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Research Paper

Mukhasaundrya Vrudhi Churna

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ABSTRACT

Herbal ingredients are frequently utilized in skincare products because of their natural, chemical-free benefits. The composition and advantages of mukhasaundrya vrudhi churna comprising powdered mulberry leaves, lotus flowers, sandalwood, and aloe vera are investigated in this study. Each component has special benefits for the skin: aloe vera powder helps with moisturizing and healing, lotus flower powder hydrates and calms the skin, sandalwood powder has cooling and anti-inflammatory qualities, and mulberry leaf powder is high in antioxidants and brightens the skin. These natural components work together to give skin a more radiant appearance, lessen pigmentation, and improve texture. All skin types can use this face pack because it doesn't contain any dangerous substances. The study shows the potential of herbal formulations in offering safe and efficient skincare solutions and assesses its efficacy through sensory analysis and user feedback. The results indicate that the herbal face pack is a promising skincare product that improves skin health organically.

INTRODUCTION

Herbal cosmetics have gained a lot of attention lately because of their potent skin-brightening, skin-nourishing, and skin-cleansing properties. Their apparent purity and lower danger of negative health consequences when compared to traditional cosmetics, which frequently contain chemical or synthetic components, are the reasons for their growing appeal ⁽¹⁾. The word "cosmetic" comes from the Greek word "kosm tikos," which means "having the power, order, and skill in decorating."

The history of cosmetics is a continuous narrative that spans human development ⁽²⁾. The skin, the largest organ in the body, acts as a barrier between the interior and exterior, protecting the body from harmful stimuli such as bacteria, sunlight, allergens, and irritants ⁽³⁾. The frequent use of chemical cosmetics, sedentary lifestyles, bad eating habits, stressed lives, and blood impurities are the main causes of acne, blackheads, dark spots, pigmentation, dark circles, tanning, and other problems ⁽⁴⁾. The components of skin include

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lipids, carbohydrates, and amino acids, among others. For the skin to remain clear, shiny, and healthy, a balanced diet is necessary ⁽⁵⁾. This churna is simple to make at home and contains natural skin-lightening properties. Vitamins that are necessary for skin health and radiance are abundant in face packs made with natural ingredients. Numerous benefits of these compounds for the skin have been demonstrated using natural *mukhasaundrya vrudhi churna* is simple ⁽⁶⁾. The earliest natural chemicals with therapeutic and cosmetic uses those humans have discovered come from plants. To meet their fundamental medical needs, between 70 and 80 percent of people worldwide still rely on traditional herbal therapy ⁽⁷⁾.

Benefits Of Mukhasaundrya Vrudhi Churna:

1. Its natural components aid to lessen acne, pimples, scars, and blemishes.
2. It gives skin a calming and relaxing sensation.
3. It aids in quickly restoring the skin's lost radiance and luster.
4. Using *mukhasaundrya vrudhi churna* on a regular basis improves skin texture, complexion, and skin radiance.
5. The appropriate usage of *mukhasaundrya vrudhi churna* can successfully counteract the negative effects of pollutants and severe weather.
6. It aids in preventing skin aging too soon.
7. *Mukhasaundrya vrudhi churna* can be used to successfully limit the formation of wrinkles, fine lines, and skin sagging.
8. Skin seems youthful and healthy with *mukhasaundrya vrudhi churna* ⁽⁸⁾.

Ideal Properties of Mukhasaundrya Vrudhi Churna:

1. It must not be unpleasant or harmful.
2. It needs to be stable both chemically and physically.
3. There should be a pleasant scent.

4. They must be capable of thoroughly cleansing the skin.
5. They must make the skin feel tighter after application.
6. Their history must be flawless.
7. It needs to be economical.
8. Ingredients ought to be readily accessible ⁽⁹⁾.

