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Formulation and Evaluation of herbal face pack

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ABSTRACT

Moringa natural ingredients often called the "miracle tree,"is known for its rich nutritional andmedicinal properties. This study explores the formulation and benefits of a Moringa Face Pack, highlighting its potential for skincare.

Moringa leaves are packed with antioxidants, vitamins (A, C, and E), and anti-inflammatory compounds that help in reducing acne, fighting free radicals, and promoting healthy like turmeric, earth fullers, rice powder, neem powder a moringa face pack can deeply nourish the skin, improve complexion, and provide anti-aging benefits. The research focuses on the effectiveness of moringa in skincare applications and its potential as a natural alternative to chemical-based face masks.

A Moringa face pack provides a holistic skincare remedy that cleanses, Moisturizes and refines the skin texture. Packed with Vitamins C, E and amino acids. it effectively fights oxidative stress, reduces breakout and promotes a natural glow. Ideal for brightening, anti-aging, and deep nourishment, this all natural face pack is a must have for those seek in healthy, radiant complexion without harsh chemical.

KEYWORDS: Moringa, Turmeric, Earth fullers, Antibacterial, Antioxidant.

INTRODUCTION:

Moringa, commonly referred to as the "Drumstick Tree," is well-known for its extensive medicinal and cosmetic benefits. Moringa powder is widely used in skincare and wellness due to its rich supply of vitamins, minerals, essential fatty acids, and antioxidants.

The use of moringa dates back to around 2000 BCE in northern India, where it was valued for its healing properties. However, its incorporation into modern beauty products gained momentum in the late 20th and early 21st centuries as scientific research confirmed its numerous skin-enhancing qualities. The rising demand for natural and sustainable ingredients in the beauty industry further contributed to its growing popularity.

Moringa oleifera is a fast-growing plant abundant in nutrients and can be harvested multiple times a year, ensuring a steady and eco-friendly supply for cosmetic applications. The leaves of this plant are especially rich in essential micronutrients, making them a vital ingredient in skincare formulations. Additionally, moringa oil has been used traditionally in various cultures for its hydrating and restorative properties, making it a valuable component in natural beauty treatments.

The Moringa Face Pack utilizes these beneficial properties to nourish, protect, and rejuvenate the skin, offering a natural solution for a radiant and healthy complexion.

Fig*: Moringa*

LITERATURE SURVEY:

- **Formulation and Evaluation of Herbal pack from Moringa Olifera Hendrawati, Yulyani Nur Azizah kusuma Hapsari Journal kimia valensi**

  The methanol extract of Moringa leaves showed strong antioxidant activity (IC50 = 56.34 µg/mL) and inhibited S. aureus at concentrations ≥0.125 g/mL. Facial mask formulations containing 35% extract reached a 66.04% inhibitory effect. All formulations (12.5%–35% extract) met SNI standards with a pH of 5.45–6.02, specific gravity of 1 g/mL, emulsion stability between 96.57% and 97.05%, and no microbial contamination. The 17.5% extract formulation (F2) was rated most optimal, and GC-MS analysis confirmed quinic and linoleic acids as the key active compounds.

- **Formulation and Evalution of Antiaging Herbal Face Pack (IJPRA) Dr. Asha Gandhi, Ms. Suvidhi Saini, Khushu, AjneetSri Sukhmani Institute of Pharmacy, Derabassi (Mohali)**

  Recent studies highlight the safety and popularity of natural remedies over synthetic alternatives. In this investigation, three anti-aging herbal face pack formulations were compared, with Formulation 1 (F1) emerging as the best candidate. Comprising pistachio, almond powder, multani mitti, turmeric, sandalwood, and rose petals, F1 demonstrated strong anti-aging effects. The dried blend exhibited excellent flow properties, and sensory evaluations confirmed a pleasant aroma and smooth texture. Moreover, rheological analysis showed that the formulation was free-flowing, while overall testing affirmed its physico-chemical and microbiological stability, meeting cosmeceutical standards.

