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A Review: Formulation and Evaluation of Herbal Face Pack

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Abstract: ***The primary objective of this study is to develop and evaluate a herbal face pack that uses natural ingredients that are good for the skin. As people grow more aware of the harmful effects of synthetic cosmetics, there is a growing demand for safer and more environmentally friendly herbal alternatives. The ingredients for the face pack were neem, turmeric, sandalwood powder, multani mitti, orange peel powder, and rose petals. Each was picked for its own therapeutic properties, such as skin-brightening, antimicrobial, and anti-inflammatory properties. The formulation underwent evaluation tests for organoleptic properties, pH, irritancy, smoothness, spreadability, and stability. This study demonstrates that herbal face packs can serve as a safe and effective alternative to chemical-based skincare treatments.***
Keywords: Herbal makeup, face masks, natural ingredients, skin care, assessment, neem, turmeric, and multanimitti.

I. INTRODUCTION

Cosmetics are products used for cleaning, beautifying, improving beauty, or altering appearance1. Since ancient times, a variety of herbs have been used to manage, cleanse, and beautify. In Ayurveda, the herbal paste called "mukha leap" is used as a face therapy, and the skin of the face is the main part of the body that shows one's health [1-2]. Applied to the face, this herbal paste treats pimples, acne, scars, and marks. Using a smooth powder to apply to the epidermis is referred to as a face pack.[1-2].

These liquid or paste-based preparations are applied to the face and allowed to dry and solidify into a film that cleanses, tightens, and strengthens the skin. They are frequently left on the skin for 15 to 30 minutes to let all the water to drain[2-3]. The resulting film compresses and solidifies as a result, making removal simpler. The warmth and tightening effect of a face pack produces the invigorating sensation of a rejuvenated face, even if the colloidal and adsorption clays used in these preparations remove the oil and dirt from the skin of the face. [3–4]

In the end, accumulated dirt and skin particles are eliminated by the applied face pack[5].Herbal face masks make the skin softer and more radiant.. The best results from herbal face packs can be obtained by using them in accordance with our skin type. These face packs are the best Ayurvedic treatment for improving skin brightness and fairness. Using face packs is one of the most sophisticated and conventional methods of cleansing skin. Ayurveda describes a range of face packs that include nourishing, cleaning, healing, astringent, and antibacterial properties. Herbal face packs for naturally achieving fair skin are less costly and have no adverse effects.[5]

The skin, the largest organ in the human body, acts as the body's primary defense against the outside world. Pigmentation, acne, dullness, and early aging are among the skin problems brought on by its constant exposure to pollution, UV radiation, and microbiological contamination. To maintain the appearance and feel of their skin, many people utilize skincare products. They favor face packs due to their cleansing, exfoliating, and rejuvenatingproperties.[6]

Herbal face packs offer a natural solution to skin problems without the unfavorable side effects of artificial treatments. They work by improving blood circulation, removing dead skin cells, feeding the skin, and tightening pores. Historically, traditional medicine has included herbal remedies like sandalwood, neem, and turmeric that have a long history of therapeutic benefits.

These plants offer antibacterial, anti-inflammatory, antioxidant, and skin-lightening properties. Thus, herbal face packs provide a holistic approach to skincare by combining the benefits of health and attractiveness.[7]

II. LITERATURE SURVEY

Patel et al. (2011):

looked into making herbal face packs with turmeric and fuller's earth. Their research concentrated on these substances' inherent antibacterial and detoxifying qualities. The face mask considerably lessened acne and enhanced skin texture. Strong antibacterial activity was verified by microbial inhibition studies. Their product didn't irritate the skin and was harmless. The study highlighted the benefits of herbal formulations over their synthetic equivalents.[8]

Gupta and Sharma (2013):
examined the use of tulsi and neem extracts in face packs. They investigated these plants' anti-inflammatory and anti-acne properties. The findings showed a significant decrease in the amount of sebum and microbiological load on the skin of the face. Excellent compatibility with sensitive skin was demonstrated by the face pack. Skin healing was confirmed by histopathological investigations. The authors came to the conclusion that neem and tulsi might be important components of acne treatment.[9].