LITERATURE REVIEW:

1. Mulberry Leaves:



Mulberry is a woody, perennial plant native to China that is a member of the genus *Morus* and family *Moraceae*. Mulberry plants, a deciduous plant that thrives in a variety of environmental situations, exhibit rapid development and a brief time of proliferation ⁽¹⁰⁾. Mulberry leaves are the primary source of mulberry leaf extract, which is typically referred to as phenolics such quercetin by [quercetin 3-(6-malonylglucoside)], isoquercetin, rutin, and a few other flavonoids ⁽¹¹⁾. In cosmetics, paper mulberry is frequently used as a skin-lightening ingredient. By suppressing tyrosinase activity and melanin synthesis, paper mulberry may help avoid skin hyperpigmentation. Many skin-whitening products for external use contain extracts from paper mulberry. For teeth whitening, paper mulberry and *Styela clava* extract are mixed to create a face mask sheet. A paper mulberry mask pack shown skin-moisturizing properties. White ginseng and paper mulberry were used in a cosmetic formulation to smooth and moisturize the skin ⁽¹²⁾.

Taxonomic classification of *Morus L.* (Mulberry)

Table No. 1

Kingdom	Plantae
Subkingdom	Tracheobionta-Vascular plant
Superdivision	Spermatophyta
Division	Magnoliophyta-Flowering plant
Class	Magnoliopsida-Dicotyledons
Subclass	Hamamelididae
Order	Urticales
Family	Moraceae-Mulberry family
Genus	Morus L. (mulberry)
Species	a) Morus alba b) MORUS AUSTRALIS c) Morus cathayana d) Morus macroura e) Morus mongolica f) Morus nigra g) Morus notabilis h) Morus serrate i) Morus insignis j) Morus microphylla ⁽¹³⁾

2. Lotus Flower:

Other names for the lotus (*Nelumbo nucifera* G.) are Kamala, sacred lotus, and water lily. It is a perennial aquatic flower belonging to the genus *Nelumbo*, which includes the cultivated *Nelumbo nucifera* and the wild *Nelumbo lutea*. The genus is widespread in northern Australia and North America, as well as on the Asian continent (China, India, and Russia). Since 7000 years ago, lotuses have been grown for their nutrient-dense rhizomes, leaves, and seeds across Asia. Producing 45,000 tons of lotus seed and 9 million tonnes of fresh rhizomes, it is one of China's most important economic crops because of its significant nutritional qualities. The leaves, rhizomes, seeds, flowers, roots, and buds were traditionally used to cure cancer, hypertension, depression, sleeplessness, diarrhea, and heart conditions ⁽¹⁴⁾. The lotus offers several advantages to humans, including edibles, medicinal herbs, and lovely blossoms. Every part of the lotus, including the leaves, buds, petals, and seeds, can be used to make wholesome meals or medicinal herbs ⁽¹⁵⁾.

**Fig. 2: Lotus Flower**

Taxonomical classification of Lotus plant

Table No. 2

Kingdom Plantae	Plants
Botanical name	<i>Nelumbo nucifera</i>
Sub Kingdom	Tracheobionta – Vascular Plants
Super Division	Spermatophyta – Seed Plants
Division	Magnoliophyta – Flowering Plants
Class	Magnoliopsida
Subclass	Magnoliidae
Super order	Protaenae
Order	Proteales

Family	Nymphaeaceae
Genus	Nelumbo Adans
Species	Nelumbo nucifera Gaen. – Sacred lotus
Parts used	Petals, seeds, leaves, roots ⁽¹⁶⁾ .

3. Sandalwood:



Fig. 3: Sandalwood

The species has been sold to China and India and is found in the wild from the eastern part of Java, the Island of Madura, Bali, Rote, Wetar, Sawoe, and Sumba⁽¹⁷⁾. Indian sandalwood, or *Santalum album* L., is a small to medium-sized, semi-parasitic, evergreen tree that belongs to the Santalaceae family. It has great medicinal and commercial value and is among the oldest and most lucrative natural scent sources. This plant is well-known for both its significant social and economic benefits and its aroma. The Tamil word for "sandal" is Sandanam, the Telugu word is Chandanam, and the Kannada word is Srigandha or Gandha. According to historical analysis, sandalwood has been referenced in Indian mythology, ancient writings, and folklore⁽¹⁸⁾.

