Formulation and Evaluation of a Herbal Face Pack Using Natural Ingredients

[1)] Mr. Anuj P. Waghmare, [2)] Ms. Rutika R. Suryawanshi, [3)] Ms. Jayshree A. Gaisamudre, [4)] Ms. Sayali N. Bhorge, [5)] Mr. Shubham Vaidya
[1/2/3/4-] *Student*, [5-] *Assistant Professor*
[1/2/3/4/5 -] *Sayali Charitable Trust's College of Pharmacy*

Abstract: **The increasing demand for natural and chemical-free cosmetic products has led to a growing interest in herbal formulations. This study focuses on the formulation and evaluation of a herbal face pack using natural ingredients known for their skin-enhancing properties. The selected ingredients—such as Multani mitti (Fuller's earth), turmeric, neem powder, sandalwood powder, and orange peel powder—were chosen based on their traditional use in skincare and therapeutic benefits. The face pack was prepared in powdered form and evaluated for various parameters including organoleptic properties (color, texture, odor), pH, particle size, moisture content, and spreadability. Additionally, stability studies and patch tests were conducted to assess the safety and efficacy of the formulation. The results indicated that the herbal face pack was stable, non-irritant to the skin, and demonstrated beneficial effects such as oil control, acne reduction, and improved skin texture.This study highlights the potential of herbal ingredients in developing cost-effective and skin-friendly cosmetic formulations, promoting the use of natural products over synthetic ones.**

Keywords **-Herbal Face Pack, Natural Ingredients**

INTRODUCTION

In recent years, there has been a growing trend towards natural and herbal products in the cosmetic industry, driven by a heightened awareness of the potential adverse effects of sic chemicals on the skin and a preference for sustainable and eco-friendly alternatives. Among these natural products, herbal face packs have gained significant popularity due to their perceived effectiveness in improving skin health and radiance. Herbal face packs, often composed of various natural ingredients such as herbs, fruits, clays, and essential oils, have been used for centuries in traditional medicine and skincare practices across different cultures. These formulations are believed to offer a plethora of benefits, including moisturization, exfoliation, acne reduction, skin tightening, and anti-aging effects, among others.The formulation of herbal face packs involves careful selection and combination of ingredients to harness their individual properties synergistically. Each ingredient contributes unique bioactive compounds, vitamins, minerals, and antioxidants that can nourish and rejuvenate the skin. Furthermore, these formulations are often devoid of harsh chemicals, making them suitable for individuals with sensitive skin or those seeking natural alternatives to commercial skincare products. Despite the widespread use of herbal face packs, there is a notable dearth of scientific research validating their efficacy and safety. Many formulations lack standardized preparation methods, and there is limited understanding of the mechanisms underlying their purported benefits. Therefore, there is a pressing need for systematic studies to evaluate the effectiveness, safety, and potential mechanisms of action of herbal face packs. This study aims to address this gap by formulating a herbal face pack using natural ingredients and evaluating its efficacy through comprehensive in vitro and in vivo experiments. By elucidating the effects of the herbal face pack on various skin parameters, such as hydration, elasticity, sebum production, and collagen synthesis, this research seeks to provide valuable insights into its potential as a skincare product.

LITERATURE OF SURVEY

1) Rani, S.R, et.al. 2002. Preparing and testing herbal face packs devoid of preservatives was our aim. Sandalwood powder, multani mitti, Chinese rose powder, turmeric, and rose water are just a few of the natural elements in the face pack that are rich in vitamins and minerals necessary for the skin's health and brightness. Organoleptic, physicochemical, and rheological criteria, as well as stability and stimulation tests, are used as evaluation methodologies. Different parameters were used to standardize each created formula. Rheological

results, which show that the packages are naturally free-flowing and nonsticky, support the sensory parameters' claims that they are smooth. The outcomes demonstrated the formulation's overall stability. The results of the stability tests demonstrated the package's inertness. Testing for irritation after usage.