Soni et al. (2014):
created a face mask using a blend of sandalwood, rose powder, and orange peel. The mixture greatly improved skin tone and decreased pigmentation. DPPH tests verified potent antioxidant properties. Users reported looking more vibrant and fresh. There were very few adverse effects observed during the dermatological examination. The study emphasized how the components of herbal skincare work in concert.[10].

Rathod and Mehta (2015):
made a cleansing face pack using neem, sandalwood, and Multani mitti powders. Clinical studies revealed a decrease in oil production and acne lesions. Their research highlighted Multani mitti's pore-tightening and detoxifying properties. High satisfaction was found in subjective user feedback. Additionally, stability and safety characteristics were confirmed. Their study backed regular use to control oily skin.[11].

Kumar et al. (2016):
highlighted the anti-inflammatory and antioxidant properties of turmeric and its application in face packs. Curcumin's bioactive qualities were thoroughly investigated. Studies conducted in vitro showed that inflammatory indicators were inhibited. Redness and irritation decreased as a result of the face pack's formulation. It worked particularly well for skin that was irritated and sensitive. Its application in therapeutic skincare was recommended by the authors.[12].

Joshi and Prasad (2017):
examined how Multani mitti, a base material for face packs, affected the results. Their findings demonstrated superior skin absorption of toxins and oils. Additionally, the clay had calming and cooling qualities. It improved the action of other herbs by acting as a vehicle for them. The volunteers' skin felt smoother and they had fewer outbreaks. It was determined that multani mitti was a useful base for herbal cosmetics.[13].

Kale and Raut (2018):
investigated how rose petal powder might help calm sensitive and irritated skin. The herbal face pack reduced redness and provided a soothing effect. The moisture and flexibility of the skin were also improved by rose petals. The therapeutic effects of aroma were also covered. In addition to increasing user happiness, the mixture had a nice scent. Their research promoted rose as a crucial component of high-end herbal cosmetics.[14].

Sharma and Verma (2018):
examined the impact of sandalwood powder on pigmentation in herbal formulations. Clinical studies showed that dark spots had lightened and that the skin tone had evened out. Additionally, sandalwood's anti-inflammatory qualities lessened discomfort and edema. When used regularly, their formulation demonstrated long-lasting results. There were no documented adverse consequences. This investigation supported the traditional beauty therapy usage of sandalwood.[15].

Rani et al. (2019):
created a face mask for oily and pigmented skin based on orange peel. Flavonoids and natural vitamin C were included in the mixture. User trials verified the exfoliating and skin-brightening benefits. Early indications of aging were lessened by the antioxidants. Additionally, peel extract made pores tighter. According to the study's findings, citrus peels are beneficial for anti-aging skin care.[16].

Deshmukh et al. (2020):
created a herbal face mask with neem and aloe vera as the main ingredients. Evaluations of antimicrobial and anti-inflammatory properties yielded encouraging findings. Neem inhibited microorganisms that caused acne, whereas aloe vera improved moisture. Every volunteer tolerated the formulation well. They recommended that those with acne use it on a regular basis. Additionally, the face pack provided a light sunscreen effect.[17].

