

FORMULATION AND EVALUATION OF HERBAL BILAYER SOAP

SAKSHI AWADHUT AWARE¹, SAKSHI LILADHAR SANAP², SATISH SHANKAR CHAVAN³, JYOTSNA H WAGGH⁴, DR.AVINASH B. DAREKAR⁵

STUDENT^{1,2,3}, ASSISTANT PROFESSOR⁴, PRINCIPAL⁵ K.V.N.NAIK INSTITUTE OF PHARMACEUTICAL EDUCATION AND RESEARCH CENTRE NASHIK

Abstract: Herbal soaps are made from natural ingredients that are healthier and beneficial for the skin and are less likely to cause any harmful effects. Human skin, the outer covering of the body constitutes the first line of defense protecting the body against various pathogens. As the skin interfaces with environment; it is constantly exposed to different environmental stimuli. This makes the skin damage prone thus we use soaps on our body to get rid of the pathogens and dirt. The main ingredients of herbal soap are of plant origin and do not contain harmful chemicals. These soaps usually contain glycerin, which is generally not used by large manufacturing companies. These soaps can be customized as needed. They have no side effects on the body. Utilization of plant extracts and their derived phytoconstituents have a likely future for controlling hyperpigmentation. Herbal double layer soap consists of two different layers in one soap. They have different properties in a single soap and are very convenient to use and carry. Two different benefits can be obtained at the same time.

Keywords: Herbal bilayer soap, moisturizing, scrubbing, skin, exfoliating.

INTRODUCTION:-

HERBAL SOAP:- Soap is a emulsifying and cleansing agent that is usually made by treating fat (vegetables or animal oil) or fatty acid with an alkali such as sodium or potassium hydroxide. Soap are substance that when dissolved in water posses the ability to remove the dirt from surfaces such as human skin, textiles and other solids. . Herbal soap refers to a type of soap formulated with natural ingredients derived from herbs, botanical extracts and essential oils. Herbal soap are made using natural herbs and ingredients that are healthier and beneficial for the skin and are less likely to cause any damaging effect. The use of plant extracts in soap making has been practiced for centuries, and it is still prevalent today. Unlike conventional soaps that may contain synthetic fragrances and harsh chemicals, these variants prioritize natural and plant –based ingredients known for their beneficial properties. They are valued for their potential to soothe, nourish, and rejuvenate the skin, making them popular choices in natural skincare routines. These are gentle on skin and likely to have any side effects.

TANNING:- UVA radiation is what makes people tan. UVA rays penetrate to the lower layers of the epidermis, where they trigger cells called melanocytes to produce melanin. A major determinant of human skin color is the presence and balance of different types of melanin in the epidermis. Baseline skin color depends on the level of constitutive pigmentation that is low in white skinned peoples (skin types I–IV) and high in dark skinned peoples Ultraviolet irradiation from the sun is by far the most common and important factor. It is our purpose to investigate the extent to which this environmental factor, i.e., sunlight, can influence the skin color.

ANATOMY AND PHYSIOLOGY OF SKIN:- Skin is the largest organ in the body. Human skin, in human anatomy, the covering or integument, of the body's surface that both provides protection and receives sensory stimuli from the external environment. It covers the body's entire external surface, serving as a first-order barrier against pathogens, UV light, and chemicals, and provides a mechanical barrier to injury. It also regulates temperature and amount of water released into the environment. Skin is also called cutaneous membrane. Skin is the most exposed part of the body to the sunlight, environmental pollution and also used for protection against the pathogen.

BENEFITS OF HERBAL BILAYER SOAP:-

1. Nourishing – Herbal soaps contain the goodness of nature, and this makes them nourishing for skin. Its offers comfort, healing and stress relief as well.
2. Therapeutic – Therapeutic because of properties such as relief from tension and the healing power of herbal soaps.

3. Tanning :- UVA radiation is what makes people tan. UVA rays penetrate to the lower layers of the epidermis, where they trigger cells called melanocytes to produce melanin, herbal soap thus are beneficial without being harsh.
4. Exfoliation – Some herbal soaps can help fade stretch marks, hyperpigmentations, and dark spots by exfoliating and removing dead skin cells.
5. Environmentally friendly – Often produced using sustainable and eco-friendly practices. They are typically biodegradable and do not contribute to water pollution like some conventional soap.

ADVANTAGES OF HERBAL BILAYER SOAP:-

1. Natural ingredients – Herbal soap are typically made from natural plant based ingredients such as herbs, essential oils, and botanical extract. These natural ingredients are often gentle on the skin and may help to soothe and nourish the skin without causing irritation and dryness.
2. Hypoallergenic – Herbal soap are often hypoallergenic, meaning they are less likely to cause allergic reaction compared to synthetic soaps that may contain harsh chemicals and artificial fragrances.
3. Aromatherapy benefits – Many herbal soaps contain essential oils, which can provide aromatherapy benefits, help to relax the mind, uplift the mood and provide a sense of well-being during the bathing process.
4. Variety – There are many different types of soaps available, catering to various skin types and preferences.
5. Accessibility – Soap is widely available and relatively affordable, making it accessible to a large population.

