International Journal of Pharmaceutical Research and Applications
Volume 9, Issue 4 July-Aug 2024, pp: 266-272www.ijprajournal.com ISSN: 2456-4494

Formulation and Evaluation of Herbal Soap: A Comprehensive Study

Bhoir Manisha B, Gaikwad Maya Y*, RajoraSnehal S.
Student, SMBT Institute of Diploma Pharmacy Dhamangaon, Nashik, Maharashtra, India.
Lecturer, SMBT Institute of Diploma Pharmacy Dhamangaon, Nashik, Maharashtra, India.
Lecturer, SMBT Institute of Diploma Pharmacy Dhamangaon, Nashik, Maharashtra, India.

Date of Submission: 01-07-2024 Date of Acceptance: 10-07-2024

ABSTRACT: The skin is the primary portal via which pathogens enter the body. It is the body's most vital barrier, shielding the body from harmful invasion. Ensuring that the skin remains sanitary by daily bathing with soap use is one significant strategy to reduce the amount of germs that enter the body through the skin. The creation of a herbal soap using plant extracts is desperately needed because chemical-based soaps contain harsh chemicals that can harm skin. Certain plants can be used in any herbal soap because of their well-known antibacterial, anti-inflammatory, anti-scar, anti-spot, anti-acne, and anti-wrinkle effects. In the present study herbal soap was prepared by using lemon, tulsi, coconut oil, vitamin C, rose water, lavender oil and glycerine soap base. The prepared soap formulations were tested for different evaluation parameters like color, odor, texture, pH, moisture content, foam forming and form retain capacity, skin irritability etc. The obtained results were compared to the standard where the soap showed optimum results and was found to be fit for consumption.

I. INTRODUCTION:

[1]. In general, a mixture of fatty acid salts used for body washing is called soap. Saponification is the word used to describe the process by which triglyceride fats hydrolyse into fatty acid and react with an alkali to generate soap. One issue, though, is that these chemically manufactured soaps have potentially dangerous ingredients including plastic, aluminium, phenol, mercury, and other materials that are extremely abrasive on skin and can result in a variety of issues when used topically. These substances cause significant harm to other body organs after being absorbed through the skin, which opens the door for the creation of a herbal product with the fewest possible adverse effects.

Since ancient times, India has made the use of herbal medicine as a widespread means of illness treatment. The demand for herbal soaps has significantly expanded as a result of the widespread application of Indian natural treatment systems like Ayurveda, Siddha, and Unani to treat a number of fatal ailments. It is therefore imperative that a herbal soap be developed using plant extracts and other herbal constituents in the ideal ratio. An amalgamation of plant extract, base soap, and additional essential herbal compounds or oils that can nourish the skin without harming it is what is known as aherbal soap. These soaps have the strongest antibacterial and antiseptic properties and a reasonable level of antioxidants.

They soften skin, encourage skin conditioning, and smell good. The goal of the current study is to create herbal soaps that nourish skin as well they can while posing the least amount of harm to it. These soaps are made by combining plant extracts, herbal oils, and essential oils. The research additionally endeavours to produce distinct herbal soaps tailored to meet the specific needs of each individual's skin type, hence optimizing skin benefits.

Soap making Term Additives:

[2]. The soap is mixed with ingredients as it is being milled by hand. These elements give the finished bar its distinct traits. An example would be adding more oils to create a highly fatted soap, which adds even more moisturizing qualities and gives the soap a richer, gentler texture.

Antioxidants: Antioxidants are substances that slow down the breakdown of soap by preventing natural materials, such as fruits and vegetables, from interacting with oxygen and going bad.
e.g. vitamin E oil.

Antiseptics: Substances that inhibit the growth of bacteria on living tissue and in the product.
Example: Lavender.
Aromatic: Having a fragrant smell and/or taste.

