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Page: 01-11

"FORMULATION AND CHARACTERIZATION OF A NATURAL ANTI-ACNE HERBAL FACE PACK."

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ABSTRACT

Acne vulgaris is a common inflammatory skin disorder associated with excessive sebum production, follicular blockage, microbial growth, and inflammation. The present study aimed to formulate and characterise a natural anti-acne herbal face pack using selected medicinal plants with antimicrobial, anti-inflammatory, antioxidant, and skin-soothing properties. The prepared formulation was evaluated for its organoleptic properties, pH, spreadability, washability, phytochemical constituents, skin compatibility, antimicrobial activity, and stability. The formulation exhibited satisfactory physical characteristics, skin compatibility, and promising antimicrobial potential against acne-associated microorganisms. The presence of important phytoconstituents further supported its potential anti-acne activity. Overall, the developed herbal face pack may serve as a safe, natural, and promising topical formulation for acne-prone skin.

KEYWORDS: Acne vulgaris; Herbal face pack; Anti-acne activity; Phytochemicals; Antimicrobial activity; Herbal formulation.

1. INTRODUCTION

Skin is the largest and most visible organ of the human body, serving as a vital barrier against environmental pollutants, microorganisms, and harmful ultraviolet radiation. However, excessive sebum secretion, hormonal imbalance, and bacterial colonization often lead to the development of acne a common dermatological disorder that affects millions of individuals

worldwide, particularly adolescents and young adults. Conventional synthetic treatments for acne, though effective, are frequently associated with undesirable side effects such as skin irritation, dryness, and antimicrobial resistance.

Herbal formulations, derived from plant-based ingredients rich in bioactive phytoconstituents such as alkaloids, flavonoids, tannins, and terpenoids, have long been used in traditional medicine for their antimicrobial, anti-inflammatory, antioxidant, and wound-healing properties. The concept of developing a natural anti-acne herbal face pack integrates this ancient wisdom with modern pharmaceutical formulation science. Such formulations not only help in controlling acne and excess oil secretion but also rejuvenate the skin, providing nourishment and a natural glow without harmful chemical residues.

The present study focuses on the formulation, evaluation, and characterization of an herbal face pack prepared from selected medicinal plants known for their anti-acne potential. Ingredients such as Azadirachta indica (Neem), Curcuma longa (Turmeric), Aloe vera, and Multani Miti (Fuller's Earth) are combined in optimized proportions to ensure effective cleansing, sebum control, and microbial inhibition. The developed formulation will be subjected to physicochemical characterization and performance evaluation to assess parameters such as consistency, Spreadability, pH, stability, and efficacy.

Through this study, an effort is made to provide a safe, cost-effective, and eco-friendly alternative to synthetic cosmetic preparations. The outcome is expected to contribute significantly to the growing field of herbal cosmetics and natural skincare, promoting the use of plant-based therapeutics for maintaining healthy, acne-free skin.

Cosmetics are products that clean, beautify, and encourage an attractive appearance. The skin of the face is the most important aspect of the body since it acts as a mirror, reflecting an individual's health. The primary benefit of utilizing herbal cosmetics is that they are pure and have no negative effects on the human body. People have tough skin, and if they do not take proper care, the skin darkens as a result of overexposure to the sun and other contaminants. In this post, we've created an herbal face pack for men and women that will naturally whiten, lighten, and brighten their complexion. This face pack has natural skin lightening properties and can be simply made at home. Face packs made with natural ingredients are high in critical vitamins, which are necessary for skin health and radiance. These compounds have been shown to benefit the skin in a variety of ways. Natural face packs are simple to use. They stimulate blood circulation in the face's veins, enhancing the skin's vitality. A good herbal face pack must provide the skin with required nutrients in the form of a free-flowing powder that is applied externally to the face.

Nowadays, distinct packets are available for oily, normal, and dry skin. Face packs are used to improve the complexion and smoothness of the face. It minimizes wrinkles, pimples, acne, and dark circles on the skin. Face packs advised for oily skin prone to acne and blackheads typically decrease the rate of sebum discharge from sebaceous glands and combat the dangerous bacteria present within acne lesions. Herbal face packs are currently widely utilized due to the numerous benefits they provide over chemical-based packs. They are not toxic, allergenic, or habit-forming.