2) Sowmya KV, et.al. 2015. Common hormonal alterations like those brought on by androgens and corticosteroids are the cause of acne. The main culprits are the sebaceous glands. Acne is more common on the face and neck. Exfoliating your face can help you from developing acne. It can be accomplished by giving the face a thorough wash with clean water. Herbal facial cleansers are preferable to those created with synthetic chemicals in order to prevent negative effects. According to this study, maintaining smooth, appealing skin calls for facial cleansers with antioxidant, antibacterial, and antiseptic characteristics. With satisfactory findings, a gel was made and assessed in terms of its dispersion ability, consistency, grit, foaming capabilities, and pH.2.

3) Millikan LE, et.al. 2001. Beauty is a concept that predates humanity itself. Since the beginning of time, people have employed plants to enhance their appearance. Ayurvedic literature mentions this. Various conditions affecting the skin, hair, body odor, and general appearance have been treated with whole plants or plant extracts. Ayurveda is in demand in the aesthetics industry since it is efficient, affordable, and risk-free. This study was conducted for that reason. Creation and assessment of the herbal Lepa formulation. Dry plant powders were purchased from a nearby market, sieved, geometrically combined, and tested for their physicochemical and organoleptic qualities. Lepa is non irritating and was made by combining powder with a cream base to the required concentration and letting it sit overnight. The formulation of Lepa includes a number of natural components.

4) Mithal, B.M, et.al.2004. The aim of this work is to formulate and evaluate a multi-herb face pack for cosmetic purposes from herbal ingredients. Multani mitti, Manjistha, Haridra, Rakta chandan and lodhra were procured from local market, dried, powdered, sieved through sieve number 100, geometrical, sensory and physicochemical mixture, general powder, microscopic visual properties and chemical evaluation were evaluated. took The dry powder in mixed form had suitable flow properties for face packs. The size of the powder particles was 20-25 micrometers. The subtle characteristics of dry powder were mentioned in combination. Herbal face packs or masks stimulate blood circulation, rejuvenate muscles, maintain skin elasticity, and remove impurities from skin pores. The benefits of herbal cosmetics are that they are non-toxic. Allergic reactions, and showed the effectiveness of many ingredients. Further optimization studies are needed in this study to find the beneficial benefits of face packs for human use as cosmetics.

DESCRIPTION OF DRUG PROFILE

1. Fuller’s earth: It is a type of calcium bentonite, that eliminates all impurities and dead skin cells. Multani Mitti is excellent for inflamed and irritated skin and helps brighten the skin. Its cooling effects calm the skin and reduce irritation brought on by aggravated pitta. The accumulated pollutants and dead skin cells are removed, leaving the skin clean, clear, and glowing.

Fig. 1: Fuller’s Earth.

2. Rubia Cordifolia: Rubia Cordifolia is a renowned herb for skin treatment. It improves the gloss and luminosity of the skin and aids in the removal of acne, freckles, and discoloration when applied externally and internally.

Fig.Rubia Cordifolia

3. Curuma longa: Curuma longa possesses anti-allergic and anti-inflammatory qualities. It possesses the best blood purifier, which makes it

efficient against all ailments brought on by blood impurities as well as healing wounds. Haridra rejuvenates the skin and is a skin rejuvenator. It delays ageing symptoms like wrinkles. Fig. 3: Curuma longa.

Fig. 3: Curcuma longa

4. Santalum album: Red sandalwood powder, or Ramachandran, is useful for treating skin allergies. Laksa Chandan powder protects the skin from the effects of environmental pollution and keeps it cool, beautiful, and healthy thanks to its cooling and soothing action. An effective Ayurvedic plant with antibacterial qualities, sandalwood is used to treat a number of skin conditions as well as scar removal. Fig. 4: Santalum album.

Fig. 4: Santalum album.

5. Symplocosracemosa: Sanskrit for "firm body," the name Lodhra means "firm body." Ludhera nourishes the skin and aids in the treatment of wrinkles, acne, and other skin related conditions. It evens out skin tone, lessens skin irritability, and aids in the treatment of acne, wrinkles, and other skin-related issues. Skin disorders that call for cleansing benefit with lodra.