- **The antibacterial action of moringa oleifera: A Systematic Review South African journal of botany**

  Moringa oleifera has been investigated for its antibacterial properties, particularly in leaf and seed extracts. Studies suggest varying efficacy depending on extraction methods and bacterial strains. While some activity is observed, Gram-negative bacteria show resistance, and Staphylococcus aureus remains unaffected (Rahman et al., 2016; Moyo et al., 2012). Cold methanol extracts exhibit slightly better antibacterial effects than aqueous extracts, and whole seed extracts outperform dehusked ones, indicating the presence of bioactive compounds in seed coats (Falowo et al., 2018; Gopalakrishnan et al., 2016). However, current studies do not confirm M. oleifera as a standalone antibacterial agent. Further research is needed to optimize extraction methods, assess seed coat efficacy, and refine susceptibility testing. Future studies should also explore active antimicrobial compounds like moringa in, investigate volatile and sterol components, and examine extract-antibiotic synergies to enhance clinical applicability (Anwar et al., 2007; Araujo et al., 2020).

- **Exploring the Cosmetic Benefits of Moringa powder: A Natural Solution for skin and Hair Care**
  Zeel Patel, Riya Patel, Yachi Gandhi, Rajshri Patel (IJFMR)
  Moringa powder has gained popularity in the cosmetic industry due to its nutrient-rich profile and powerful skin and hair benefits. Packed with antioxidants and active plant compounds, it helps reduce inflammation, fight microbes, and slow aging signslike wrinkles and acne. Its adaptability to different climates and frequent harvests make it an eco-friendly and sustainable resource. Though challenges like cost and quality assurance exist, moringa's natural appeal and effectiveness support its growing use in organic beauty products and formulations.

- **Data on characteristics of simplica, phytoconstituents, and antioxidant activity of moringa oleifera leaves ethanol extract**
  Analytical techniques such as Thin Layer Chromatography (TLC) and Liquid Chromatography-Mass Spectrometry (LC-MS/MS) have been widely employed to identify and quantify bioactive compounds in M. oleifera extracts. Research indicates that quercetin-3β-D-glucoside, a pigetrin, and astragalin are among the major flavonoid constituents, exhibiting significant pharmacological potential, including anti-inflammatory and cardio protective effects (Kou et al., 2018). Furthermore, the presence of quinic acid and 4-hydroxybenzaldehyde has been associated with antimicrobial and hepatoprotective properties, further substantiating the plant's medicinal significance (Popova et al., 2009).

- **Formulation and Evaluation of Herbal Face pack (IJRPR)**
  Rutuja sanjay Anarthe, Giri M.A
  Recent trends favour side-effect-free skin treatments, which has led to an increased use of herbal ingredients in cosmetics. Herbal face packs are recognized as both sustainable and effective in enhancing skin appearance. This study presents the formulation of a herbal face pack using natural components such as multani mitti, moringa powder, aloe Vera powder, beetroot powder, orange peel, neem powder, and rose petals. The resulting formulation demonstrated physico-chemical and microbiological stability, conforming to the standards expected of cosmeceutical products.

- **Formulation and Evalution Of Herbal Face pack From Moringa Olifera Ms.M.M Bagwan, 2. Dr. B. D Tiwari, 3 Mayuri Ugade, 4. Pallavi Vallamdeshi 5. Snehal Swami, 6 Bhumika Waghmode.**
  Herbal remedies are becoming more popular because they are seen as safer with fewer side effects. As the demand for natural skin treatments grows, plant-based cosmetics are gaining attention. This study introduces a herbal face pack using ingredients like multani mitti, turmeric, curry leaves, sandalwood, and red lentil powder. The product showed good physical and chemical stability, meeting the requirements for quality skincare.

NEED OF WORK

The growing preference for natural skincare has increased interest in plant-based solutions like *moringa*, known for its rich antioxidants and skin-enhancing properties. *Moringa* offers a safer,eco-friendly alternative to synthetic products, supporting skin health by addressing issues like acne, fine lines, and environmental damage. Its bioactive compounds make it ideal for innovative herbal formulations. To ensure product effectiveness and consumer trust, assessing quality, stability, and safety is essential. Moringa's versatility and benefits also boost its commercial potential in the expanding organic skincare market.