Yadav and Trivedi (2020):
evaluated tulsi's potential as an astringent and antibacterial ingredient in herbal face packs. Reduced bacterial colonization and inflammation were confirmed by the results. Tulasi face packs aided in decreasing acne and unclogging congested pores. Moreover, the formulation stopped acne lesions from returning. Effectiveness was proven by clinical dermatology studies. It was suggested to use tulsi in regular skincare routines.[18]

Bansal and Kaur (2021):
conducted a study comparing herbal and synthetic face packs. They assessed cost-effectiveness, efficacy, and safety. In terms of user pleasure and skin tolerability, herbal formulations performed better. The study showed more consistent skin improvement and less adverse responses. Additionally, natural components were sustainable for the environment. Their research highlighted the trend toward herbal cosmetics in the future.[19]
Kulkarni et al. (2021):
investigated how turmeric and sandalwood work together in Ayurvedic face packs. They demonstrated anti-aging, anti-wrinkle, and skin healing properties in their product. After using it for a long time, volunteers noticed tighter, smoother skin. The use of contemporary testing techniques validated traditional knowledge. The formulation's antioxidant content was extremely high. The research supported conventional Ayurvedic mixtures.[20]
Khan and Shaikh (2022):
presented a system of herbal face packs that may be customized using ingredients chosen by the user. Different herbs were suggested based on skin type and concerns. Results from formulations for sensitive skin types were encouraging. Customization increased effectiveness and happiness. In the herbal market, it signaled the start of customized skincare. The idea had a great chance of being profitable.[21]
Mishra and Tiwari (2023):
assessed how herbal face packs affected the hydration and texture of the skin over time. For three months, the subjects routinely used the packs. The study revealed smoother skin, less pigmentation, and better moisture retention. Overall skin health improved, and side effects were minimal. Safe long-term use of herbal formulations was supported by the results. Their work contributed to the expanding body of knowledge about natural skin care methods.[22]

III. FORMULATION

Herbal face packs are created by carefully selecting and mixing herbal herbs that have been shown to have beneficial effects on the skin. These plants were chosen because to their intercompatibility, historical use, and pharmacological properties. Below is a detailed description of every botanical ingredient included in the recipe.[23-30]

1) Multani Mitti
- Synonym: Solum fullonum
- Biological Source: Naturally occurring sedimentary clay composed of aluminum silicate
- Activity: Adsorbent, cleansing, cooling,
- Uses: Reduce excess oil, cleanses skin pores,Remove dirt from skin, improves skin tone

2) Neem
- Synonym:Arishth
- Biological Source: Leaves of *Azadirachta indica* (Family: Meliaceae)
- Activity: Antibacterial, antifungal, anti-inflammatory
- Uses: prevents skin infections, treats acne, and cleanses the skin.

3) Turmeric
- Synonym: Haldi
- Biological Source: Rhizomes of *Curcuma longa* (Family: Zingiberaceae)
- Activity: Antioxidant, anti-inflammatory, antimicrobial
- Uses: evens out skin tone, brightens skin, and minimizes scars and imperfections.

4) Sandalwood
- Synonym: Chandan,Indian Sandalwood
- Biological Source: Heartwood of *Santalum album* (Family: Santalaceae)
- Activity: Antiseptic, cooling, soothing
- Uses: cures sunburn, lowers inflammation, and lightens pigmentation.

5) Orange Peel
- Synonym: Narangi chilka
- Biological Source: Dried peel of *Citrus sinensis* (Family: Rutaceae)
- Activity: Astringent, antioxidant, exfoliant

- Uses: enhances skin tone, eliminates dead cells, and unclogs pores.

6) Rose Petals

- Synonym: Gulab,Rosa rubiginosa
- Biological Source: Petals of *Rosa indica* (Family: Rosaceae)
- Activity: Cooling, soothing, toning
- Uses: improves complexion, lessens redness, and hydrates skin.

7) Tulsi

- Synonym: Holy Basil,Tulasi
- Biological Source: Leaves of *Ocimum sanctum* (Family: *Lamiaceae*)
- Activity: Antimicrobial, anti-inflammatory
- Uses: Skin detoxification, acne reduction, and dull skin renewal

8) Aloe Vera

- Synonym: Ghritkumari, Aloe.
- Biological Source: Gel made from Aloe barbadensis leaves (Liliaceae family)
- Activity: Moisturizing, healing, anti-inflammatory
- Uses:relieves mild irritations, moisturizes skin, and soothes sunburn

9) Licorice

- Synonym: Yashtimadhu,Glycyrrhiza glabra
- Biological Source: Roots of *Glycyrrhiza glabra* (Family: Fabaceae)
- Activity: Anti-inflammatory, depigmenting, antioxidant
- Uses: calms skin, lessens pigmentation, and lightens dark spots.

