



PHYTOCHEMICAL STUDIES FOR THE FORMULATION & EVALUATION OF A POLYHERBAL SCRUB

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Abstract: The primary goal of the current research study is to create an herbal face scrub for purposes of skin protection and attractiveness. Many of the commercially available synthetic facial scrub treatments have a variety of adverse effects but Herbal cosmetics are the most secure products to use on a regular basis with No side effects and non- toxic.

Cosmetic are products that affect how the skin functions biologically. Herbal cosmetics are very popular today since they may be used as both cosmetics and treatments. Herbal Products also known as cosmeceuticals. Typically include plant parts that have antibacterial, antioxidant, anti-inflammatory, anti-ageing, and anti- microbial qualities. In the current study work an herbal facial scrub was created using main active ingredient is basil seeds (*ocimum basilicum*) and other various herbal Powders, including sandalwood, fullers earth (Multani mitti), neem, turmeric, green tea, liquorice, Amla etc. As an active component, aloe Vera is used, and rosewater used for perfume. The prepared scrub was evaluated for a variety of physical properties, including appearance, spreadability, extrudability, Ph, stability, grittiness foamability, washability, irritability, and colour, odour, nature etc.

The increasing demand for natural and herbal skincare products has led to the exploration of various plant based ingredients. This study focuses on formulating and evaluating an herbal facial scrub using basil seeds, known for their potential skincare benefits.

Herbal facial Scrub can help with several skin issues including wrinkles, acne, Blackheads, whiteheads, and they also helps regulate the other secretion from the skin open pores. Additionally, they aid in enhancing the Skin's smoothness. This is a clinical study to assess Tran's dermal safety and herbal formulation efficacy.

KEYWORDS - antioxidant, antimicrobial, non - toxic, basil seeds, skin protection etc.

I. INTRODUCTION

The term "herbal cosmetic" refers to beauty products that contain herbal substances and exhibit desired Physiological effects on the skin, such as skin healing, smoothing, attractiveness, boosting, and conditioning properties [1, 7]. These are the cosmetics that are available. Made from plant-based compounds with cosmetic properties. Due to their moderate action and non - toxic composition. Herbs are now being used more frequently in cosmetics, because they can function as both cosmetic and medication, herbal cosmetics are in high demand nowadays. [2,3] Any substance intended to be rubbed, poured, sprinkled, sprayed, injected into or applied to any portion of the human body for the purpose of cleaning, beautifying, enhancing attractiveness, or modifying appearance, including any item intended for use as a cosmetic ingredient. [4]

Facial scrub:

Face scrubs exfoliate, improve blood flow, and promote skin turnover by eliminating adhering cells in the stratum corneum and dead skin cells and are used to rejuvenate muscles and clean skin pores. The coarse particles in facial scrubs helps to exfoliate the skin. When the scrub particles are rubbed on your skin. They completely clean out the pores on your skin of any dirt. Dead skin cells are removed, making the skin softer and smoother. Scrubbing is the removal of dead skin cells from the skin's surface with a granular powder and an exfoliating tool. [3, 5]

Ideal properties of facial scrub:

The following qualities are considered to characterize an excellent scrub -

- 1) It must be not hazardous
- 2) Not sticky able to eliminate dead skin cells.
- 3) Mildly abrasive
- 4) Not irritative
- 5) Contain tiny gritty particles. [3]

Advantages of face scrubbing: [6]

- 1) Removing acne scars -
Exfoliation is a helpful method for removing acne scars.
- 2) The skin rejuvenation –
Exfoliation eliminates dirt, dead skin cells, and other impurities from your skin on a regular basis. While it also clears your pores, your skin feels refreshed and renewed.
- 3) Smooth and soft skin –
Impurities are thoroughly removed from the skin while scrubbing, which results in soft, smooth skin.
- 4) Removes skin flakes –
Flaky skin is the source of dry patches. It allows dead cells to accumulate over time. Scrubbing your skin can help you treat flaky skin successfully. Flaky skin is the source of dry patches. It allows dead cells to accumulate over time. Scrubbing your skin can help you treat flaky skin successfully.
- 5) Stimulate blood flow:
Blood circulation is also improved by the light massages that are provided as you scrub.
- 6) Glow to skin-
Scrubbing can actually give your skin a glowing appearance.
- 7) Enhancing the texture of the skin;
The skin will be cleaner, smoother, and have a better texture after a thorough scrub.
- 8) The skin will be cleaner, smoother, and have a better texture after a thorough scrub. Promoting clear complexion –
Once the flakiness, dead skin cells, blemishes, and accumulated impurities are removed. Because the scrub contains natural skin whitening ingredients, the results are much better.