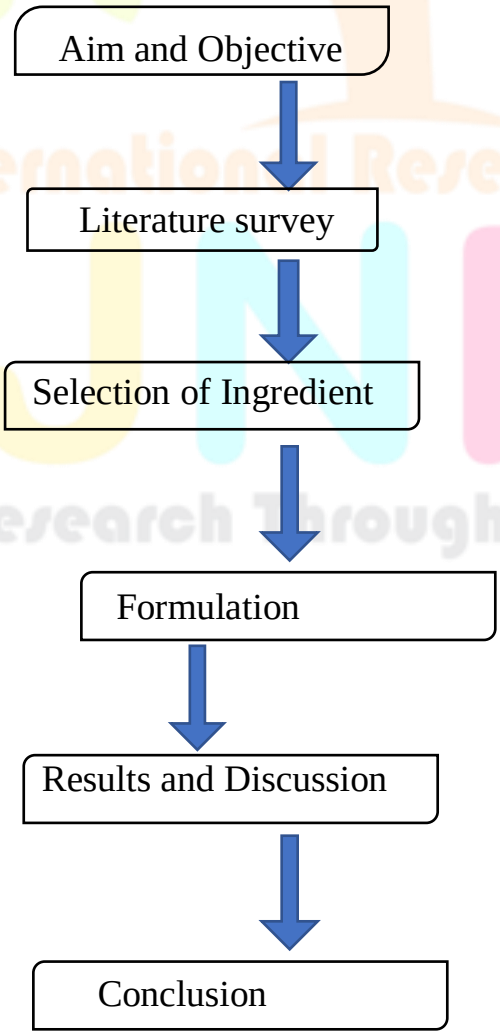
AIMS AND OBJECTIVES

AIM: Formulation and Evaluation of Herbal Face Pack.

OBJECTIVE:

The primary goal of this study is to create a natural herbal face pack incorporating Moringa leaf powder and other plant-based components. It aims to evaluate the product's ability to improve skin condition by boosting hydration, nourishment, reducing acne, and minimizing signs of aging. The research also explores the antioxidant and antimicrobial capabilities of the formulation to help defend the skin against infections. Additionally, the study involves assessing important physicochemical features such as pH, texture, spreadability, and drying time, along with stability testing to ensure the product's shelf-life. Safety evaluation through microbial analysis and sensory testing for consumer appeal are also key objectives, ensuring the product's potential in the skincare market.

PLAN OF WORK:



METHODS AND MATERIAL, PROPERTIES:

FORMULATION TABLE:

SR. NO	INGREDIENTS	QUANTITY
1.	Moringa leaves Powder	15gm
2.	Turmeric Powder	0.3gm
3.	Neem leaves Powder	3gm
4.	Multani Mitti	5gm
5.	Rice Powder	15gm

INGREDIENT:

1.MORINGA LEAVES POWDER

Fig: Moringa leaves Powder

***Binomial Name*:**

Binomial name of the Moringa is Moringa Oleifera Lam. Moringa oliefera has local region name in India is Drum stick.

***Chemical constituents*:**

- Macronutrients: Proteins (all essential amino acids), carbohydrates, healthy fats (omega-3, -6, -9).
- Vitamins: A (β-carotene), C, E, B-complex (B1, B2, B3, B6).
- Minerals: Calcium, magnesium, phosphorus, potassium, iron, zinc.
- Phytochemicals: Flavonoids (quercetin, kaempferol), phenolic acids (gallic, chlorogenic), glucosinolates, isothiocyanates.

- Alkaloids: Moringinine (blood pressure regulation).
- Terpenoids: β-sitosterol (anti-inflammatory, cholesterol-lowering).
- Antioxidants: Tannins, saponins, lutein, zeaxanthin.
- Lipids & Fatty Acids: Linoleic, oleic, palmitic acids.

