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Formulation and Evaluation of Herbal Face Pack

Mr. Prathamesh Divekar[1], Ms. Pooja Gaikwad[2], Mr. Nitin Gawai[3], Mr. Vivek Patil[4], Mr. Yash Memane[5]
B. Pharmacy Department, Mahadev Kanchan College of pharmaceutical education and research, Uruli Kanchan, Pune, Maharashtra, India

Abstract: ***The creation and assessment of an herbal face pack utilizing natural substances with skin-beneficial qualities is the main goal of this study. Demand for safer and more eco-friendly herbal cosmetic substitutes is rising as people become more conscious of the negative consequences of synthetic cosmetics. Multani mitti, turmeric, sandalwood powder, neem, orange peel powder, and rose petals were among the components used to make the face pack. Each was chosen for its unique medicinal qualities, including anti-inflammatory, antibacterial, and skin-brightening qualities. Organoleptic characteristics, pH, irritancy, smoothness, spreadability, and stability were among the assessment tests that were performed on the formulation. This study shows that herbal face packs can be a secure and efficient substitute for skincare products made of chemicals.***
Keywords: Herbal cosmetics, Face pack, Natural ingredients, Skin care, Evaluation, Multani mitti, Neem, Turmeric

I. INTRODUCTION

Products used for cleaning, beautifying, enhancing beauty, or changing appearance are referred to as cosmetics1. Various herbs have been utilized for cleansing, beautifying, and managing them since ancient times. The primary body area that reveals a person's health is their face skin[1-2]. The herbal paste, known as "mukha leap" in Ayurveda, is used as a face treatment. This herbal paste is used to the face to cure pigments, scars, markings, acne, and pimples. A face pack is a smooth powder that is applied to the face[1-2].
These preparations, which come in liquid or paste form, are applied to the face and left to dry and solidify into a film that tightens, strengthens, and cleanses the skin. To allow all the water to drain, they are often kept on the skin for fifteen to thirty minutes[2-3]. This causes the resultant film to compress and solidify, making it easier to remove. While the colloidal and adsorption clays employed in these preparations remove the filth and oil from the face's skin, the warmth and tightening impact created by using a face pack creates the stimulating sense of a renewed face[3-4].
Skin debris and accumulated dirt are finally eliminated together with the applied face pack[5]. Herbal face packs improve skin smoothness and fairness. By utilizing herbal face packs according to our skin type, we can get the most out of them. These face packs are the greatest Ayurvedic therapy for increasing fairness and enhancing skin radiance. One of the most elegant and traditional ways to cleanse skin is using face packs. Ayurveda describes a variety of face packs with antibacterial, astringent, cleansing, healing, and nourishing qualities. For naturally achieving fair skin, herbal face packs are less expensive and come with no negative side effects[5].
The human body's biggest organ, the skin serves as the body's first line of defence against the environment. Its continuous exposure to pollutants, UV rays, and microbiological contamination causes a number of skin issues, including pigmentation, acne, dullness, and early ageing. Many people use skincare products to keep their skin looking and feeling nice. Face packs are popular among them because of their revitalizing, exfoliating, and cleaning qualities[6].
Herbal face packs provide an all-natural remedy for skin issues without the negative side effects of synthetic treatments. They function by tightening pores, nourishing the skin, eliminating dead skin cells, and enhancing blood circulation. Herbal remedies like sandalwood, neem, and turmeric that are utilized in traditional medicine have a long history of medicinal benefits.
These herbs have skin-lightening, antibacterial, anti-inflammatory, and antioxidant qualities. Thus, by fusing the advantages of beauty and health, herbal face packs offer a comprehensive approach to skincare[7].

II. LITERATURE SURVEY

1) Patel et al. (2011):
Investigated the formulation of herbal face packs using fuller’s earth and turmeric. Their study focused on the natural antibacterial and detoxifying properties of these ingredients. The face pack showed notable efficacy in reducing acne and improving overall skin texture. Microbial inhibition tests confirmed strong antibacterial activity. Their formulation was safe and caused no skin irritation. The study emphasized the advantages of herbal formulations over synthetic counterparts[8].

