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FORMULATION AND EVALUATION OF POLYHERBAL ANTI-AGING CREAM

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ABSTRACT

Moringa oleifera family Moringaceae and Ocimum sanctum family Labiatae has been reported to possess antioxidant, antimicrobial, anti-inflammatory, antibacterial and antifungal properties. Moringa oleifera and Ocimum sanctum extracts have been used to treat antimicrobial infections. The aim of this present study is to formulate and evaluate of polyherbal anti-aging cream by combining the extract of Moringa oleifera with Ocimum sanctum to achieve multipurpose skin effects such as anti-aging, fairness, softening and antiseptic effects. The polyherbal anti-aging cream formulations comprising of hydro alcoholic extract of Moringa oleifera and Ocimum sanctum, carbapol 940, xanthan gum, stearic acid, glycerol monostearate and cetyl alcohol were prepared and evaluated for physicochemical parameters and the results showed the production of stable polyherbal anti-aging cream.

KEYWORDS: Anti-Aging, Anti-Inflammatory, Antimicrobial.

1. INTRODUCTION

1.1 Skin

There are three major layers of skin: the epidermis, dermis, and hypodermis. Per layer has a separate function of its own. The outermost layer of the blood is the epidermis. It consists of a mosaic assembly of keratinocyte cells flattened and columnar; the thickness of the layer varies depending on its location in the body. Flattened keratinocyte cells in the stratum corneum comprise of separated corneocytes, whereas columnar keratinocyte is a band of basal lamina cells that

distinguishes the epidermis from the dermis. Keratin, a robust, fibrous intracellular protein that releases a water-repellent sealant, and lamellar granules are present in these cells. Both keratin and lamellar granules are secreted by separated keratinocytes for the mechanical strength of tissue. Over a period of time, separated keratinocytes eventually become enucleated. The converted keratinocytes continually desquamate new keratinized cells as they are transported outward. Continuous keratinocytic layer reconstruction is regulated by the activation of a type II nuclear receptor. It is also the duty of the receptor to regulate the permeability of the epidermis. Keratin system dysfunction may contribute to numerous skin diseases, including blistering and hyperkeratosis skin disease, as well as cell abnormalities that lead to fragility, developmental retardation and distortions of adhesion.

1.1.1 Classification of the Skin

The skin is classified into generally four types are:

1. Normal skin
2. Dry skin
3. Oily skin, and
4. Mixed skin

1. Normal skin

It should be recalled that, unlike other types of skin, there is no definition of natural skin, the latter being eligible: normal skin is not dry skin, not oily skin, not mixed skin, and not more pathological skin. Therefore, given its structure and its functions, normal skin should be smooth, nice to touch, due to the cohesion of the cells of its superior skin and of the presence of numerous elastic fibres of good quality.

2. Dry skin

The term "dry skin" conceals several complementary or opposing points of view; it remains entirely distinct from how it is presented. Therefore, for them, it is essentially a drying feeling coupled with a lack of skin resilience and elasticity, marked by a rough look. This disorder literally relies on a qualitative and quantitative change in the enzymes and/or an inappropriate change in the pH of the skin.

3. Oily skin

While dry skin represents a functional change in the different skin components, oily skin results from the over activity of the sebaceous glands, resulting in sebum-overflowing skin overproduction, giving it a distinctive oily and shiny look.

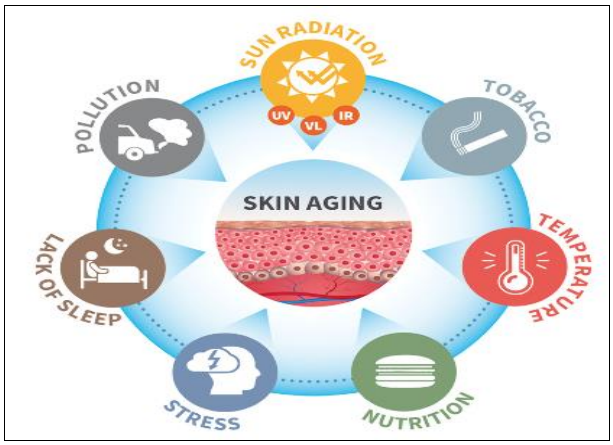
4. Mixed skin

This refers to a complex skin in which on different areas of the body or face the different types previously described coexist. The distinctive example is the face, where heavy and oily skin on the cheeks with well-dilated pores on the medico-facial area will coexist with fragile skin with fine grains.

1.2 Skin aging

Skin ageing is a result of a normal human "aging pattern" that clearly assumes varying trajectories in multiple organs, tissues, and cells over time. While the ageing signs of internal organs are concealed from the ambient 'heads,' the skin provides the first clear traces of the passing period. The fusion of endogenous or intrinsic factors (genetics, cell biology, hormone and metabolic processes) and exogenous or extrinsic factors (chronic light exposure, noise, ionising radiation)

is the complex biological phenomenon of skin ageing. These factors together contribute to combined structural and physiological changes and progressive changes in each layer of skin, as well as changes in skin appearance, particularly in the areas of the skin that are exposed to the sun. unlike thin and atrophic, slightly wrinkled and dry skin that is intrinsically aged, premature shot skin usually reveals a thickened epidermis, mottled discoloration, deep lines, laxity, dullness and ruggedness. Slowing the epidermal regeneration rate and lengthening of the cell cycle correlate with a quicker healing of the wound and less successful desquamation in older adults. That reality is critical when preparing esthetic procedures. At the other hand, all of these apps are targeted at drug application or cell cycle enhancement procedures, assuming that a higher rate of turnover would enhance the skin appearance and accelerate wound healing.