10) Manjistha

- Synonym: Indian Madder,(Manjista or Manjishta)
- Biological Source: Roots of *Rubia cordifolia* (Family: Rubiaceae)
- Activity: Blood purifier, antioxidant, anti-inflammatory
- Uses: improves skin tone, lessens acne, and improves complexion

Each of these ingredients is dried, pounded into a fine powder, and combined in precisely the right ratios to produce a homogenous mixture. The final product can be made into a smooth paste by mixing it with milk, rose water, or plain water before applying. Another way to store it is as a dry powder. The resulting face pack, which provides a natural skincare solution and is free of harmful chemicals, is applied evenly to the skin and left there for 15 to 20 minutes before being rinsed out.

IV. EVALUATION TEST

The herbal face pack was evaluated using a variety of standards to ensure its efficacy, safety, and consumer acceptance. [31–35]

1) Organoleptic Assessment: The face pack's appearance, color, and scent were evaluated. The perfect combination was a pleasant herbal smell and a natural brownish color. When the ingredients were properly blended, they had a smooth, grit-free texture.

2) PH Determination: To find the pH of the face pack, 1g of the formulation was dissolved in 100 ml of distilled water using a pH meter. A pH of 4.5 to 6.5 is suitable for skin application. The prepared face pack was found to fall within this range, confirming skin compatibility.

3) Spreadability: The face pack's ability to disperse evenly throughout the skin was assessed by placing a fixed amount between two glass slides and applying a steady weight. The diameter of the distributed area was measured. Good spreadability ensures easy application.

Skin Irritation Test As part of a patch test, a small quantity of face pack paste was placed to the forearm of healthy human volunteers and left there for 15 minutes. Since there were no signs of redness, itching, or irritation, the formulation is safe to use.

4) Test for Texture and Smoothness: After application and drying, the texture of the face pack was assessed for cracks and smoothness. The presence of a uniform, flake-free layer was indicative of proper component binding.

5) 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.

6) 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

The new study opens up many opportunities for future research and development in the realm of herbal cosmetics. Further clinical studies on a larger population can validate the herbal face pack's efficacy and safety for all skin types, especially sensitive skin. Additionally, the activity and skin penetration of herbal components may be enhanced by the use of modern drug delivery techniques such liposomal formulations or nanotechnology[36-37].

Commercial scale-up and formulation standardization can help ensure that the product is available in the market with consistent quality. Research may also focus on developing formulations that are naturally maintained or free of preservatives and have longer shelf life.

Additionally, studies may be conducted to examine the formulation's antioxidant and anti-aging properties using advanced technology and biochemical assays. Surveys of customer satisfaction and long-term safety evaluations will help ensure the product's viability and acceptance in the cosmetics industry.[38]

VI. CONCLUSION

The study provided a clear example of how to create and evaluate a herbal face pack using natural ingredients that have been demonstrated to have therapeutic benefits. Multani mitti, neem, turmeric, sandalwood, and other herbs have been selected because of their remarkable antibacterial, soothing, cleansing, and renewing properties, which promote the overall health of the skin. The face pack demonstrated excellent organoleptic properties, pH compatibility, spreadability, washability, and stability under various conditions. Throughout the testing, there were no signs of irritation or adverse reactions, proving the formulation's safety.

The results demonstrate the promise of herbal cosmetics as a safe and efficient alternative to chemical-based skincare products, and they corroborate the common thinking on the subject. Given the increased demand for natural and sustainable beauty treatments, the development of herbal formulations holds great promise for advancements in the dermatological and cosmetic industries in the future.