2) Gupta and Sharma (2013):

Evaluated the incorporation of neem and tulsi extracts into face packs. They explored the anti-acne potential and anti-inflammatory action of these herbs. Results indicated substantial reduction in sebum and microbial load on facial skin. The face pack showed excellent compatibility with sensitive skin. Histopathological studies confirmed skin healing. The authors concluded that tulsi and neem could be key ingredients in acne therapy[9].

3) Soni et al. (2014):

Developed a polyherbal face pack containing orange peel, rose powder, and sandalwood. The formulation significantly enhanced skin tone and reduced pigmentation. DPPH assays confirmed strong antioxidant activity. Users reported a fresher and more radiant appearance. Minimal side effects were noted during dermatological evaluation. The study highlighted synergy between ingredients in herbal skincare[10].

4) Rathod and Mehta (2015):

Formulated a cleansing face pack with herbal powders like Multani mitti, sandalwood, and neem. Clinical trials showed reduced acne lesions and oil secretion. Their work emphasized the detoxifying and pore-tightening effect of Multani mitti. Subjective user feedback revealed high satisfaction. Stability and safety parameters were also verified. Their research supported routine use for oily skin management[11].

5) Kumar et al. (2016):

Focused on turmeric's role in face packs for its anti-inflammatory and antioxidant benefits. The compound curcumin was studied in detail for its bioactive properties. In-vitro studies revealed inhibition of inflammatory markers. The face pack formulation led to reduction in redness and irritation. It was especially suitable for sensitive and inflamed skin. The authors suggested its use in therapeutic skincare[12].

6) Joshi and Prasad (2017):

Analyzed the effects of Multani mitti as a base material in face packs. Their results showed excellent absorption of oils and toxins from the skin. The clay also showed cooling and soothing properties. It acted as a vehicle for other herbs, improving their activity. Volunteers experienced fewer breakouts and smoother skin texture. Multani mitti was declared an effective base for herbal cosmetics[13].

7) Kale and Raut (2018):

Studied the role of rose petal powder in soothing irritated and sensitive skin. The herbal face pack had a calming effect and helped reduce redness. Rose petals also enhanced skin elasticity and hydration. Aroma therapeutic benefits were also discussed. The formulation had a pleasant aroma and improved user satisfaction. Their study advocated rose as a key ingredient for premium herbal cosmetics[14] .

8) Sharma and Verma (2018):

Researched sandalwood powder in herbal formulations and its effect on pigmentation. Clinical trials revealed visible lightening of dark spots and an even skin tone. Sandalwood's anti-inflammatory property also reduced swelling and irritation. Their formulation showed long-lasting effects with regular use. No side effects were reported. This study reinforced sandalwood's traditional use in beauty treatments[15].

9) Rani et al. (2019):

Developed an orange peel-based face pack for oily and pigmented skin. The formulation contained natural vitamin C and flavonoids. Skin brightening and exfoliating effects were confirmed through user trials. The antioxidants helped reduce early signs of aging. Peel extract also tightened pores. The study concluded that citrus peels are valuable in anti-aging skincare[16].

10) Deshmukh et al. (2020):

Formulated a neem and aloe vera-based herbal face pack. Antimicrobial and anti-inflammatory evaluations showed promising results. Aloe vera enhanced hydration while neem-controlled acne-causing bacteria. The formulation was well tolerated by all volunteers. They suggested its routine use in acne-prone individuals. The face pack also offered a mild sunscreen effect[17].

11) Yadav and Trivedi (2020):

Assessed tulsi's role in herbal face packs as an antimicrobial and astringent agent. Results confirmed reduced bacterial colonization and inflammation. Face packs with tulsi helped in clearing clogged pores and reducing acne. The formulation also prevented recurrence of acne lesions. Clinical dermatology evaluations confirmed efficacy. Tulsi was recommended for regular skincare regimens[18].