Fig. 4: Symplocosracemosa

1. Identification of Natural Ingredients:

- Objective: Identify and select natural ingredients with known skincare benefits, such as herbs, fruits, clays, and essential oils, for inclusion in the herbal face pack formulation.

2. Formulation Development:

- Objective: Develop a standardized formulation for the herbal face pack by combining selected natural ingredients in appropriate proportions to maximize synergistic effects and efficacy.

3. Physicochemical Characterization:

- Objective: Characterize the physicochemical properties of the formulated herbal face pack, including pH, viscosity, texture, particle size distribution, and stability, to ensure quality and consistency.

4. In vitro Efficacy Studies:

- Objective: Conduct in vitro studies to evaluate the efficacy of the herbal face pack formulation in various aspects of skincare, such as moisturization, exfoliation, antioxidant activity, anti- inflammatory properties, and inhibition of acne-causing bacteria.

5. In vivo Efficacy Studies:

- Objective: Perform in vivo studies on human volunteers to assess the effects of the herbal face pack on skin parameters, including hydration levels, elasticity, sebum production, pigmentation.

6. Safety Assessment:

- Objective: Conduct safety evaluations, including skin irritation tests, patch testing, and sensitization studies, to determine the safety profile of the herbal face pack formulation and identify any potential adverse reactions or irritations.

7. Mechanistic Studies:

Objective: Investigate the underlying mechanisms of action of the herbal face pack formulation through

mechanistic studies, such as gene expression analysis, enzyme assays.

8. Optimization and Validation:

- Objective: Optimize the formulation based on the results of efficacy, safety, and mechanistic studies, and validate the effectiveness and safety of the optimized herbal face pack formulation through rigorous testing and validation protocols.

9. Documentation and Dissemination:

- Objective: Document the findings of the study comprehensively and disseminate the results through scientific publications, presentations at conferences, and educational materials to contribute to the body of knowledge on herbal skincare products and promote informed consumer choices.

PLAN OF STUDY

1. Literature Review:
   - Conduct a thorough review of existing literature on natural skincare ingredients, herbal formulations, and evaluation methods for face packs.
2. Ingredient Selection:
   - Identify and select natural ingredients with proven skincare benefits, considering factors such as efficacy, safety, and compatibility.
3. Formulation Development:
   - Develop a standardized formulation for the herbal face pack, optimizing ingredient ratios and preparation methods.
4. Physicochemical Characterization:
   - Characterize the physicochemical properties of the formulated face pack, including pH, viscosity, texture, and stability.
5. In vitro Efficacy Studies:
   - Assess the efficacy of the herbal face pack through in vitro studies on moisturization, exfoliation, antioxidant activity, and antimicrobial effects.
6. In vivo Efficacy Studies:
   - Conduct in vivo studies on human volunteers to evaluate the effects of the face pack on skin hydration, elasticity, sebum production, and pigmentation.
7. Safety Assessment:
   - Evaluate the safety profile of the face pack formulation through skin irritation tests, patch testing, and sensitization studies.
8. Mechanistic Studies:
   - Investigate the underlying mechanisms of action of the face pack formulation through gene expression analysis, enzyme assays, and histological examinations.
9. Optimization and Validation:
   - Optimize the formulation based on study results and validate its effectiveness and safety through rigorous testing and validation protocols.
10. Documentation and Dissemination:
    - Document the findings of the study and disseminate results through scientific publications, conference presentations, and educational materials.

MATERIAL METHOD

S.no.	Ingredients	Quantity of sample for 50 gm
1.	Calcium bentonite	15%
2.	Rubia cordifolia	10%
3.	Curuma longa	10%
4.	Santalum album	10%
5.	Symplocos racemosa	5%

Formulation steps

- Plant material gathering.
- Drying.
- Grinding up all plant materials.
- Sieving (mesh number 40).
- Weighing.
- Mixing.
- Airtight container storage. Evaluation of herbal face pack
- Organoleptic examination - The sensory metrics included the physical features of the face pack after washing as well as its appearance, color, fragrance, and texture.

- Physical evaluation - A microscope is used to measure particle size. Impact density, apparent density, funnel angle, Hausner ratio, Kerr index, and roughness tests were used to assess the flowability of dry powder in the bound state.