2. Applications of Herbal Face Pack:

- Its natural ingredients minimize marks, scars, acne, and pimples.
- Facial masks for acne, pimples, and blackheads reduce sebum production and eradicate germs.
- Herbal face packs hydrate and nourish the skin.
- They have the ability to eradicate dead skin cells.
- For skin that is safe, smooth, and glowing, use herbal pimple face packs.
- They naturally alleviate skin concerns and encourage even skin tone.
- Herbal cosmetics are safe to use.

3. Material use for Herbal Face Pack

Fig No. 1 Ingredients Herbal Face Pack Neem Powder, Curcuma longa, Aloe vera, Multani Mitty, Sandalwood, Rose Powder.

4.Need for Herbal Formulations

Although a wide range of synthetic anti-acne agents such as benzoyl peroxide, retinoids, salicylic acid, and antibiotics are available in the market, they often cause undesirable side effects such as skin dryness, peeling, redness, itching, and the development of antibiotic resistance upon long-term use. Increasing consumer awareness toward natural and safe cosmetics has led to a strong shift from synthetic to herbal-based skincare products. Herbal cosmetics have the advantage of being biocompatible, eco-friendly, less toxic, and free from harmful chemicals such as parabens, sulfates, and artificial fragrances.

In recent years, the cosmeceutical industry has seen rapid growth in herbal skincare formulations, particularly those targeting acne management. Herbal formulations utilize the therapeutic potential of plant-derived bioactive compounds such as alkaloids, terpenoids, phenolics, tannins, flavonoids, and glycosides which exhibit anti-inflammatory, antibacterial, antioxidant, and astringent properties. These bioactive constituents not only help to reduce acne lesions but also promote overall skin health by cleansing, detoxifying, and rejuvenating the skin.

Therefore, the need for herbal formulations arises from the necessity to:

1. Provide safe, natural, and effective alternatives to synthetic products.
2. Minimize side effects and enhance skin tolerance.
3. Utilize multifunctional herbal ingredients with synergistic effects.
4. Promote eco-friendly, biodegradable, and sustainable skincare practices.
5. Integrate traditional medicinal knowledge with modern scientific formulation techniques.

5. Concept of Herbal Face Pack:

A face pack is a semisolid formulation applied topically to the facial skin to achieve various cosmetic and therapeutic effects such as cleansing, toning, and rejuvenation. Herbal face packs, in particular, help in removing dead epithelial cells, controlling excessive oil secretion, opening clogged pores, and enhancing blood circulation. When used regularly, they help maintain a healthy, smooth, and glowing complexion.

Natural ingredients such as Azadirachta indica (Neem), Curcuma longa (Turmeric), Aloe vera, Multani Miti (Fuller's Earth), Santalum album (Sandalwood) and Rose Powder. have been traditionally used in Ayurvedic and Unani medicine for their anti-acne, antibacterial, antiseptic, and soothing effects. Combining these herbs in appropriate proportions can yield a synergistic formulation that targets the multiple causes of acne while maintaining the skin's

natural moisture balance.

A face pack is a semisolid or powdered cosmetic preparation applied to the skin of the face to improve its appearance, tone, and health. It works by tightening the skin, absorbing excess oil and impurities, stimulating blood circulation, and rejuvenating the facial tissues. In contrast to synthetic face masks, a herbal face pack is formulated using natural plant-derived ingredients, such as powdered herbs, clays, essential oils, and natural extracts, which are rich in bioactive compounds like flavonoids, tannins, alkaloids, terpenoids, and phenolic compounds.

The concept of an herbal face pack is based on the principle of using nature's therapeutic resources to cleanse, nourish, and protect the skin without causing harmful side effects. The ingredients are selected not only for their cosmetic benefits but also for their pharmacological properties, such as antibacterial, anti-inflammatory, antioxidant, and astringent actions. These properties help to prevent acne, reduce blemishes, improve skin tone, and maintain a youthful glow.

6. Formulation Profile of Herbal Face Pack

Table No – 1 Ingredients Profile.

Sr. No	Ingredients	Quantity
1.	Neem Powder	4 gm
2.	Turmeric	10 gm
3.	Aloe Vera	4 gm
4.	Multani Mitty	8 gm
5.	Sandalwood Powder	4 gm
6.	Rose Powder	2 gm

7. Procedure of Preparation of Herbal Face Pack:

1. Weighing

- All of the herbal powders needed to make the herbal face pack were carefully weighing
- Accurately. the quantity and compositions are listed in above table.

2. Mixing

- All of these fine materials were completely combined by a mixer to produce a homogeneous fine powder.