12) Bansal and Kaur (2021):

Performed a comparative study between synthetic and herbal face packs. They evaluated safety, effectiveness, and cost-effectiveness. Herbal formulations showed superior outcomes in skin tolerance and user satisfaction. The study demonstrated fewer allergic reactions and more consistent skin improvement. Natural ingredients were also environmentally sustainable. Their work emphasized the future shift toward herbal cosmetics[19]

13) Kulkarni et al. (2021):

Explored the synergistic effect of turmeric and sandalwood in Ayurvedic face packs. Their formulation showed skin repair, anti-wrinkle, and anti-aging effects. Volunteers reported smoother and tighter skin after prolonged use. Traditional knowledge was validated through modern testing methods. The antioxidant load of the formulation was very high. The study endorsed traditional Ayurvedic blends[20].

14) Khan and Shaikh (2022):

Introduced a customizable herbal face pack system using user-specific ingredients. Depending on skin type and concerns, different herbs were recommended. Formulations showed promising results in sensitive skin types. Customization improved satisfaction and efficacy. It marked the beginning of personalized skincare in the herbal segment. The concept had strong potential for commercial success[21].

15) Mishra and Tiwari (2023):

Evaluated the long-term effects of herbal face packs on skin texture and hydration. Subjects used the packs regularly over three months. The study showed improved moisture retention, reduced pigmentation, and softer skin. Side effects were negligible, and overall skin health improved. Results supported safe long-term use of herbal formulations. Their study added to the growing data on natural skin treatments[22].

III. FORMULATION

An herbal face pack is made by carefully choosing and combining herbal herbs that are proven to have positive skin-benefitting properties. The selection of these plants is based on their pharmacological characteristics, historic usage, and intercompatibility. A thorough explanation of each botanical ingredient utilized in the formulation is provided below[23-30]:

1) Multani Mitti

- Synonym: Fuller's Earth
- Biological Source: Naturally occurring sedimentary clay composed of aluminum silicate
- Activity: Adsorbent, cleansing, cooling
- Uses: Absorbs excess oil, cleanses skin pores, improves skin tone

2) Neem

- Synonym: Margosa
- Biological Source: Leaves of Azadirachta indica (Family: Meliaceae)
- Activity: Antibacterial, antifungal, anti-inflammatory
- Uses: Treats acne, controls skin infections, purifies the skin

3) Turmeric

- Synonym: Haldi
- Biological Source: Rhizomes of Curcuma longa (Family: Zingiberaceae)
- Activity: Antioxidant, anti-inflammatory, antimicrobial
- Uses: Brightens skin, reduces blemishes and scars, evens skin tone

4) Sandalwood

- Synonym: Chandan
- Biological Source: Heartwood of Santalum album (Family: Santalaceae)
- Activity: Antiseptic, cooling, soothing
- Uses: Reduces inflammation, treats sunburn, lightens pigmentation

5) Orange Peel

- Synonym: Narangi chilka
- Biological Source: Dried peel of Citrus sinensis (Family: Rutaceae)

- Activity: Astringent, antioxidant, exfoliant
- Uses: Brightens complexion, removes dead cells, unclogs pores

6) Rose Petals

- Synonym: Gulab
- Biological Source: Petals of *Rosa indica* (Family: Rosaceae)
- Activity: Cooling, soothing, toning
- Uses: Hydrates skin, reduces redness, enhances complexion

7) Tulsi

- Synonym: Holy Basil
- Biological Source: Leaves of Ocimum sanctum (Family: Lamiaceae)
- Activity: Antimicrobial, anti-inflammatory
- Uses: Detoxifies skin, reduces acne, rejuvenates dull skin

8) Aloe Vera

- Synonym: Ghritkumari
- Biological Source: Gel from leaves of Aloe barbadensis (Family: Liliaceae)
- Activity: Moisturizing, healing, anti-inflammatory
- Uses: Soothes sunburn, hydrates skin, treats minor irritations

9) Licorice

- Synonym: Yashtimadhu
- Biological Source: Roots of Glycyrrhiza glabra (Family: Fabaceae)
- Activity: Anti-inflammatory, depigmenting, antioxidant
- Uses: Lightens dark spots, reduces pigmentation, soothes skin