International Journal of Pharmaceutical Research and Applications
Volume 9, Issue 4 July-Aug 2024, pp: 266-272www.ijprajournal.com ISSN: 2456-4494

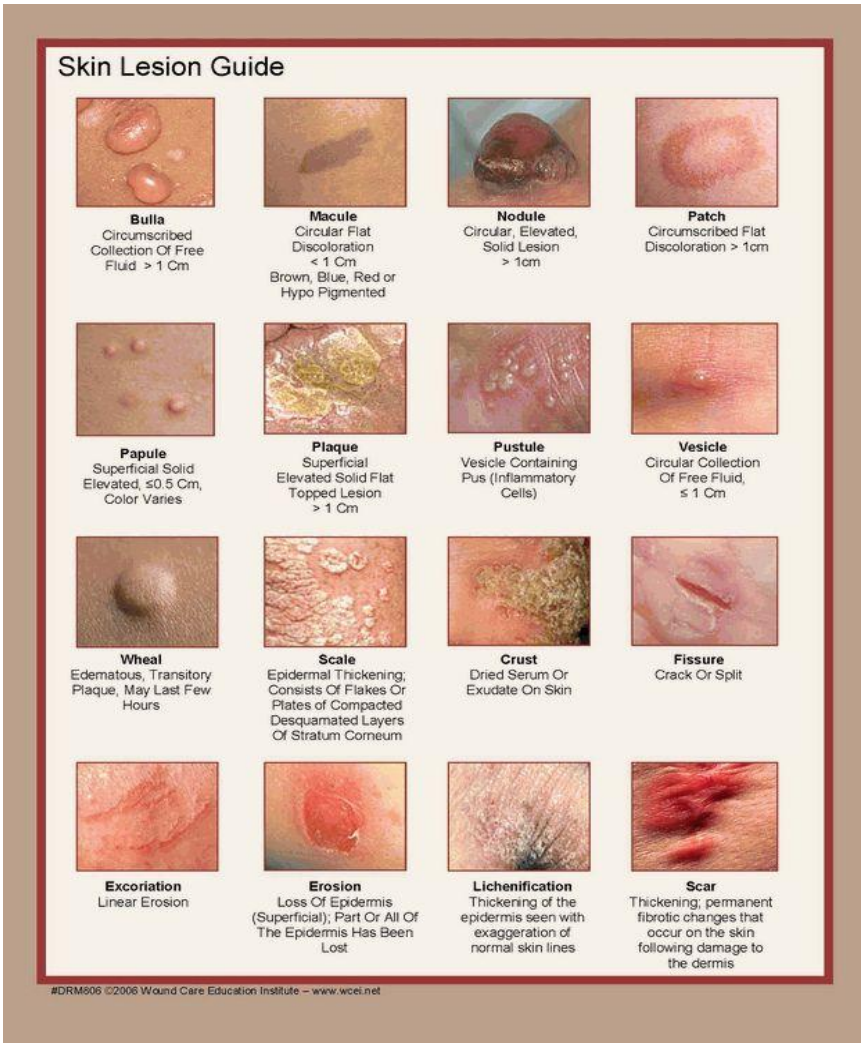
Detergents: A cleanser in which petroleum distillates take the place of natural fats.

Emollients: Ingredients that moisturize the skin, smooth wrinkles, improve elasticity and protect.

A medicine with antibacterial, anti-aging, anti-oxidant, and antiseptic qualities is herbal soap preparation. It primarily employs plant parts—such as seeds, rhizomes, nuts, leaves, flowers, and pulps to treat illnesses or injuries and promote overall health. There are no artificial colorants, flavourings, fluorides, or other additives in herbal soap. Herbs are natural products that are often used to treat a wide range of illnesses and skin issues because of their great medicinal value, affordability, accessibility, and compatibility.

Most Common Diseases:

[3]. The most prevalent skin conditions include urticaria, dry skin, eczema, acne, rashes, and psoriasis. Special skin problem and Herbal remedies contains the list of herbal remedies used for certain skin problems. Everyone in the world is familiar with soap as a typical cleaning agent. Soap is defined differently by numerous sources. Any water-soluble salt of fatty acids with eight or more carbon atoms can also be referred to as soap. Soaps are made for several uses, including cleaning, bathing, medicating, and more. Soap is typically used with water for cleaning because of its affinity for oil and grease in the hydrocarbon chain and its affinity for water in the carboxylic group.