Taxonomical classification of Sandalwood

Table No. 3

Scientific Name	<i>Santalum album</i>
Common Name	Santal oil, white Saunders oil, white or yellow sandalwood oil, & East Indian Sandalwood oil
Family	Santalaceae
Genus	Santalum
Kingdom	Plantae ⁽¹⁹⁾ .

4. Aloe Vera:



Fig. 4: Aloe Vera

Aloe vera (AV), a member of the Liliaceae family, is native to South Africa. Only a small number of the more than 400 species—including AV, *Aloe ferox* Miller, and *Aloe arborescence*—have therapeutic significance. AV, also referred to as Cape Aloe, is thought to have the maximum development potential and is the one that researchers have examined the most. Yuanjiang Aloe, sometimes referred to as Chinese Aloe, is a special type found in China that is distinguished by its rich active components, rapid reproduction, and powerful development⁽²⁰⁾. Aloe vera's polysaccharides, such as acemannan, hydrate profoundly due to a protective barrier that holds onto moisture. It helps the skin retain its water content, which typically makes it an effective moisturizer for both dry and irritated skin. In order to decrease trans epidermal water loss and increase skin hydration, it is occasionally combined with lotions and gels⁽²¹⁾. Aloe vera was used medicinally in Mesopotamia, as evidenced by clay

tablets from 1750 BC. Aloe vera was used to treat skin ailments, according to Egyptian texts around 550 BC. In addition to being used as a laxative and insect repellent, aloe vera was utilized to cure eczema. Aloe plants come in over 300 different species. The flowers of this shrub are yellow. The triangular, spear-like leaves have prickly ridges and are grouped in a rosette pattern ⁽²²⁾.

Taxonomical classification of Aloe Vera

Table No. 4

Kingdom	Plantae
Order	Asparagales
Division	Spermatophyte
Subdivision	Angiospermae
Class	Monocotyledoneae
Genus	Aloe
Species	Barbadensis Mill
Synonyms	Aloe, Musabbar, Kumari
Family	Liliaceae ⁽²³⁾

OBJECTIVE

1. Improving the Beauty of the Face:
Improving the general health and appearance of the skin on the face is the main objective.
2. Resolving Environmental Skin Stressors:

To mitigate the adverse impacts on the skin caused by allergies, pollutants, and microbial imbalances.

3. Developing a Universal Skincare Solution:
To produce a solution that works for a variety of age groups and skin types.
4. Enhancing Skin Health with Natural Substances:
To make use of the health benefits of herbal substances for skin protection, renewal, and cleansing.
5. Guaranteeing the Safety and Quality of the Product:
To uphold strict quality standards by thoroughly testing and analyzing the recipe. ⁽²⁴⁾
6. Enhancing User Experience:
To create a product that is simple to use and uninstall, guaranteeing a satisfying experience for the user.
7. Providing skin rejuvenation:
To tone, cleanse, moisturize, and renew the skin. ⁽²⁵⁾

MATERIALS AND METHOD

Ingredients:

Table No. 5

Sr. No.	Ingredients	Figures	Uses
1.	Mulberry Leaves		Rich in antioxidants, reduces pigmentation, enhances skin glow
2.	Lotus Flower		Hydrates and calms the skin

3.	Sandalwood		Cooling, anti-inflammatory qualities and enhances complexion
4.	Aloe Vera		Moisturizing, healing and improves skin elasticity.

Formulation Of Mukhasaundrya Vrudhi Churna:

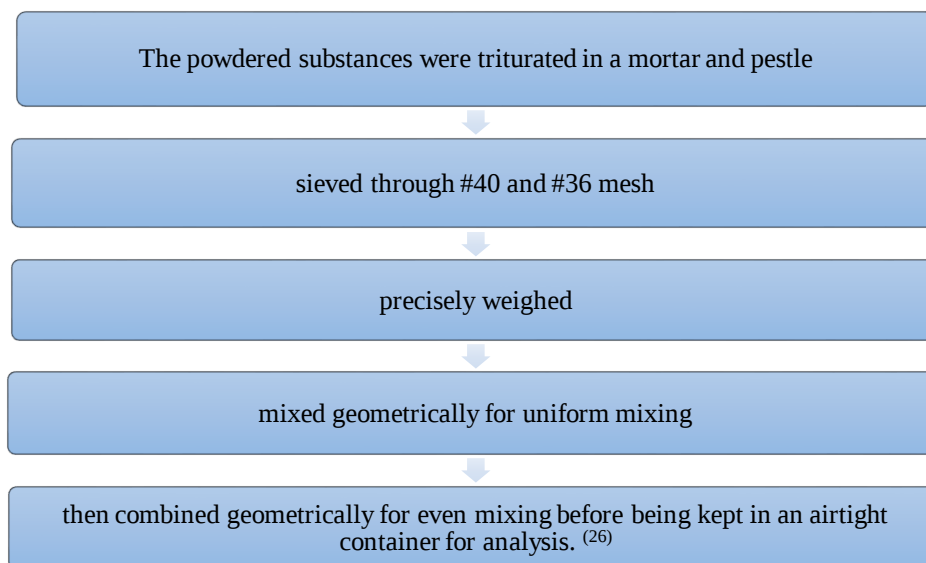
Table No. 6

Sr. No.	Name of Ingredients	Scientific Name	Quantity of Sample per 100g				
			F1	F2	F3	F4	F5
1.	Mulberry Leaves	<i>Morus nigra</i>	10	10	10	10	15
2.	Lotus Flower	<i>Nelumbo nucifera</i>	20	15	25	20	20
3.	Sandalwood	<i>Santalum alba</i>	30	25	35	25	30
4.	Aloe Vera	<i>Aloe barbadensis</i>	40	50	30	35	35

Method Of Preparation:

A blend of natural components with skin-nourishing and detoxifying qualities is used to

make mukhasaundrya vrudhi churna. This section will outline the detailed preparation process.



Procedure Of Application:

Mukhasaundrya vrudhi churna is applied in a methodical manner to optimize its advantages.

This ensures safe and efficient use by guiding the proper application technique.

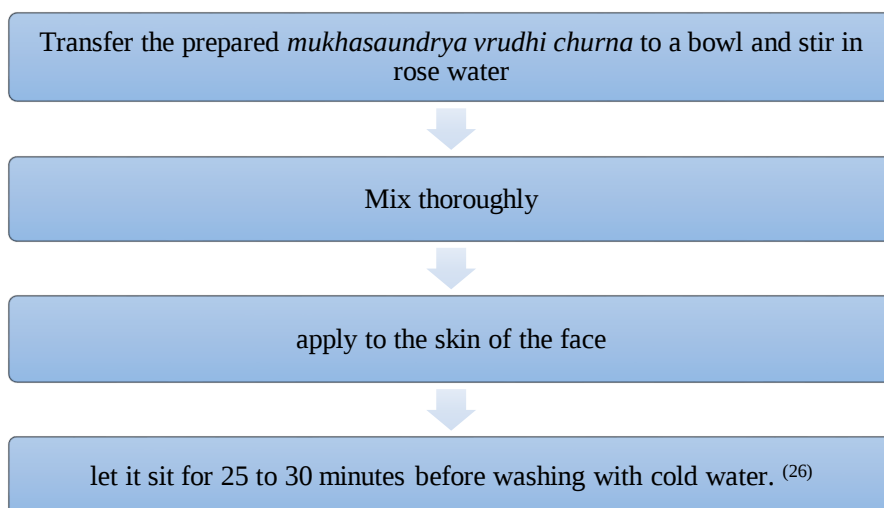


Fig. 5: *Mukhasaundrya Vrudhi Churna*



Fig. 6: *Mukhasaundrya Vrudhi Churna + Rose Water Preformulation Study:*

RESULTS:

Ingredients	Bulk Density	Tapped Density	Angle repose	of	Moisture Content	Ash Content
Mulberry Leaves	0.35g/ml	0.46g/ml	23.74°		0.14%	15±0.5%
Lotus Flower	0.31g/ml	0.41g/ml	23.26°		0.13%	11.5±1.5%
Sandalwood	0.27g/ml	0.39g/ml	22.29°		0.08%	2±1.13%
Aloe Vera	0.41g/ml	0.55g/ml	24.70°		0.23%	14±0.5%

[All the tests are performed in triplicate form at Laboratories of PRES's College of Pharmacy (For Women), Nashik]

Table No. 7

Methods Of Evaluation:

1. Organoleptic Properties:

In this step, the herbal face pack was assessed according to its texture, color, odor, and look ⁽²⁷⁾.