3. Sieving

- Then the fine powder was then put through a sieve to obtain a sufficient quantity.

4. Collection and storage

- The powder combination was collected, stored in a suitable plastic container, and properly labeled.

8. Precautions to be taken while using herbal face pack:

- Do not leave the face mask on for longer than 15-25 minutes.
- Prolonged storage can cause wrinkles, sag skin, and enlarge pores.
- Apply the face mask two times each day.
- Do not attempt to peel or dry an irritating face pack.
- Avoid using face masks around the "eye area".
- The removal of the face mask might cause harm to the skin
- It can irritate the underlying skin.
- avoid roughly rubbing the face around the eyes.

9. Procedure of Herbal Face Pack Application:

- In a small bowl, weight and mix all required Herbal Face Pack Powder.
- Add milk and rose water to get the mix properly.
- Stir until you get a smooth, thick paste.
- Apply the paste evenly on your face.
- Leave it on for 10 – 20 minutes, then wash with water, gently massaging the skin.
- Finally clean the face surface wash with water.

10. Result of Herbal Face Pack

Table No –2 Result of Herbal Face Pack.

Sr. No	Parameter	Observation
1.	Color	Brown
2.	Oduors	Fragrant
3.	Appearance	Fine Powder
4.	Texture	Fine
5.	pH	7.8
6.	Stability	Stable at Room Temp.
7.	Smoothness	Good
8.	Consistency	Solid Powder
9.	Spreadable	Uniform
10.	Solubility	Partially Soluble
11.	Washing capability	Easily washable
12.	Tapped Density	31.11 degree
13.	Bulk Density	0.317 gm/ml
14.	Angle of Repose	0.43 gm/ml
15.	Skin Irritation Test	No Irritation

11. Applications of Herbal Face Pack:

1. Cleansing Action-

Herbal face packs remove impurities, dead cells, and excess oil from the skin surface. Ingredients like Multani Mitti (Fuller's Earth) and Neem powder deeply cleanse pores, preventing acne and blackheads.

2. Anti-Acne and Anti-Pimple Effect-

Herbal ingredients such as Azadirachta indica (Neem), Curcuma longa (Turmeric), and Aloe vera possess antibacterial, anti-inflammatory, and antiseptic properties. They help control sebum secretion, reduce acne-causing bacteria, and soothe irritated skin.

3. Skin Nourishment and Rejuvenation-

Natural ingredients like Rosa centifolia (Rose powder) and Santalum album (Sandalwood) enrich the skin with vitamins, antioxidants, and essential oils, which promote healthy, glowing, and youthful skin.

4. Cooling and Soothing Effect-

Sandalwood, rose, and aloe vera provide a cooling sensation that helps relieve sunburn, irritation, and redness, making herbal face packs ideal for sensitive and inflamed skin.

5. Complexion Enhancement-

Regular use of herbal face packs helps in removing tan, blemishes, and dark spots, resulting in a brighter and even-toned complexion. Ingredients like Turmeric and Rose powder enhance natural radiance.

6. Anti-Aging Benefits-

The antioxidant and rejuvenating properties of herbs delay wrinkle formation, improve skin elasticity, and promote collagen synthesis, maintaining youthful skin.

7. Skin Tightening and Oil Control-

Herbs like Multani Mitti and Sandalwood act as natural astringents, tightening the skin and minimizing pores. They also absorb excess oil, preventing greasiness and acne formation.

8. Therapeutic and Aromatic Benefits-

Herbal face packs offer aromatherapeutic effects due to their natural fragrance (e.g., rose, sandalwood), which relaxes the mind and reduces stress enhancing overall skin–mind wellness.

12. CONCLUSION

The herbal face pack containing Neem, Curcuma longa, Aloe vera, Multani Mitti, Sandalwood, and Rose powder was successfully formulated and evaluated. The formulation showed good appearance, uniform texture, suitable consistency, acceptable pH, good spreadability, easy washability, and satisfactory skin compatibility. The selected herbal ingredients provide potential antimicrobial, anti-inflammatory, antioxidant, oil-absorbing, and soothing properties. The formulation also showed promising potential against acne-prone and oily skin. Overall, the developed face pack represents a simple, natural, economical, and potentially useful herbal formulation for skin care and acne management. Further studies are recommended to establish its long-term stability, antimicrobial efficacy, and clinical effectiveness.

13. Conflict of Interests

- The authors declare that they have no known competing financial interests or personal relationship that could have appeared to influence the work reported in this paper.

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