Disadvantages of facial scrub: [8]

- 1) Both harsh rubbing movements and harsh rubbing chemicals can irritate skin and result in redness and inflammation.
- 2) When pores are left open as a result of excessive cleaning, the skin is susceptible to UV radiation and pollution. As a result, the skin may become more prone to infections and tanning.

Basil seeds:

Basil's natural habitat ranges from Central Africa to Southeast Asia. The Labiatae family includes the annual spicy Herb *Ocimum basilicum* L., popularly known as basil or sweet basil. [9] Basil is derived from the Greek word "Basileus," which meaning "Royal" or "King" and it is frequently referred To as the "King of the herb" because of variety of applications it finds in the fields of cuisine, cosmetics, Medicine and pharmaceuticals. Basil seeds is also known as "Sabja seeds" in India. [10] When dried, basil Seeds have a tear like form and are entirely black.

Benefits of basil seeds;

- The antifungal, antibacterial, and antibiotic properties of basil seeds help to maintain Healthy skin.
- Basil seeds are used to cure coughs, headaches, worms, diarrhea, and skin problems.[11]
- It can also regulate and lower blood sugar.[12]
- The antioxidant and flavonoids included in basil seeds help to improve skin health and promote the formation of new cells. [9]
- Eating basil seeds can frequently help in the production of collagen, which is required to create new skin cells when existing ones are damaged by every day wear and tear.[9]
- This plant has traditionally been used as a flavoring agent in food, as well as in dentistry and oral goods and fragrances. [13]

1) ALOE VERA

Synonym: Aloe barbedensis miller [4]

Family: Liliaceae [4]

Biological Source:

Aloes, derived from the dried juice of various species like Aloe barbedensis miller, Aloe perryi baker, and Aloe spicata baker.

Description: [4]

Colour - Green (Aloe Vera plant colour) and relatively yellow / translucent gold (natural aloe Vera gel colour)

Odour - Unpleasant smell or onion and garlic

Taste - Bitter, Characteristic

2) LIQUORICE

Synonym: Sweet Liquorice, Radix Glycyrrhizate. [20]

Family: Leguminosae [20]

Biological source:

Liquorice is made up of underground peeled and unpeeled roots, roots and underground parts of Glycyrrhiza glabra linin and other species of Glycyrrhiza. [20]

Description:

Colour - Drugs that have not been peeled are externally or internally yellowish or dark brown whereas peeled liquorice is pale yellow.

Odour - Typical odour, fragile and characteristic features

Taste – Sweet.

3) AMLA

Synonym: Indian gooseberry, Emblica officinalis gaerth

Family : Euphobiaceae [23]

Biological Source:

This include both fresh and dried fruit pericarp from the plant ant emblica officinalis gaerth

Phyllanthus emblica linin

Description: [24]

Colour: after maturing the colour green turns into a pale yellow /brick red

Odour: odourless

Taste: sore and astringent

4) NEEM



Synonym: Azardiachta Indica. [27]

Family: meliaceae [27]

Biological source:

Neem consists of the fresh or dried leaves and seeds oil of Azardiachta Indica. [4]

Description: [4]

Colour: smooth and dark green in colour.

Odour: typical / pungent

Taste: bitter

5) MULTANI MITTI



Synonym: Fuller's Earth [22]

Biological Source:

It is made from volcanic ash deposits that are at least cretaceous in a ge glacial clays are not made from fuller's earth. [4]

Description:

Colour: Yellow

Odour: muddy

Taste: Sticky (Gummy) and Smokey

6) TURMERIC



Synonyms: Indian saffron, Haldi [25]

Family: Zingiberaceae [25]

Biological source:

The plant curcuma longa which produces turmeric, has both fresh and dried rhizomes [4]

Description: [4]

Colour - Bright yellow / Orange

Odour - Mildly pleasant

Taste - Bitter and woody

7) GREEN TEA



Synonym: Camellia Sinesis [30]

Family: Theaceae [30]

Biological source:

Its prepared leaves & leaf buds are the biological source of tea. [28]

Description: [31]

Colour - Pale yellow, yellow or green.

Odour - Malty and green in the smell

Taste - Clean, Grassy and Earthy flavours

8) BASIL SEEDS



Synonym: Ocimum basilicum, Sabja seeds. [13]

Family: Lamiaceae [13]

Biological source:

Basil is obtained from the foliage of ocimum basilicum L. (sweet basil).