2. Physical Evaluation:



The Angle of Repose by funnel method, bulk density, and tapped density by tapping method were used to assess the flow properties of the dried powder of mixed form ⁽²⁸⁾.

3. Physicochemical Evaluation:

Physicochemical characteristics such as moisture content, pH, and ash value were ascertained ⁽²⁹⁾.

4. Irritancy test:

To test for irritation, draw a 1 sq. cm area on the left hand's back. Record the time after applying one of the ready-made masks to the chosen location. If present, erythema, edema, and irritation are temporary for up to 24 hours, and 16 cases have been reported ⁽³⁰⁾.

5. Determination of Microbial Load:

The produced formulation was assessed for Total Viable Count and the presence of gram-negative bacteria including *Pseudomonas* and *E. coli* at PRES's Collage of Pharmacy Nashik. ⁽³¹⁾

6. Stability Studies:

For formulation F5, stability testing of the obtained formulation was carried out by storing it for a month at various temperatures. The formulation's packed glass vials were kept at room temperature, 35°C, and 40°C. Physical characteristics such as color, odor, pH, consistency, and feel were assessed. ⁽³¹⁾

7. Washability:

After applying formulations to the skin, the degree and ease of water washing were personally assessed ⁽³²⁾.

8. Determination of Particle size:

Using I.P. Standard sieves and mechanical shaking for 10 minutes the particle size was measured. Particle size is a parameter that influences a number of qualities, including grittiness and spread ability ⁽³³⁾.

Organoleptic Properties:

Table No. 8

Sr. No.	Parameters	Observations				
		F1	F2	F3	F4	F5
1.	Appearance	Powder	Powder	Powder	Powder	Powder
2.	Color	Greenish Brown	Greenish Brown	Greenish Brown	Greenish Brown	Greenish Brown
3.	Odor	Pleasant	Pleasant	Pleasant	Pleasant	Pleasant
4.	Texture	Fine	Fine	Fine	Fine	Fine
5.	Smoothness	Smooth	Smooth	Smooth	Smooth	Smooth

Physical Evaluation:

Table No. 9

Sr. No.	Parameters	Observation				
		F1	F2	F3	F4	F5
1.	Bulk Density	0.29±0.2g/ml	0.27g/ml	0.31g/ml	0.29g/ml	0.30g/ml
2.	Tapped Density	0.41g/ml	0.39g/ml	0.43g/ml	0.43g/ml	0.45g/ml
3.	Angle of Repose	23.26°	22.7°	21.3°	22.78°	22.29°

Physicochemical Evaluation:



Table No. 10

Sr. No.	Parameters	Observations				
		F1	F2	F3	F4	F5
1.	Particle size (μm)	27.8 $\pm$ 5.54	24.2 $\pm$ 2.53	25.3 $\pm$ 4.67	24.4 $\pm$ 3.54	23.6 $\pm$ 4.88
2.	Ash Content	9 $\pm$ 0.2%	9.5 $\pm$ 1.5%	10 $\pm$ 0.5%	10 $\pm$ 1.5%	11 $\pm$ 0.5%
3.	pH	6.51 $\pm$ 0.1	6.48 $\pm$ 0.18	6.50 $\pm$ 0.1	6.52 $\pm$ 0.7	6.54 $\pm$ 0.1
4.	Moisture Content	0.076 $\pm$ 0.5%	0.07 $\pm$ 0.4%	0.11 $\pm$ 0.1	0.29 $\pm$ 0.4%	0.31 $\pm$ 0.15%