Moringa oleifera is rich in vital nutrients that promote healthy skin. It contains vitamin A, which plays a crucial role in collagen formation, essential for maintaining skin structure. Vitamin C helps reduce signs of aging, while vitamin E offers anti-inflammatory effects. Moreover, the antioxidants in moringa safeguard the skin from UV damage. Its natural cleansing properties also assist in eliminating blackheads, pimples, and enhancing overall skin clarity. Moringa is a valuable ingredient in skincare and haircare products due to its hydrating, anti-aging, and protective properties. Its oil deeply moisturizes the skin, while antioxidants help reduce wrinkles and fine lines. The antibacterial and anti-inflammatory effects make it effective for acne and blemish control. Moringa also offers UV protection. In hair care, it strengthens follicles, prevents dandruff, and promotes healthy growth. Additionally, it acts as a natural cleanser in soaps and face washes and nourishes lips and nails in balms and treatments. Its diverse benefits make it a key component in modern cosmeceuticals.

PROCEDURE:

1.Harvest the leaves
2. Dry them into sunlight until remove the moisture
3.Crush them into fine powder
4. Pass through sieve no.88

2.TURMERIC POWDER

Fig: Turmeric Powder

***Binomial Name*:** The binomial name turmeric is Curcuma Longa.

Chemical constituents: Turmeric (Curcuma longa) contains key bioactive compounds, including curcuminoids like curcumin, known for their antioxidant and anti-inflammatory properties. Its essential oils, such as turmerone and zingiberene, contribute to its medicinal value. Rich in vitamins C and E, along with minerals like potassium, calcium, and iron, turmeric supports skin health. Additionally, polysaccharides provide nutritional benefits, while proteins and amino acids aid in skin repair. These constituents make turmeric a valuable ingredient in skincare and medicinal applications, offering healing, brightening, and protective benefits.

Turmeric is renowned for its potent anti-allergic, antiseptic, and anti-inflammatory properties, making it a valuable ingredient in skincare. Its natural compounds help soothe skin irritations, reduce redness, and protect against infections, making it particularly

effective for individuals with sensitive or acne-prone skin. Additionally, turmeric is widely used for its ability to rejuvenate dull skin by promoting a natural glow and improving overall complexion. It plays a significant role in evening out skin tone, reducing hyperpigmentation, and addressing dark spots, giving the skin a more uniform appearance. Furthermore, turmeric is known for its powerful anti-aging benefits, as it helps delay the formation of wrinkles and fine lines by enhancing skin elasticity and stimulating collagen production. Regular use of turmeric-based skincare products can result in firmer, more youthful skin, shielding it from environmental damage and oxidative stress. Its ability to deeply nourish and protect the skin makes turmeric a key component in natural beauty and cosmeceutical formulations.

Procedure:
1.Turmeric must undergo curing before being dried and finely powdered.
2. After complete dried its powder.
3. Pass through sieve no. 88

3.Neem Leaves Powder

Fig: Neem Leaves powder

***BINOMIAL NAME*:** The Binomial Name of Neem is the Azadichirata Indica.

CHEMICAL CONSTITUENTS: Bioactive Compounds in Neem (Azadirachta indica)
1. Limonoids – Includes azadirachtin, nimbin, and nimbidin, known for their strong antimicrobial and insect-repellent properties.

2. Flavonoids – Quercetin and kaempferol act as antioxidants with anti-inflammatory benefits.
3. Tannins – Provide astringent effects and promote wound healing.
4. Terpenoids – Compounds like nimbinene and salannin exhibit antifungal and antibacterial properties.
5. Glycosides – Nimbosterol and margolone support overall skin and hair health.
6. Essential Oils – Contains eugenol and other volatile components that enhance skincare benefits.
7. Fatty Acids – Oleic, linoleic, and palmitic acids help moisturize and nourish the skin.

Azadirachta indica, widely recognized for its antibacterial properties, is particularly beneficial for individuals with oily and acne-prone skin. Its effectiveness in treating acne is attributed to its potent antimicrobial and antioxidant compounds, which work to eliminate skin impurities and prevent breakouts. Additionally, neem powder acts as a natural cleanser, helping to remove excess oil and dirt from the skin. Its bioactive components contribute to reducing blemishes and hyperpigmentation, enhancing overall skin tone and texture for a clearer and more balanced complexion.