Description:

Colour- Black

Odour- Strong, spicy and pleasant odour.

Taste - Generally flavorless.

9) SANDALWOOD POWDER

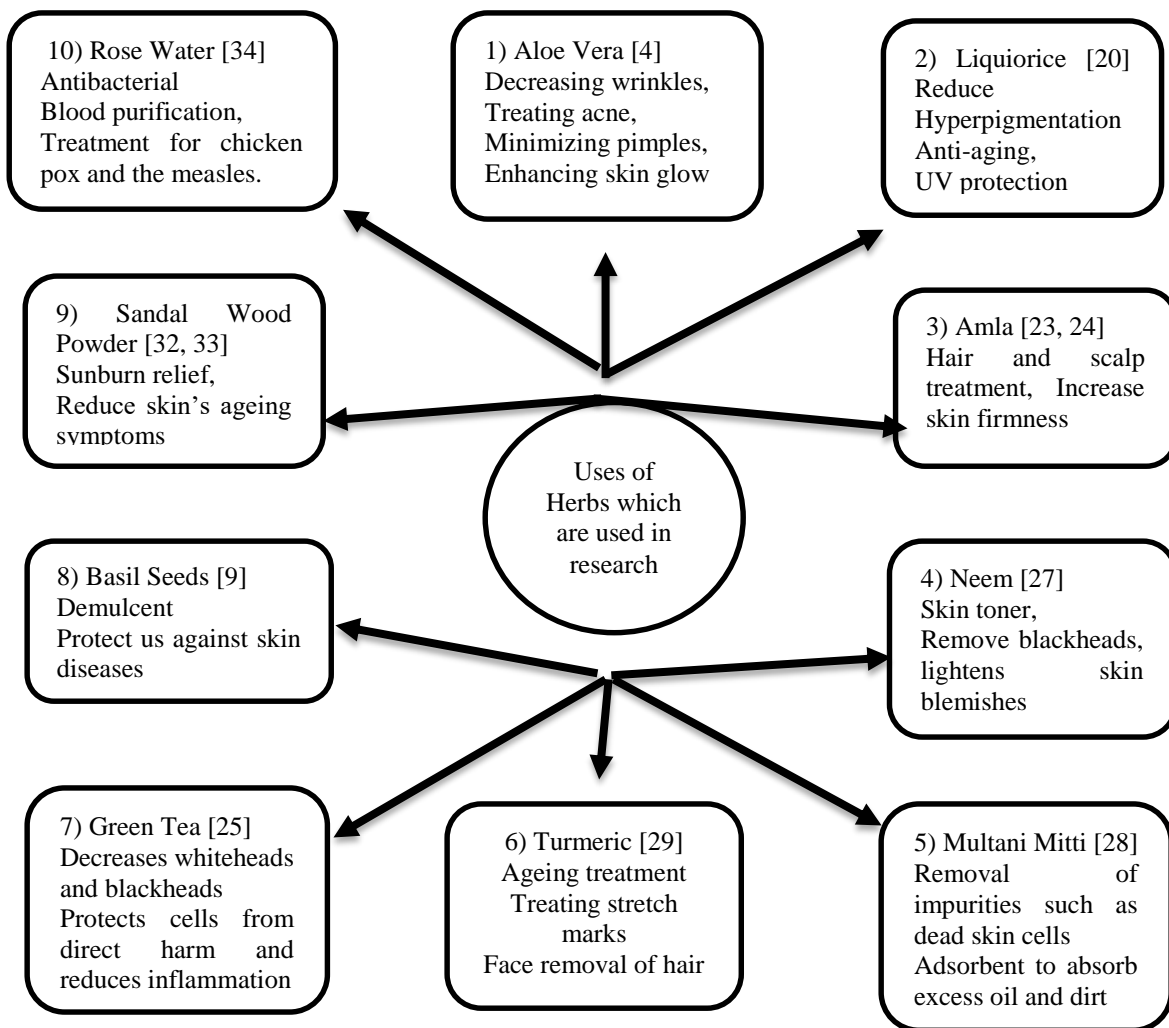


Synonym: Sandalwood tree [4]
Family: santalaceae [25]
Biological source:
 It consist of dried bark of santalum album belonging to family santalaceae. [4]
Description:
 Colour- Brown
 Taste- unpleasant
 Odour- Aromatic [4]

10) ROSE WATER



Biological Source:
 Rose petals are regularly mixed into water to create rose water.
Description:
 Colour: light pinky-blush
 Odour- Aromatic