DISADVANTAGES OF HERBAL BILAYER SOAP.

1. Drying – Some types of soap can be drying to the skin, especially for individuals with sensitive or dry skin.
2. Allergies – Certain ingredients in soap can cause allergic reaction in some people.
3. Environmental impact – The production and disposal of some soaps can have environmental consequences, such as water pollution.
4. pH imbalance – some soaps can disrupt the natural pH balance of the skin, leading to irritation or skin problems for some individuals.

➤ AIMS AND OBJECTIVE OF WORK

AIM – Formulation and Evaluation of Herbal Bilayer Soap. **OBJECTIVES** –

1. Protects against UV damage and helps in detanning.
2. Lighten mark, correct discoloration and brightening effects.
3. Calming irritated skin, reducing inflammation.
4. Rich moisturizing effects on the skin.
5. Slight exfoliation on the skin.
6. Improves skin barrier function.
7. Helps with psoriasis.

➤ NEEDS OF HERBAL SOAP:

1. Increasing the use of herbal products.
2. Reduces the risk of allergies compared to commercial soaps.
3. Maintains the natural pH of the skin.
4. Do not produce harmful toxins.
5. Eco-friendly.

6. Pocket friendly.
7. Creating jobs for small businesses

➤ **FORMULATION TABLE:-**

SR.NO.	INGREDIENTS	QUANTITY	CATEGORY
1.	Soap base	100 gm	Surfactant
2.	Flax seeds	30 gm	Exfoliating agent
3.	Oats	30 gm	Exfoliating agent
4.	Coffee powder	5 gm	Detanning and exfoliant
5.	Milk	15 ml	Nourishing agent
6.	Rice flour	10 gm	Skin brightening and healing agent
7.	Aloe vera	5 gm	Anti - bacterial
8.	Cocoa butter	5 gm	Smoothing agent
9.	Coconut oil	5 ml	Moisturizing agent, preservative
10.	Vanilla extract	2 ml	Fragrance
11.	Honey	4 ml	Emollient and humectant
12.	Glycerin	5 ml	Humectant
13.	Distilled water	Quantity sufficient	Vehicle
14.	Vitamin E	1ml	Antioxidant

➤ **METHOD OF PREPARATION:-**

➤ **LAYER : 1 – SCRUBING LAYER**

1. Glycerin soap base was weighed and cut into pieces.
2. The ingredients were weighed and a coarse powder was made.
3. The base soap was melted using the double boiler method.
4. Mix all the ingredients flaxseed, coffee and oats carefully before adding to the melted soap base.
5. All ingredients were worked into the melted soap base until fully combined when heated.
6. Add vanilla essence for desired scent.
7. Pour the mixture onto the prepared layer.
8. Spray isopropyl alcohol using a spray bottle to remove bubbles on the top surface.
9. Let the soap harden for a day.

➤ **LAYER : 2 – MOISTURIZING LAYER**

1. Weigh your glycerin soap base and cut into pieces.
2. Let the soap base melt using the double boiler method.
3. Add ingredients one at a time while the soap base is melted and still hot.
4. Make a thin slurry of milk and rice flour in equal proportions.
5. Slowly add the slurry to the melted soap base.
6. Add the cocoa butter and keep stirring the mixture.
7. Add the moisturizers, which are aloe vera gel, coconut oil, and glycerin, one at a time.
8. Make sure they are well incorporated.
9. Now add vanilla essence for fragrance.
10. Pour the hot mixture into the mold.

- 11. Spray some isopropyl alcohol using a spray bottle to remove small bubbles on the surface.
- 12. Provides a smooth and even surface.



Fig:1 Melting and mixing ingredients



Fig:2 Pouring first layer.



Fig.3 pouring second layer



Fig. 4 final product

➤ **EVALUATION PARAMETER:-**

1.Determination of clarity, color, and odor - Color and clarity were checked against a white background by naked eyes and odor was checked by smelling.



Fig.5 Determination of clarity, color and odor

2, pH - The pH of the prepared soap was assessed by touching a pH strip to the freshly formulated soap and conjointly by dissolving 1 g in 10 ml water with the help of digital pH meter.

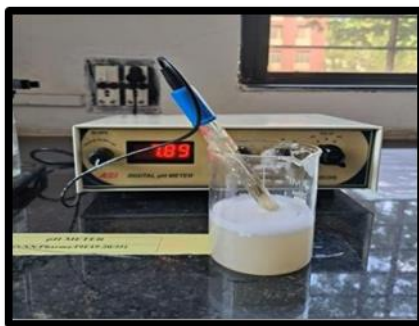


Fig .6 pH testing

3 Determination of percentage free alkali - About 5 g of sample was added to 50 ml of neutralized alcohol and was boiled for 30 min under reflux on a water bath, then cooled and to it 1 ml of phenolphthalein solution was added. It was then titrated immediately with 0.1 N HCL.