10) Manjistha

- Synonym: Indian Madder
- Biological Source: Roots of Rubia cordifolia (Family: Rubiaceae)
- Activity: Blood purifier, antioxidant, anti-inflammatory
- Uses: Enhances complexion, reduces acne, evens skin tone

To create a uniform combination, each of these components is dried, ground into a fine powder, and mixed in precise amounts. Before applying, the finished product can be combined with milk, rose water, or plain water to create a smooth paste. It can also be kept as a dry powder. The resultant face pack, which is devoid of dangerous chemicals and offers a natural skincare solution, is evenly applied to the skin and kept there for 15 to 20 minutes before being rinsed out.

IV. EVALUATION TEST

To guarantee the herbal face pack's safety, effectiveness, and customer acceptance, it was assessed based on a number of criteria[31-35]:

Organoleptic Evaluation: The color, smell, and look of the face pack were assessed. Natural brownish color and a pleasing herbal scent were deemed ideal. A smooth texture devoid of grit signified that the materials were properly mixed.

PH Determination: Using a pH meter, 1g of the formulation was dissolved in 100 ml of distilled water to determine the face pack's pH. For skin application, a pH of 4.5 to 6.5 is appropriate. Skin compatibility was confirmed when it was discovered that the prepared face pack fell within this range.

Spreadability: By sandwiching a predetermined quantity between two glass slides and applying a constant weight, the face pack's capacity to distribute uniformly throughout the skin was evaluated. The spread area's diameter was measured. Easy application is ensured by good spreadability.

Skin Irritation Test: A tiny amount of face pack paste was applied to the forearm of healthy human volunteers for 15 minutes as part of a patch test. The formulation is safe to use because no symptoms of redness, itching, or irritation were noticed.

Test for Smoothness and Texture: The face pack's texture was evaluated for cracks and smoothness following application and drying. Proper component binding was indicated by a homogeneous, flake-free layer.

Wash ability: After drying, the face pack's ease of removal was assessed by giving it a quick rinse with water. A decent formulation shouldn't leave any residue after washing off.

Studies on Stability: For a month, the produced formulation was kept at room temperature, 4°C, and 40°C. There were no discernible changes in consistency, color, or odour, suggesting high stability.The herbal face pack is safe, effective, and aesthetically pleasing for frequent use, according to these studies.

V. FUTURE SCOPE OF STUDY

Numerous prospects for further research and development in the field of herbal cosmetics are made possible by the current study. The effectiveness and safety of the herbal face pack for all skin types, particularly sensitive skin, can be confirmed by additional clinical research on a broader population. Furthermore, using contemporary medication delivery methods like liposomal formulations or nanotechnology may improve the activity and skin penetration of herbal components[36-37].

The product's availability in the market with consistent quality can be facilitated by commercial scale-up and formulation standardisation. The creation of formulations with longer shelf lives that are naturally maintained or devoid of preservatives might also be the subject of research.

Furthermore, utilizing sophisticated equipment and biochemical tests, research may be done to investigate the formulation's anti-aging and antioxidant qualities. Long-term safety assessments and consumer satisfaction surveys will help guarantee the product's longevity and acceptability in the cosmetics sector[38].