CHEMICAL CONSTITUENTS

Sr. No	Plant	Name of constituent	Molecular formula	Pharmacological Activity
1	Aloe Vera [17]	Chromone Anthroquinone Aloenin Syringic Acid	C ₉ H ₆ O ₂ C ₁₄ H ₈ O ₂ C ₁₉ H ₂₂ O ₁₀ C ₉ H ₁₀ O ₅	Antiviral , antimicrobial Anti-inflammatory, anticancer Antiviral Antioxidant, antibacterial
2	Liquiorice [21]	Glycyrrhizic Acid Glucose Liquiritin Glucuronic Acid Mannitol Starch	C ₄₂ H ₆₂ O ₁₆ C ₆ H ₁₂ O ₆ C ₂₁ H ₂₂ O ₉ C ₆ H ₁₀ O ₇ C ₆ H ₁₄ O ₆ (C ₆ H ₁₀ O ₅) _n	Antiviral, antiallergic Additives Anti-inflammatory Chelating agent Flavoring & sweetening agent Preservative, additives
3	Amla [25]	Punicalagin Galic Acid Leucodelphinidin Ellagic Acid Lupeol	C ₄₈ H ₂₈ O ₃₀ C ₇ H ₆ O ₅ C ₂₁ H ₂₄ O ₁₃ C ₁₄ H ₆ O ₈ C ₃₀ H ₅₀ O	Antineoplastic Antioxidant, anti-inflammatory Antibacterial Antioxidant Antimicrobial & anti-inflammatory
4	Neem [27]	Dipropyl disulfide Nimbin Nimbandiol Nimbolide Ascorbic Acid Hexacosanol	C ₆ H ₁₄ S ₂ C ₃₀ H ₃₆ O ₉ C ₂₆ H ₃₂ O ₇ C ₂₇ H ₃₀ O ₇ C ₆ H ₈ O ₆ C ₂₆ H ₅₄ O	Flavoring Agent Anti-inflammatory, antipyretic Antimicrobial Anticancer Antioxidant Emulsifying agent
5	Multani Mitti [22,4]	Montmorillonite	Al ₂ H ₂ O ₁₂ Si ₄	Coloring agent
6	Turmeric [25,29]	Curcumin Curcumenol Zingiberene Eugenol Triethylcurcumin	C ₂₁ H ₂₀ O ₆ C ₁₅ H ₂₂ O ₂ C ₁₅ H ₂₄ C ₁₀ H ₁₂ O ₂ C ₂₇ H ₃₂ O ₆	Antifungal, Flavoring agent & colorant Antifungal Anti-inflammatory & antiviral Antimicrobial & antioxidant Anti-inflammatory & antioxidant
7	Green Tea [30,31]	Glutamic Acid Aspartic Acid Glycerine Tryptophan Tyrasine Valine Leucine Threonine	C ₅ H ₉ NO ₂ C ₄ H ₇ NO ₄ C ₃ H ₈ O ₃ C ₁₁ H ₁₂ N ₂ O ₃ C ₉ H ₁₁ NO ₃ C ₅ H ₁₁ NO ₂ C ₆ H ₁₃ NO ₂ C ₄ H ₉ NO ₃	Flavoring & nutritional supplement Flavoring & nutritional supplement Sweetener & Moisturizer Increasing serotonin production Flavoring & nutritional supplement Flavoring & nutritional supplement Antiencephalopathic Flavoring Agent
8	Basil Seeds [13]	Linalol Methyl Cinnamate Carvacrol Terpene Caryophyllene Steric acid Oleic acid Myristic acid	C ₁₀ H ₁₈ O C ₁₀ H ₁₀ O ₂ C ₆ H ₃ (CH ₃)(OH)C ₃ H ₇ (C ₅ H ₈) _n C ₁₅ H ₂₄ C ₁₈ H ₃₆ O ₂ C ₁₈ H ₃₄ O ₂ C ₁₄ H ₂₈ O ₂	Local anaesthetic activity Flavoring & anti-inflammatory Anti-oxidant & Anti-tumor Antifungal, antiviral Antimicrobial, antioxidant Emulsifying agent Antibacterial Cleansing & emulsifier

9	Sandal wood powder [32,33]	Alpha Santalol Squalene Esters	C15H24O C30H50 RCOOR'	Flavoring agent Emollient & antioxidant Preservatives
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FORMULATION OF HERBAL FACIAL SCRUB

1. All the herbal powder were correctly weighed.
2. Powders sieved through 100, such as green tea, Amla, neem powders and sandalwood Powders.
3. And using a mortar and pestle mixed them to get a uniform texture.
4. Then basil seeds are grinded and to form a powder.
5. Weighed accurately Multani mitti, turmeric, liquorice powder, and basil seeds powder and triturated them to get a uniform mixture.
6. Added previously produced herbal drug to that mixture, which was then triturated to create a uniform drug powder for a face scrub.
7. In this uniform drug powder slowly added aloe Vera gel and triturated to form a paste like Consistency.
8. For fragrance, rose water was added.



