and Anti-fungal activities.

LIQUORICE ROOT

Synonyms

Mulethi, Yastimadhu, Glycyrrhiza radix.

Biological source

Glycyrrhiza glabra's dried roots and stolons are used to make it.

Family

Leguminosae.

Chemical constituents

Glycyrrhizin, Glycyrrhetic acid, Flavanoids.

Parts used

Dried rhizomes of Glycyrrhiza glabra.

Uses

Skin brightness.

Reduce the visibility of unwanted pigmentation

EXCIPIENTS AND THEIR ROLES

Many of different types of excipients are used in the formulation of herbal creams. Few of very common and extensively utilized excipients are,

Anti-oxidant.

PH adjusters.

Humectant.

Preservatives.

Cream base.

ANTI-OXIDANT

Being a highly reactive atom, oxygen can form free radicals, which are potentially harmful molecules. They can damage the body's healthy cells, depriving them of their structure and functionality. Antioxidants are added to stop this.

Eg: - Vitamin E

PH ADJUSTERS

PH adjusters are the crucial for maintaining the stability of active ingredients and preventing skin irritation.

Eg: - Triethanolamine

Citric acid

HUMECTANT

The hygroscopic material is called a humectant. Many hydrophilic groups, most frequently hydroxyl groups, are present in the molecule. They are accustomed to, Make the active ingredients more soluble. to improve the preparation of the skin. Increase the skin's hydration levels.

Eg: -Glycerine

PRESERVATIVE

Herbal creams are susceptible to contamination from bacteria, yeast, and fungi. Which can lead to spoilage and potential harm to the users. So preservatives are crucial for preventing the microbial growth and maintaining the product stability.

Eg: - Methyl paraben

Propyl paraben

PERFUME

Herbal creams often have strong or unpleasant natural smells (Eg: - Neem, turmeric). A mild fragrance makes the product more pleasant to use.

Function

Improve user acceptability.

Enhance the product appeal.

Cover the odours of raw herbs.

Create a soothing or refreshing experience.

Eg: -Rose oil

Lavender oil

TYPES OF METHOD FOR PREPARATION

Creams are typically prepared by combining oil phase and water phase, often with the aid of the heat and mixing, to form an emulsion. It can be made using the following techniques,

Fusion method.

Trituration method.

Levigation method.

Mechanical method.

FUSION METHOD

This method involves heating the oil and water phases separately until melted, then combining them with continuous mixing.

The mixture is stirred as it cools to form a stable emulsion.

This method is often used for creams containing waxes, as it ensures they are fully melted and incorporated.

TRITURATION METHOD

This method involves mixing solid ingredients with a small amount of liquid (or base) to create a smooth paste.

This paste is then gradually incorporated into the rest of the cream mixture.

It’s particularly useful for the incorporating powdered ingredients that don’t easily dissolve or mix.

LEVIGATION METHOD

Similar to the trituration, this method involves grinding solid ingredients with a small amount of liquid to make a paste that is smooth.

The remaining cream base is then combined with the paste.

MECHANICAL METHOD

This method utilizes mechanical mixing or stirring to combine the ingredients and create the cream.

High-shear mixers and other specialized equipment can be used to ensure proper dispersion and emulsification.

EVALUATON OF HERBAL FACE CREAM

Evaluating herbal creams involves assessing various physical, chemical, and biological properties to ensure their quality, safety, and efficacy.

PHYSICAL EVALUATION

Appearance- This includes the assessing the cream's colour, texture, and homogeneity. It should be visually appealing and free from phase separation.

pH- The pH should be within a suitable range for skin application (typically slightly acidic) to avoid irritation.

Viscosity- Determining the viscosity helps assess the cream's spreadability and texture.

Washability- This is assess how easily the cream can be washed off the skin.

Spreadability- This measure how easily the cream spreads on the skin, indicating its ease of application.

CHEMICAL EVALUATION

Stability- This involves testing the cream's stability under various conditions (eg- temperature, light) to ensure it doesn't degrade or lose its properties over time.

Acid value and saponification value- These tests can be used to assess the quality of the oils and fats used in the cream.

Microbial growth- Assessing the presence of microorganism helps ensure the cream is safe and doesn't promote the microbial growth.

BIOLOGICAL EVALUATION

Irritancy test- This involves applying the cream to skin to check for any signs of irritation, redness, or allergic reaction.

Patch test- A more controlled version of the irritancy test, where a small amount cream is applied to a patch on a skin and observed for the reaction.

Smear test- The cream's consistency and texture on the skin can be evaluated using this test.

CONCLUSION

Herbal creams are thought to be a good and efficient way to make your skin look better. In addition to improving skin tone and preventing skin-related disorders, it shields the skin from harmful UV rays. Herbal medicine is used to increase the blood circulation, restore muscle tone, help maintain skin elasticity and cleanse dirt from skin pores. According to the study, herbal cream is incredibly, safe and doesn't have any negative side effects.

REFERENCES

1. Swetha M, Iswariya VT, Maryswarnalatha K, et al. Review Article on Preparation and Evaluation of Herbal Face Cream. Annals Of Forest Research, 2022; 65(1): 10315-10323.
2. Shendage A.S, Kale H.B, Jadhav Sunita T. Formulation and Evaluation Of Herbal Cold. International Journal of Creative Research Thoughts, 2022; 10(10): b440-b445.
3. Estefania KV, Silalahi J, Sumaiyah S, et al. Formulation and Evaluation of Cream Turmeric Extract Preparations from Turmeric Rhizomes (Curcuma domestica Val.). Indonesian Journal of Pharmaceutical and Clinical Research, 2022; 5(1): 01-09.
4. Ruhil P, Kumar V, Minochi N. Formulation and evaluation of herbal cream used in the treatment of arthritis research. Indian J Res., 2018; 7: 356-7.
5. Rajvanshi A, Sharma S, Khokra SL, et al. Formulation and evaluation of Cyperus rotundus and Cucumis sativus based herbal face cream. Pharmacologyonline., 2011; 2(1): 1238-1244.
6. Chandrasekar R, Sivagami B. Formulation and evaluation of a poly herbal skin care cream containing neem and Tulsi. Research Journal of Topical and Cosmetic Sciences, 2018; 9(1): 25-32. doi:10.5958/2321-5844.2018.00006.7.
7. Verma A, Ahuja D. Formulation and Evaluation of an herbal cream containing extract of Curcuma longa and Trigonella Foenum seeds Powder. Pakistan Heart Journal, 2023; 56(3): 598-600. herbal cream. Int J Sci Res., 2015; 4(11): 1495-7. doi:10.32734/idjpcr. v5i1.6479**.**
8. Sharma P, Kharkwal AC, Kharkwal H, Abdin MZ, Varma A. A review on the pharmacological properties of Aloe vera. Int J Pharm Sci Rev Res., 2014; 29: 317.
9. Mali AS, Karekar P, Yadav AV. Formulation and evaluation of multipurpose herbal cream. Int. J Sci. Res., 2015; 4(11): 1495-7.
10. Sirsat SV, Rathi NM, Hiwale AS, et al. A review on preparation and evaluation of herbal cold cream. World Journal of Pharmaceutical Research., 2022; 11(5): 690-697. doi:10.20959/wjpr20225-23891