Irritancy Test:**Table No. 11**

Sr. No.	Parameters	Formulations					Observation
		F1	F2	F3	F4	F5	
1.	Irritant	NIL	NIL	NIL	NIL	NIL	No Irritation
2.	Erythema	NIL	NIL	NIL	NIL	NIL	No Erythema
3.	Edema	NIL	NIL	NIL	NIL	NIL	No Edema

Washability:**Table No. 12**

Sr. No.	Parameter	Observations				
		F1	F2	F3	F4	F5
1.	Washability	Easily Washable	Easily Washable	Easily Washable	Easily Washable	Easily Washable

Microbial Load:**Table No. 13**

Sr. No.	Test (Formulation F5)	Observation
1.	Total viable count (CFU/g)	872
2.	Gram negative pathogens, CFU/g (E. coli, Salmonella, Pseudomonas)	Absent

Stability Studies:**Table No. 14**

Sr. No	Parameter	Observations (Formulation F5)					
		Room Temperature		35 $\pm$ 0.5 $^{\circ}\text{C}$		40 $\pm$ 0.5 $^{\circ}\text{C}$	
		Initial	Final	Initial	Final	Initial	Final
1.	Color	Greenish Brown	No Change	Greenish Brown	No Change	Greenish Brown	No Change
2.	Odor	Pleasant	No Change	Pleasant	No Change	Pleasant	No Change
3.	pH	6.54 $\pm$ 0.1	No Change	6.54 $\pm$ 0.1	No Change	6.54 $\pm$ 0.1	No Change
4.	Texture	Fine	No Change	Fine	No Change	Fine	No Change
5.	Smoothness	Smooth	No Change	Smooth	No Change	Smooth	No Change

Figures Of Evaluation Parameters Of Formulation F5:

1. Angle of Repose:



3. Ash content:



2. Particle size:



4. pH:



5. Irritancy:



Before



Application



After

6. Microbial Test:

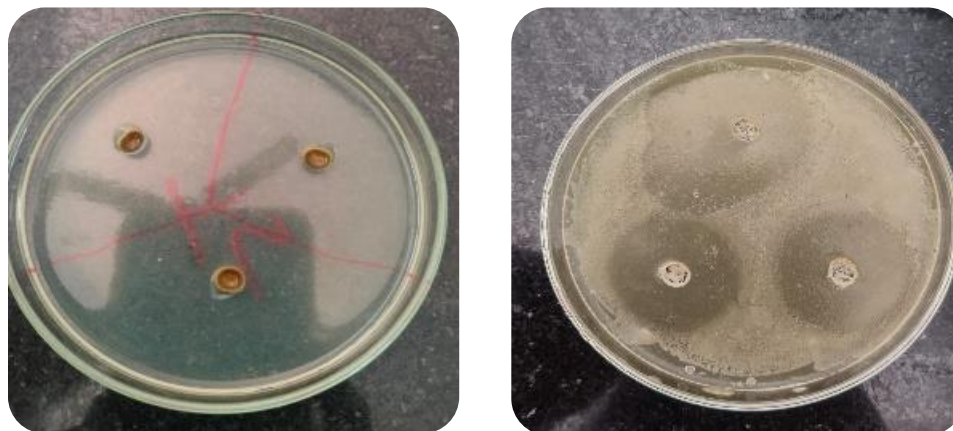


Fig. No. 7: Evaluation Parameters of Formulation F5

Physical Parameters

The various *mukhasaundhya vrudhi churna* formulations were made and assessed using the physical parameters listed in Table No. 9. Free flowing properties were displayed using the flow property parameter. The formulas colors were identical. The developed compositions had a pleasant and acceptable odor, which is ideal for cosmetic formulations. According to Table No. 10, the particle sizes of the formulations ranged from $23.6 \pm 4.88 \mu\text{m}$ to $27.8 \pm 5.54 \mu\text{m}$. All formulations had pH values that were close to the neutral range, or between 6 and 7, as indicated in Table No. 10. Both the moisture and ash contents were within acceptable bounds (Table No. 10).

Irritancy Test

Table No. 11 displayed the irritancy test findings. During irritancy tests, formulations F1, F2, F3, F4, and F5 did not exhibit any redness, edema, inflammation, or irritation. It is safe to use this mixture on the skin.