1.3 Natural herbs used for anti-ageing

In preventing and restoring skin ageing, herbal products are important. Ingredients used in herbal cosmetics affect the biological functions of the skin and also provide the requisite nutrients for healthy skin. It has been estimated that over 50 percent of the world's medications are herbal medicines and their equivalents, and plant-based health treatments are enticing. Throughout personal care procedures, the use of herbal counter aging drugs has proliferated over several levels. Latest innovations in anti-aging skin care products rely on the production of new plant extracts and botanical ingredients based on their traditional medicinal uses, leading to the development of many cosmoceuticals that prevent wrinkles and protect the skin from any type of excessive use.

1.4. Natural anti-aging herbs

1.4.1. Aloe Vera (Aloe barbadensis miller)

Figure 1.3: Aloevera.

Biological Source: Aloes are the dried juice of Aloe barbadensis leaves which belongs to the Liliaceae family.

Phyto-constituents: Both sorts of aloe are the primary sources of anthraquinone glycosides. Aloe, which is a mixture of glycosides, is the most active constituent of aloe, the principal constituent of which is barbaloin. In addition to barbaloin, the compound also includes isobarbaloin, β-barbaloin, aloe-emodin and resins.

Role in Anti-ageing: Aloe leaves are commonly used in anti-aging and anti-wrinkle creams and moisturisers. The capacity to suppress collagenase activity, the enzyme that causes collagen fibre breakdown, has been demonstrated by aloe vera constituents such as aloe A and B in the treatment of ageing and wrinkles.

1.4.2 Turmeric (Curcuma Longa)

Figure 1.5: Turmeric.

Biological Source: Turmeric consists of both dry and fresh Curcuma longa plant rhizomes belonging to the Zingiberaceae family.

Phyto-constituents: The turmeric produces a green yellow material known as curcuminoids. Curcuminoids' main ingredient is called curcumin (50-60 percent). Contains toxic oil, wax, camphor, camphene etc.

Role in anti-ageing: Turmeric's prime constituent is curcumin, which serves as a scavenger of superoxide & as a quencher of singlet oxygen. Consequently, Turmeric's anti-aging ability is primarily due to the curcumin.

2. MATERIALS AND METHOD

2.1 Phytochemical Screening of Moringa oleifera

A) Mayer Test: The Mayer reagent is used to treat filtrates (Potassium Mercuric Iodide). A precipitate improvement in yellow colors indicates alkaloids.

B) Wagner's test: The filtrate is extracted with the reagent of Wagner (Iodine in Potassium Iodide). The formation of brown/reddish rainfall is indicated by alkaloids.

C) Dragendroff Test: A dragendroff reagent is used to treat the filter (solution of Potassium Bismuth Iodide).The formation of the crimson precipitation shows that alkaloids exist.

Formulation development of polyherbal cream - The water level contains carbopol 980 and xanthan gum weighed as an individual vessel. In mild mixing with the agitator in the water tank it was distributed into the demineralized water. Similarly in another vessel, weighting in both phases was applied to the oil phase containing ketyl alcohol, ketostearyl alcohol, capric capric triglycerides, isopropyl myristote, glyceryl monostearate and stearic acid. At 80°C, the tub hit all

temperatures at 80°C.The portion of oil was transferred into the water section for 30 minutes. It adjusted to cool at room temperature.

S.no	Components (%)	Quantity
1	*Moringa oleifera*	0.25 gm
2	*Ocimum sanctum*	0.25 gm
3	Carbopol 940	0.25 gm
4	Xanthan Gum	0.25 gm
5	Cetyl alcohol	1 gm
6	Glycerol	1 gm
7	Stearic acid	3 gm
8	Water (up to)	100 ml
9	Sodium Hydroxide	0.2 gm

3. Formulation of Cream

Evaluation of cream

- **Viscosity**
- **pH**
    - **Spreadibility**
    - **Extrudability**

Viscosity - Viscosity measurements of organized topical cream were measured by using Brookfield viscometer using spindle no. 63 with the most reliable speed of 10rpm125.

pH

Extrudability - Extrudability became based totally upon the quantity of the cream extruded from collapsible tube on software of positive load. More the amount of cream extruded suggests better extrudability. It become determine by way of making use of the weight on cream stuffed collapsible tube and recorded the burden on which cream turned into extruded from tube125.

Spreadibility - Spreadibility of system is essential to provide sufficient dose to be had to take in from pores and skin to get properly healing response. An apparatus wherein as lide fixed on wooded block and top slide has movable and one cease of movable slide tied with weight pan.

S. No.	Constituents	Hydroalcoholic extract
1.	**Alkaloids** Wagner's Test Hager's test	Positive Positive
2.	**Glycosides** Legal'stest	Positive Positive
3.	**Flavonoids** Lead acetate Alkaline test	Positive Positive
4.	**Phenolics** Ferric Chloride Test	Positive Positive
5.	**Proteins** Xanthoproteic test	Positive Positive
6.	**Carbohydrates** Fehling's test	Positive Positive
7.	**Saponins** Froth Test Foam test	Positive Positive

CONCLUSION

Our reason in the gift analysis is to show the preliminary chemical sampling, antioxidant function and manufacturing of the formulations of Moringa oleifera and Ocimum sanctum lotions. The substance of the dried leaves become carefully wiped clean below strolling faucet water and grinded the use of an automated grinder. The powder changed into processed by means of the extraction method of maceration using hydro alcoholic solvent. The extraordinary standardization criteria, such as phytochemical screening, the evaluation of complete phenols and flavonoids, and the production of polyherbal cream method of M. Oleifera and O. Sanctum, had been studied.

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