PROCEDURE:

1.Harvest the leaves.
2.Dry them into sunlight until moisture remove.
3. Crush them into fine powder.
4.Pass through the sieve no 88**.**

4.MULTANI MITTI:

Fig. Multani Mitti

Biological Name:

Multani Mitti, also known as Fuller's Earth, does not have a formal binomial nomenclature like plant species. It is a naturally occurring clay composed primarily of hydrated aluminum silicate, along with minerals such as magnesium, calcium, and quartz.

***Chemical Contituents*:**

This mineral-rich clay is high in hydrated aluminum silicate, which gives it strong absorbent and purifying properties. Magnesium supports detoxification, calcium nourishes the skin, and quartz (silica) provides gentle exfoliation. Iron oxides aid in healing, while dolomite helps to calm and cleanse the skin. These combined elements make Multani Mitti an excellent agent for deep cleansing, oil control, and skin improvement.

Multani Mitti is effective at cleansing the skin by drawing out dirt, excess oil, and dead skin cells. Magnesium chloride in it revitalizes the skin and enhances its glow. As a natural astringent and cleanser, it benefits the skin by refreshing and rejuvenating it. It helps manage acne, improves skin tone, and balances oil production, particularly beneficial for oily skin types. Its exfoliating effect smooths the skin, and its natural cooling properties relieve irritation and sunburn. Additionally, it tightens the skin to reduce the appearance of fine lines and is also applied in hair treatments to detoxify the scalp. Its versatile and purifying nature makes it a valuable component in both skincare and haircare routines.

5.RICE POWDER:

Fig: Rice powder

***BINOMIAL NAME*:**
Rice powder is made from a Rice; whose scientific Name is Oryza Sativa**.**

CHEMICAL CONSTITUENTS:
Rice powder from Oryza sativa contains starch (amylose, amylopectin), proteins (glutelin, albumin), small amounts of lipids, B vitamins, minerals (iron, magnesium), phenolic antioxidants, and dietary fibre. Rice powder from Oryza sativa contains starch (amylose, amylopectin), proteins (glutelin, albumin), small amounts of lipids, B vitamins, minerals (iron, magnesium), phenolic antioxidants, and dietary fibre.

In cosmetics, rice powder (Oryza sativa) is valued for its natural starches (amylose and amylopectin) that help absorb excess oil, proteins that support skin health, essential lipids, B vitamins for nourishment, minerals like iron and magnesium for revitalization, antioxidant-rich phenolic compounds, and gentle exfoliating dietary fibre.

Procedure:

1. Take a rice grains and clean and dry properly.
2. Crush into fine powder.
3. Pass through sieve no 88

PROCEDURE FOR FORMULATION OF HERBAL MORINGA FACE PACK

1. **Taking all ingredients according to given formulation**: Begin by gathering all necessary ingredients are collected for your formulation. In dry form they can be crush properly and then pass through sieve no. 88

2. **Weighing all ingredient:** Weigh accurately each ingredient according to formulations quantity are given.

3. **Mix ingredients properly:** Weigh all ingredients are mixing properly and kept in packed close container.

4. **Evaluate the formulation:** After mixing all ingredient, evaluate the resulting formulation to Organoleptic test, physicochemical test, Physical test, Irritancy test.

Fig: All ingredients

Fig: Prepared Face pack

RESULT AND DISCUSSION:

EVALUTION PARAMETER:

1. Organoleptic Evaluation:

SR.NO	Parameter	Observation
1.	Colour	Greenish Yellow
2.	Odour	Slight
3.	Appearance	Free Flowing
4.	Texture	Fine
5.	Smoothness	Smooth

Organoleptic evaluation of a herbal moringa face pack involves assessing its sensory qualities like appearance, smell, and texture. The pack should have a fine texture and green colour, a slight herbal scent, and feel cool and soft on the skin. While taste is not typically relevant, the product should be safe if accidentally ingested. Stability in colour and odour over time indicates good shelf life. This sensory analysis helps ensure the product is appealing, fresh, and of good quality.