4 Foam height - 0.5 g of sample of soap was dispersed in 25 ml distilled water. Then, transferred it into 100 ml measuring cylinder and the volume was made up to 50 ml with water. Twenty-five strokes were given and allowed to stand till aqueous volume measured up to 50 ml and the foam height above the aqueous volume was measured.



Fig.7 foam height

5 Foam retention - About 1% soap solution was prepared and from this, 25 ml was taken in a 100 ml measuring cylinder. The cylinder was covered with hand and shaken for 10 min. The volume of foam at 1 min intervals for 4 min was recorded.

6 Irritability - The Irritation test can be used to determine if a material or chemical will cause local irritation in the skin, mucosal, or ocular tissues.

In this test, were taken 3 volunteers and they were allowed to apply formulated soap on skin to determine irritation action.



Fig.8 irritability test

➤ **EVALUATION TABLE:-**

SR.NO	TESTS	OBSERVATIONS
1	Color	Dark brown and off white.
2	Odor	Pleasant and vanilla fragrance
3	Appearance	Good
4	Size	6cm x 2.7cm and 6.5cm x 2cm
5	Shape	Circular in shape.
6	Texture	Smooth
7	pH	7.89
8	Foam height	8.6
9	Foam retention	2min
10	Percentage free alkali	0.25%

➤ CONCLUSION:-

Herbal soaps are also an effective and effective alternative that has become popular among skin care enthusiasts. Being environmentally friendly and Sustainable has many benefits. The ability to make maximum benefits in one go. Ingredients like flaxseed and oatmeal are good for evening out the skin, as well as removing tanning and gently scrubbing. The scent that revitalizes the skin can help express stress and anxiety with the development of aromatherapy helps in releasing stress and anxiety. Glycerine and honey moisturizes the skin greatly, milk is great source of natural cleanser due to presence of lactic acid. Since it is plant based, it is beneficial for users with soap sensitivity because people are concerned about the use of hand soaps. It is environmentally friendly as chemical use is reduced.

➤ RESULTS:-

When volunteers were used to test the itching and odour of the preparation, the results were good, there was no itching and no unpleasant odor, proving safety. pH, appearance, odour, foaming index, foam retention time etc. Standardization of soap using physical and chemical resistance tests such as pH, appearance, odour, foaming index, foam retention time which exhibited satisfactory result. A good alternative to the problem, effective and cheap. Thus herbal bilayer soap can be a great alternative for majority skin concerns and effective and as well as economically affordable. Thus the herbal bilayer soap is evaluated.

➤ REFERENCES:-

- Y.D.Pardeshi, V.R.Patel, A Review On Formulation And Evaluation Of A Herbal Soap From *tridaxprocumbens*, International Journal Of Pharmaceutical Sciences, Vol 2, Issue 1, 214-227, 2024
- A.Majumdar, B.Thakkar, A Review On Herbal Soap- Trends, Benefits And Preparation, *Acta Scientific NUTRITIONAL HEALTH*, Volume 7 Issue 9 September 2023, 10-15 (ISSN:2582-1423)
- J.P.Rajput, A Review On Herbal Soap, *World Journal Of Biology Pharmacy And Health Sciences*, Volume 16(03), 188-193, 2023
- R.K.Ahire, R.M.Ahire, A Review On: Herbal Soap, *International Journal For Multidisciplinary Research*, Vol 5, Issue 6, Nov. 2023
- B.Saurav, Prof.B.Gorakh, A Review On Herbal Soap, *Journal Of Emerging Technologies And Innovative Research*, Vol.9, Issue 12, Dec. 2022
- R.M.Chandira, A Review On Formulation And Evaluation Of Herbal Soap By Using Melt And Pour Method, *Indian Journal Of Natural Sciences*, Vol.13, Issue 72, June, 2022, ISSN: 0976 – 0997
- A.Ghanwat, S.Wayzod, A Review On Formulation And Evaluation Of Herbal Soap, *Current Trends In Pharmacy And Pharmaceutical Chemistry*, 2(2), 2020, 21-26
- A.Attaullah, A.Govindarajulu, A Review On Formulation Of Herbal Soap Against Acne Causing Bacteria, *Asian Journal Of Biological And Life Sciences*, Vol 10, Issue 3, Dec, 2021
- K.Ruckmani, R.Krishnamoorthy, C Formulation Of Herbal Bath Soap From *Vitex Negundo* Leaf Extract, *Journal Of Chemical And Pharmaceutical Sciences*, Issue 2: Oct. 2014
- N.Wijayawardhana, D.Coaray, B.Jayasuriya, A Review On Antimicrobial Activity Of A Combination Of Three Natural Plant Extracts And Development Of A Herbal Soap, *Pharmaceutical Sciences Asia*, 48(6), 523-534, 2021
- R.B.Saudagar, M.H.Sisodiya, A Review On Herbal Cosmetics, *World Journal Of Pharmaceutical Research*, Vol 7, Issue 7, 573-591, Issn 2277– 7105
- S.K.Sharma, S.Singh, A Review On Antimicrobial Herbal Soap Formulation, *Journal Of Pharmaceutical Research International*, 32(36): 82-88, 2020