VI. CONCLUSION

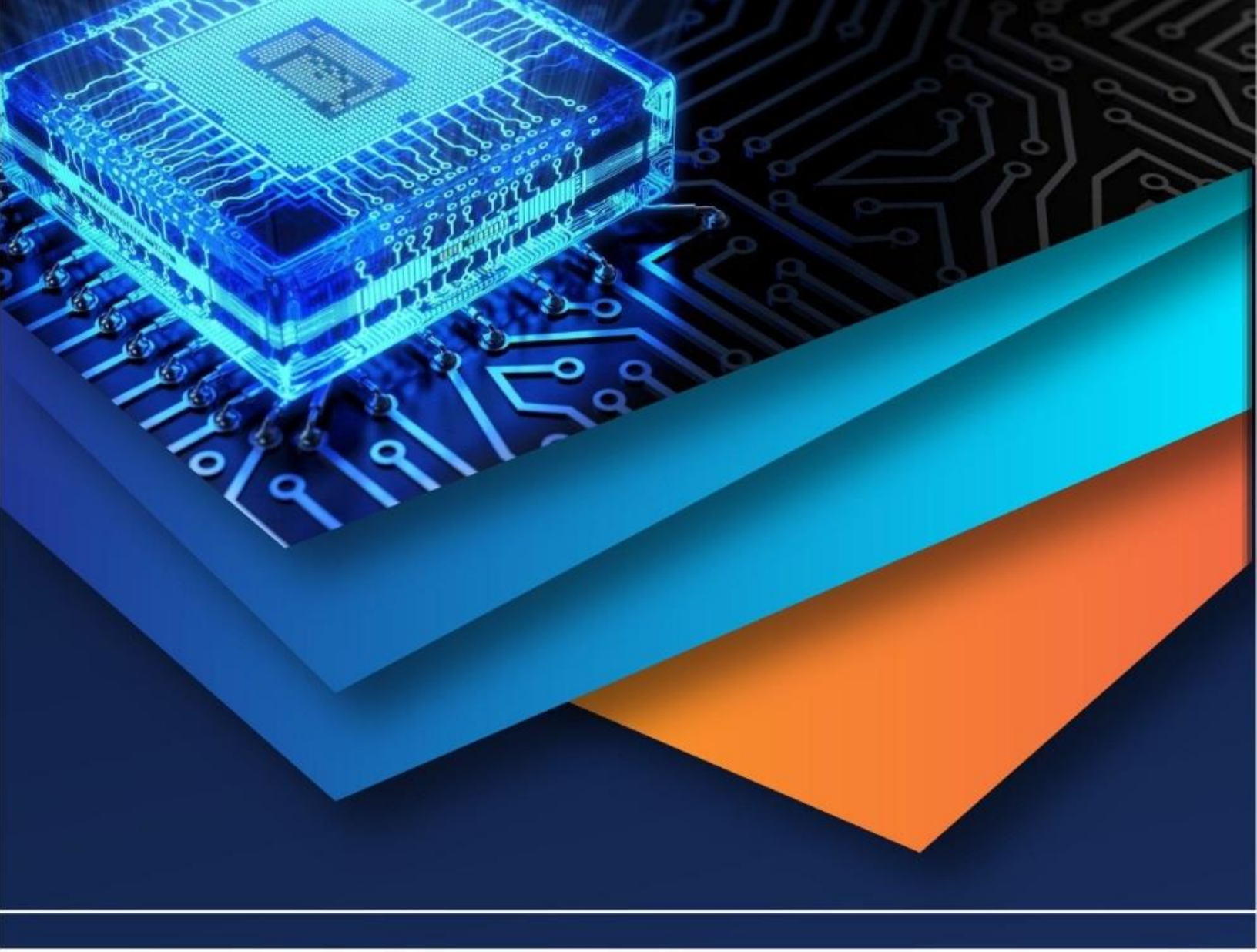
The study effectively illustrated how to formulate and assess a herbal face pack with natural substances that have been shown to have therapeutic advantages. The chosen herbs, such as Multani mitti, neem, turmeric, sandalwood, and others, have exceptional antibacterial, calming, cleaning, and revitalizing qualities that support the general health of the skin. Excellent organoleptic qualities, pH compatibility, spreadability, washability, and stability under a range of circumstances were all displayed by the face pack. The safety of the formulation was demonstrated during the trial by the absence of any indications of irritation or negative responses.

The findings support the conventional wisdom on herbal cosmetics and highlight their potential as a safe, effective substitute for skincare products that include chemicals. The creation of herbal formulations has enormous potential for future developments in the cosmetic and dermatological fields, given the growing desire for sustainable and natural beauty treatments.