2. Physicochemical Test:

- **Moisture Content:**

Time	15min	30min	45min	60min	75min	90min	105min
Weight	46.515	46.509	46.505	46.495	46.490	46.490	46.490

% Moisture = Initial weight – Final weight/ initial weight ✕ 100

% Moisture = 46.515 – 46.490/ 46.515 ✕100

= 0.053 %

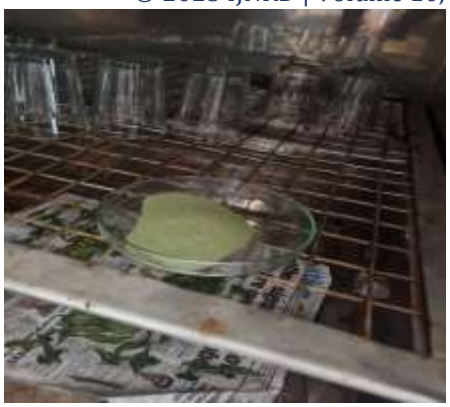


Fig: moisture content

Moisture content reflects the water level in the Moringa face pack, which affects its stability and shelf life. Low moisture is preferable, as it limits microbial growth and improves preservation. If levels are low, it indicates good drying and storage practices, ensuring product quality.

- **Ash Value = Weight of Ash residue / Weight of original sample✕100**

= 0.114/ 1 x 100

=11.4%

Fig: Ash value

Ash value shows the mineral content and purity of the Moringa face pack. A value within standard limits indicates minimal contamination and confirms that clean, good-quality ingredients were used, ensuring product safety and effectiveness.

PHYSICAL TEST:

- **Tap density:** Mass (g) / volume (ml)

  =38.3/30

  = 1.27 gm/ml

The Moringa face pack showed an acceptable tap density, suggesting good flow and compactness. This supports easy use, smooth mixing with liquids, and even application,confirming its stability and effectiveness for cosmetic purposes.

Fig: Bulk Density

- **Bulk Density: Mass (gm)/ volume(cm)**

  = 38.3/4.5

  = 8.5 gm/ml

The Moringa face pack showed ideal bulk density, indicating good handling and easy application. It allows for smooth mixing and consistent usage, confirming its suitability for packaging and user convenience.

- **Angle of Repose: tan(h/r)**

= 2/ 4.5

= 45

Fig: Angle of repose

The acceptable angle of repose of the Moringa face pack indicates smooth powder flow, allowing for easy handling, mixing, and application, which supports its efficiency and user convenience.

- **Irritancy Test**

Sr.No	Parameter	Observation
1.	Irritation	No
2.	Redness	No
3.	swelling	No

The irritancy test showed that the Moringa face pack caused no skin reactions like redness or itching, proving it is safe and gentle. Its natural ingredients make it suitable for all skin types and regular use.

Fig: Irritancy test

- **Stability Test**

SR.NO	Parameter	Observation
1.	Colour	No change
2.	Odour	No change
3.	Texture	No change

Stability testing of the Moringa face pack showed no major changes in color, texture, smell, or pH over time, with no signs of microbial growth. This confirms the product's stability, long shelf life, and readiness for commercial use.

- **HOW TO APPLY MORINGA FACE PACK**

1. Take 1–2 teaspoons of the herbal Moringa face pack powder in a clean bowl.

2. Add a natural liquid like rose water, milk, or yogurt to make a smooth paste.

3. Cleanse your face to remove dirt and oil.

4. Apply the paste evenly on your face and neck, avoiding the eyes and lips.

5. Leave it on for 10–15 minutes or until it dries completely.

6. Rinse off gently with lukewarm water using circular motions.

7. Pat dry and follow with a light moisturizer.

Use 1–2 times weekly for best results and glowing skin.

CONCLUSION:

Moringa oleifera leaves are known for treating various health issues and are increasingly used in herbal face packs due to their natural safety and effectiveness. These packs, made with ingredients like turmeric and moringa, improve skin elasticity, cleanse deeply, and offer anti-aging benefits. Rich in antioxidants, they help combat skin problems like acne and wrinkles. The moringa face pack was highly preferred and met quality standards in pH, stability, and microbial tests, proving its effectiveness and safety.

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