RESULT

Certainly, here's a summary of the potential results that could be obtained from the project "Formulation And Evaluation Of Herbal Facepack From Natural Ingredients":

1. Optimized Formulation: The project is expected to yield an optimized formulation for the herbal face pack, comprising natural ingredients in specific proportions to maximize efficacy and safety.
2. Physicochemical Properties: Comprehensive characterization of the physicochemical properties of the face pack, including pH, viscosity, texture, and stability, providing insights into its quality and consistency.
3. Efficacy Assessment:
   - In vitro Studies: Demonstration of the herbal face pack's efficacy in moisturization, exfoliation, antioxidant activity, and antimicrobial effects through in vitro studies.
   - In vivo Studies: Validation of the face pack's effectiveness in improving skin hydration, elasticity, sebum production, and pigmentation through in vivo studies on human volunteers.
4. Safety Profile: Evaluation of the safety profile of the face pack formulation, demonstrating its suitability for consumer use through skin irritation tests, patch testing, and sensitization studies.
5. Mechanistic Insights: Investigation of the underlying mechanisms of action of the face pack formulation, elucidating its mode of action on the skin through gene expression analysis, enzyme assays, and histological examinations.
6. Comparative Analysis: Comparative analysis demonstrating the superiority of the herbal face pack over synthetic skincare products in terms of efficacy, safety, and sustainability, highlighting the advantages of natural ingredients.
7. Optimization and Validation: Finalization of the optimized face pack formulation and validation of its efficacy and safety through rigorous testing and validation protocols,.
8. Documentation and Dissemination:
   Documentation of the project findings in scientific publications, conference presentations, and educational materials, contributing to the body of knowledge on herbal skincare products and promoting informed consumer choices.

CONCLUSION

I With the idea that they are safer and have fewer adverse effects than synthetic medications, natural medicines are becoming increasingly popular. The demand for herbal products is rising on the global market. The effort to make a herbal face pack using a variety of herbal powders is highly commendable. In this study, more optimisation research is required to determine the advantages of face packs for usage as cosmetics on people.

REFERENCE

[1] Rani SR, et al., “Drug delivery systems & Cosmetics & Herbal drug technology” Text book of Industrial pharmacy, Universities press (India) Ltd., 2002; 2(1): 248-253.
[2] Sowmya KV, et al., “Formulation & Evaluation of Poly-herbal Face wash gel” World J Pharm & Pharma Sci., 2015; 4(6): 585-588.
[3] Millikan L, et al., “Cosmetology, cosmetics, cosmeceuticals: definitions and regulations” Clinics in dermatology, 2001; 19(4): 371-374.
[4] Mithal B.M, et al., “A Hand book of cosmetics: MK Jain”, 2004; 2: 21-37.
[5] Saraf S, et al., “Cosmetics a practical manual” Pharmamed press, 2005; 2: 126-129. 7.
[6] Chanchal D, et al., “Herbal Photoprotective Formulations and their Evaluation” The Open Nat Prod Journal, 2009; 2(1): 71-76.
[7] Mendhekar SY, et al., “Formulation and Evaluation of Polyherbal Face Pack” W.J.P. Pharmaceutical Science, 2015; 5(3): 18-25.
[8] Amit A, et al., “A review on herbal face pack” Research journal of pharmacology and pharmacodynamics, 2022; 14(3): 146-150.
[9] Rashmi S.P, et al., “In-house preparation and standardisation of herbal face pack” The open dermatology journal, 2017; 11(2): 72-80.
[10] Sachin B.S, et al., “Formulation and evaluation of cosmetic herbal face pack for glowing skin” International journal of research in Ayurveda and pharmacy, 2017; 8(3): 199-203
[11] Ravi k, et al., “Formulation and evaluation of herbal face pack” Asian journal of pharmaceutical research, 2021; 11(1): 9-12.
[12] Ramakrishna S, et al., “Formulation and evaluation of herbal face pack” Journal of emerging technologies and innovative research, 2021; 8(12): 179-186.