REFERENCES

[1] Arora, R., & Malik, S. (2018). Herbal cosmetics: A safe way for skin nourishment. Journal of Pharmacognosy and Phytochemistry, 7(1), 1500–1504.
[2] Bhalodia, N. R., & Shukla, V. J. (2011). Antibacterial and antifungal activities from leaf extracts of Cassia fistula L.: An ethnomedicinal plant. Journal of Advanced Pharmaceutical Technology & Research, 2(2), 104–109.
[3] Devi, N., & Singh, S. (2017). Formulation and evaluation of herbal face pack using natural ingredients. International Journal of Pharmacognosy and Phytochemical Research, 9(4), 507–512.
[4] Dubey, N. K., Kumar, R., & Tripathi, P. (2004). Global promotion of herbal medicine: India's opportunity. Current Science, 86(1), 37–41.
[5] Dureja, H., Kaushik, D., Kumar, V., & Gupta, M. (2005). Cosmeceuticals: An emerging concept. Indian Journal of Pharmacology, 37(3), 155–159.
[6] Gediya, S. K., Mistry, R. B., Patel, U. K., Blessy, M., & Jain, H. N. (2011). Herbal plants: Used as a cosmetics. Journal of Natural Products and Plant Resources, 1(1), 24–32.
[7] Goyal, M., & Basant, S. (2012). Herbal cosmetics: Trends in skin care formulation. Pharmacognosy Reviews, 6(11), 22–30.
[8] Patel, K., Sharma, R., & Desai, M. (2011). Formulation of herbal face packs using fuller's earth and turmeric. Journal of Herbal Medicine and Skin Science, 5(2), 120–126.
[9] Gupta, A., & Sharma, P. (2013). Anti-acne properties of neem and tulsi in herbal face pack formulations. International Journal of Botanical and Natural Sciences, 2(3), 87–93.
[10] Soni, R., Mehta, D., & Jain, A. (2014). Polyherbal face pack for enhanced skin radiance. Asian Journal of Cosmetic Science, 8(1), 55–60.
[11] Rathod, A., & Mehta, P. (2015). Herbal face pack formulation using Multani mitti and sandalwood. Journal of Natural Therapies, 7(4), 143–149.
[12] Kumar, R., Patel, N., & Sen, S. (2016). Role of turmeric in anti-inflammatory face pack formulations. Phytopharmacology Review, 3(2), 70–76.
[13] Joshi, S., & Prasad, L. (2017). Effectiveness of Multani mitti in cosmetic preparations. Cosmetology and Dermatological Research Journal, 6(3), 215–220.
[14] Kale, N., & Raut, S. (2018). Rose petal powder in herbal cosmetic preparations. Journal of Botanical Formulations, 5(2), 134–139.
[15] Sharma, M., & Verma, H. (2018). Sandalwood's effect on hyperpigmentation in herbal skincare. Indian Journal of Traditional Beauty Science, 9(1), 89–94.
[16] Rani, P., Singh, V., & Taneja, A. (2019). Orange peel-based face packs for pigmentation reduction. Journal of Natural Cosmetology, 10(2), 112–117.
[17] Deshmukh, A., Patel, V., & Gawde, M. (2020). Aloe vera and neem synergy in herbal cosmetics. Pharmacognosy and Herbal Applications Journal, 12(4), 151–157.
[18] Yadav, S., & Trivedi, R. (2020). Tulsi-based face pack for antimicrobial skin care. International Journal of Ayurveda and Natural Remedies, 6(3), 98–103.