Microbial Test

The Total Viable Count (872 CFU/g) was displayed by the microbial load, and Table No. 12

displayed the results of the test for the absence of gram-negative pathogens such *Salmonella*, *E. Coli*, and *pseudomonas* per gram. It was discovered that Formulation F5 had good physical characteristics, was free of skin irritation, and remained consistent even under stressful storage conditions. It is proposed that the developed formulation had the properties of a typical cosmeceutical formulation for cosmetics and was stable both physico-chemically and microbiologically.

Stability Study

The formulation's pH changed somewhat when it was held at 40°C , according to the stability experiments, but there were no alterations at ambient temperature or at 35°C . After a month of stability tests at 40°C , the formulation's odor changed somewhat, but neither color nor odor changed under the other stability settings listed in Table No. 13.

DISCUSSION

The non-toxic character of herbal cosmetics, such as *mukhasaundhya vrudhi churna*, is one of its unique benefits. This reduces allergic reactions and is a result of the natural ingredients' shown

effectiveness. They are a popular option for people looking for skincare products with a lower risk of negative responses because of this feature. The prepared *mukhasaundrya vrudhi churna* had a fine, smooth texture, a greenish brown color, and a nice scent, according to the results of several examinations of its qualities. The churna's good flowability was demonstrated by the flow characteristics. There were no symptoms of redness, rashes, or swelling during the irritability test. However, the formulation's pH of 6.54, which is nearly equal to that of skin, suggests that *mukhasaundrya vrudhi churna* is safe for topical use. The formulation is easily removed from the skin without leaving any traces behind.

CONCLUSION

The purpose of making the *mukhsaundrya vrudhi churna* was to improve the skin's look and feel. It was made by mixing powders of several herbs and plants. People have been searching for a side-effect-free remedy for a number of skin conditions in recent decades. The utilization of herbal ingredients allowed for the formulation of a product free of adverse effects. Because it contains mulberry leaves, lotus flowers, sandalwood, and aloe vera, the *mukhsaundrya vrudhi churna* is a natural skincare product that encourages hydrated, healthy skin without having any unfavorable side effects. Additionally, it suggests that the developed formulation possessed the characteristics of a typical skincare formulation and was stable both physico-chemically and microbiologically.

FUTURE SCOPE:

1. Commercialization and Market Expansion:

- a) Growing Demand for Herbal Skincare: *Mukhasaundrya Vrudhi Churna* may see an increase in demand as consumers preferences

for natural, Ayurvedic, and chemical-free beauty products grow.

- b) Product Diversification: To increase its reach, it can be added to other forms such capsules, face packs, lotions, and serums.

2. Scientific Validation & Clinical Research:

- a) Pharmacological Studies: Studies on its skin-brightening, anti-inflammatory, and antioxidant properties can increase its legitimacy.
- b) Clinical Trials: Its efficacy claims can be substantiated by conducting clinical trials on a range of skin disorders, including pigmentation, aging, and acne.
- c) Standardization & Quality Control: Its acceptance in contemporary medicine can be enhanced by scientific standardization of its constituents.

3. Combining Modern Skincare with Integration:

- a) Cosmetic Uses: It may be created as an active component of herbal cosmetics.
- b) Dermatological Collaboration: Working together with dermatologists and skincare specialists can aid in the creation and suggestion of products.

4. Organic and Sustainable Agriculture:

- a) Herbal Ingredient Cultivation: Promoting organic herb cultivation for the churna's ingredients can enhance sustainability and quality.
- b) Fair Trade Practices: Sustainability programs and ethical sourcing might draw in ethical customers.

5. Growth of Digital and E-Commerce:



- a) Online Ayurvedic Consultation: Its use can be encouraged by telemedicine and online consultations.
- b) Influencer marketing and social media: Digital awareness initiatives can boost sales and brand reputation.

6. Wellness & Ayurvedic Tourism:

- a) Therapeutic Spa Treatments: These can be used into Ayurvedic spa treatments to revitalize the skin.
- b) Ayurvedic retreats: included into detox and beauty improvement programs at wellness centers.

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