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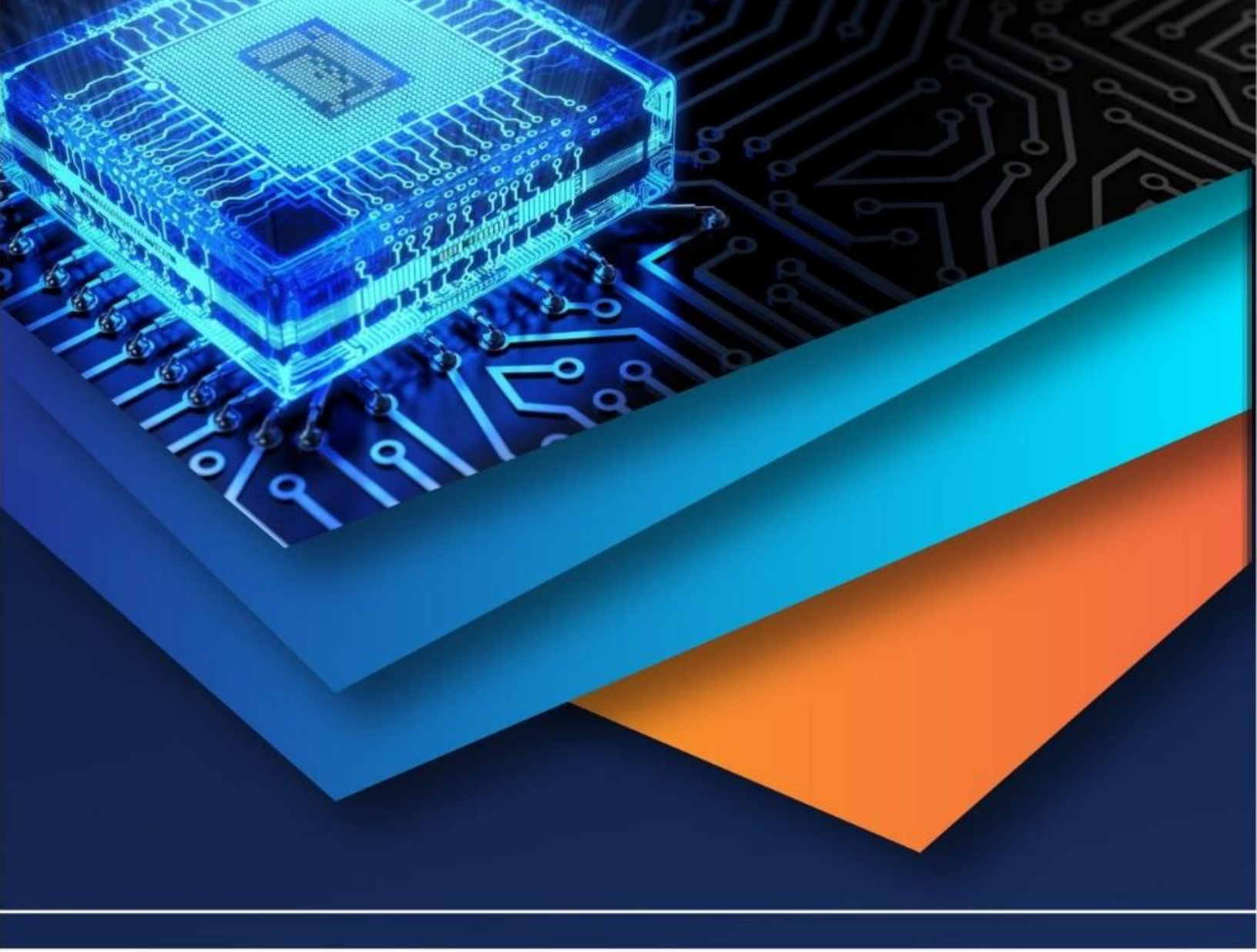
REFERENCES

[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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