[19] Bansal, T., & Kaur, G. (2021). Comparison of herbal and synthetic face packs. Herbal Innovations, 11(1), 77–82.
[20] Kulkarni, R., Singh, A., & Jadhav, P. (2021). Synergistic Ayurvedic face packs with turmeric and sandalwood. Journal of Integrative Herbal Formulations, 9(2), 122–128.
[21] Khan, M., & Shaikh, F. (2022). Personalized herbal face packs for skin-specific conditions. Trends in Natural Cosmetic Science, 13(2), 65–71.
[22] Mishra, K., & Tiwari, D. (2023). Long-term use of herbal face packs on skin texture. Journal of Herbal Dermatological Therapies, 14(1), 42–49.
[23] Handa, S. S., Khanuja, S. P. S., Longo, G., & Rakesh, D. D. (2008). Extraction technologies for medicinal and aromatic plants. International Centre for Science and High Technology, 1–266.
[24] Jain, A., & Singhai, A. (2010). Formulation development and evaluation of herbal cosmetic preparation using Aloe vera and honey. International Journal of Pharmaceutical Sciences and Research, 1(3), 51–58.
[25] Kaur, J., & Goel, R. K. (2011). Anti-inflammatory and anti-wrinkle activity of herbal formulation. International Journal of Drug Development and Research, 3(2), 123–128.
[26] Khandelwal, K. R. (2007). Practical Pharmacognosy. Pune, India: Nirali Prakashan.
[27] Kumar, M., & Bhowmik, D. (2012). Traditional Indian herbs for face care: A review. Journal of Chemical and Pharmaceutical Research, 4(11), 1466–1473.
[28] Maji, B., & Banerji, P. (2016). Phytochemistry and skin benefits of turmeric (Curcuma longa L.). Journal of Ethnopharmacology, 194, 170–180.
[29] Meena, A. K., Rao, M. M., & Singh, A. (2011). Face pack therapy in Ayurveda. International Journal of Research in Ayurveda and Pharmacy, 2(3), 876–882.
[30] Mishra, P., & Singh, A. (2014). Herbal cosmetics: A review. International Journal of Pharmacy and Biological Sciences, 4(2), 274–279.
[31] Mittal, A., & Sethi, P. (2016). Herbal face packs: A review. International Journal of Pharmaceutical Sciences Review and Research, 37(2), 124–128.
[32] Mukherjee, P. K. (2002). Quality control of herbal drugs. New Delhi, India: Business Horizons.
[33] Nema, R. K., & Kharya, M. D. (2010). Cosmeceuticals from natural sources. Pharmacognosy Reviews, 4(8), 123–131.
[34] Pandey, A., & Tripathi, S. (2014). Concept of standardization, extraction and pre phytochemical screening strategies for herbal drug. Journal of Pharmacognosy and Phytochemistry, 2(5), 115–119.
[35] Patel, K., & Patel, D. K. (2012). Medicinal significance, pharmacological activities, and analytical aspects of Curcuma longa (Turmeric): A review. Journal of Pharmacognosy and Phytochemistry, 1(4), 115–124.
[36] Poonam, K., & Sushma, R. (2018). Formulation and evaluation of polyherbal face pack. World Journal of Pharmaceutical Research, 7(10), 810–819.
[37] Prajapati, N. D., Purohit, S. S., Sharma, A. K., & Kumar, T. (2003). A handbook of medicinal plants. Jodhpur, India: Agrobios.
[38] Rajalakshmi, P. (2012). Antibacterial and antioxidant potential of herbal face pack. Asian Journal of Pharmaceutical and Clinical Research, 5(4), 193–195.
[39] Rathore, H., & Meena, M. (2014). Formulation and evaluation of herbal face pack. International Journal of Pharmacy and Pharmaceutical Sciences, 6(2), 604–606.
[40] Rele, A. S., & Mohile, R. B. (2003). Effect of coconut oil on prevention of hair damage. Journal of Cosmetic Science, 54(2), 175–192.
[41] Roy, R. K., Thakur, M., & Dixit, V. K. (2006). Development and evaluation of polyherbal formulation for hair growth-promoting activity. Journal of Cosmetic Dermatology, 5(2), 108–112.
[42] Saha, A., & Dutta, A. (2013). Herbal cosmetics and their evaluation. International Journal of Pharmaceutical Sciences Review and Research, 20(1), 55–60.
[43] Sharma, R., & Dash, B. (2005). Charaka Samhita. Varanasi, India: Chowkhamba Sanskrit Series Office.
[44] Singh, R., & Walia, A. K. (2018). Review on herbal face packs. Asian Journal of Pharmaceutical and Clinical Research, 11(5), 26–29.
[45] Yadav, N., & Yadav, R. (2014). Cosmeceuticals and herbal drugs: Practical uses. International Journal of Pharmaceutical and Biological Sciences, 5(2), 1–11.



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