INGREDIENTS

Sr. No.	Name of herbal drugs	Botanical/ Scientific Name	Properties	Quantity (gm) For 5gm	
				F1	F2
1.	Aloe Vera	Aloe Barbedensis	Anti-inflammatory, Anti-aging, Anti-bacterial, Anti-viral, Antiseptic and wound healing [18]	Q. S	Q.S
2.	Liquorice	Glycyrrhiza glabra	Anti-microbial and Anti-fungal	0.5	0.5
3.	Neem	Azardiacachta Indica	Antibacterial and Anti-inflammatory	0.15	0.15
4.	Amla	Phyllanthus emblica	Anti-ageing and Anti-inflammatory	0.5	0.5
5.	Green Tea	Camellia Sinesis	Antioxidant, antimicrobial and anti-inflammatory	1.25	1.10
6.	Turmeric	Curcuma longa	Antioxidant and Anti-inflammatory, Antiseptic And improves fairness	1	1
7	Fullers earth	Bentonite Clay	Lowering of pigmentation and controlling acne	1.25	1
8	Basil seeds	Ocimum basilicum	Anti-microbial and Anti-fungal Anti-diabetes	0.35	0.75

EVALUATION OF METHOD

Evaluation standards for the formulation of a facial scrub included Ph, physical characteristics, colour, odour, Texture, irritation, viscosity, spreadability and washability.

1) Physical Appearance:

Colour - The formulations colours were closely examined and evaluated.

Odour - when the product was spread out on the palm and the fragrance of the perfume was examined it produced a pleasant smell.

Texture - consistency of formulation was noticed by rubbing the formulation between two fingers and we also examined and noted its smoothness or grittiness.

2) Homogeneity:

Homogeneity of the formulation was inspected visually.

3) pH-determination:

A tiny amount of formulation was dissolved in water to make an aqueous solution, which was then filtered, and the product's pH was determined using a Ph meter.

4) Spreadability:

By manually applying the scrub onto the skin, the spreadability of the product was determined. And gently rub the surface of the hand on the skin.

5) Extrudability:

Extrudability was estimated as sample amount / time needed for the sample to completely extrude from the containers.

6) Skin irritation:

A tiny amount of the mixture was applied to the dorsal part of the hand and left there for a time before being noticed.

7) Grittiness:

Grittiness was checked manually.

8) Stability:

The formulation was stored at room temperature and to determine the stability.

9) Washability:

The skin was scrubbed with a small amount of scrub and then washed with water.

IV. RESULTS AND DISCUSSION

Multipurpose polyhedral a face scrub was created and tested in the laboratory. The powder was smooth to the touch and spreads well when made into paste. It contains main active ingredient used basil Seeds which possesses antimicrobial and antifungal properties which protect us from skin diseases, Wrinkles, pimples, acne, blemishes. Following evaluation parameters to get the result and stability: No changes at room temperature.

Sr. No	Parameter	Result	
1.	Colour	Buff green	
2.	Odour	Aromatic and pleasant	
3.	Consistency	Smooth	
4.	Nature	Semisolid	
5.	Homogeneity	Not aggregating	
6.	pH	F 1	F2
		7.03	7.00
7.	Extrudability	Easily extruded	

8.	Washability	Easily washable
9.	Spreadability	Easily spreadable
10.	Irritability	No irritation
11.	Grittiness	Small gritty particles
12.	Stability	No changes at room temperature

CONCLUSION

The herbal face scrub used in this study was developed and evaluated against a number of parameter. According to the above information the new scrub formulation is safe to use and that basil seeds powder can be effectively employed as a cleaning agent.

The formulation and assessment of an herbal face scrub using basil seeds demonstrated its potential as a skincare product. The inclusion of basil seeds provided exfoliating benefits, while other herbal ingredients contributed to the formulation's stability and safety.

The current formulation was prepared by using a variety of Herbs which will help in improve fairness reduce acne, pimples, and treatment on skin infection.

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