International Journal of Pharmaceutical Research and Applications
Volume 9, Issue 4 July-Aug 2024, pp: 266-272www.ijprajournal.com ISSN: 2456-4494

II. LITERATURE REVIEW:

Sr. No.	Name of Author	Title and Journal name	Abstract	Year
1.	Gulshan Kumar Mishra, RituVerma, Gaurav bhaduka, Rakesh Goyal	Formulation And Evaluation Of Herbal Soap IJIRTEXPLORE	Herbal soap was made by using coconut oil, rose oil, lavender oil, and NaOH (lye), and different extracts were included in the basic saponification reaction.	2023
2.	Raja Kumar, MdShoaib Akhtar, Mansi Gupta	Formulation And Evaluation Of Herbal Neem Soap EPRA International Journal of Research and Development (IJRD)	The formulation of the herbal soap included neem, Aloe Vera, tulsi, and vitamin C The chemical ingredients of neem, also need anti-inflammatory, anti-hyperglycemic, anti-ulcer, anti-malarial, anti-fungal, and antibacterial.	2023
3	GanaManjusha K, Ravii Chandra T BalakrishnaipSyanada R, Mounik N.	Formulation And Evaluation Of Herbal Soap Containing Methanolic Extract Of Three AyurvedicVarnya Herbs Asian Journal Of Pharmaceutical And Clinical Research	This study aims to formulate and evaluate the herbal bath soap using methanolic extracts of three plants having ethnic and dermatological importance in Ayurveda, namely, hemidesmusindicus, cyperusrotundus, and Saussurealappa.	2019
4	MundeGovindAnant , Dr.Hingane L.D , Miss Shinde R	Formulation And Evaluation Of Herbal Soap Using Natural Ingredients International Research Journal Of Modernization In Engineering Technology and Science	The herbal soap was formulated by using leaf of neem, aloe vera, tulsi, vit-c, and tocopheryl acetate ayurvedic cosmetics are very helpful and do not give side effects. Ayurvedic cosmetics are also known as herbal cosmetics anti-inflammatory, antihypertensive.	2021
5	Selvanani M, Surya Prakash R, Siva Shankar D, Subash K, Siva Guru M	Formulation And Evaluation Of Polyherbal Soap World Journal Of Pharmaceutical And Medical Research	The need to achieve and maintain healthy skin is on the rise. This causes the composition of antioxidant soaps with involved synthetic chemicals whose safety on skin and human health is still not known.	2022
6	JanefferLemberg , MessiasBarboza	Formulation Of Anti-Bacterial Soap International Journal Of Pharmaceutical Science	In principle, phytotherapy is the study of medicinal plants and their applications in the treatment and cure of diseases medicinal plants have been in use since antiquity, and their importance.	2020
7	Dr. A Selta, DvSivani	Formulation And Evaluation For Herbal Soap International Journal Of Pharmaceutical Science	Bacterial skin infections are most common among people, requiring significant attention for treatment and also maintaining healthy skin. Some herbal plant extraction and their oils were found to use an antibacterial action.	2021
8	DevipriyaNisha P, Nivetha L, Deepak Kumar	Formulation And Evaluation Of Herbal Soap Using Curcuma	Bacterial infections are most common in humans. The herbs are known to possess various potentials for anti-inflammatory,	2021

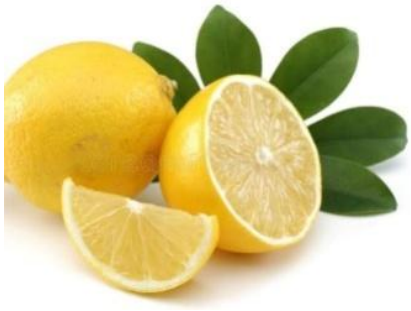
International Journal of Pharmaceutical Research and Applications
Volume 9, Issue 4 July-Aug 2024, pp: 266-272www.ijprajournal.com ISSN: 2456-4494

		Zedoaria International Journal Of Pharmaceutical Scientific	antibacterial, and antifungal properties which have been explored for ages and incorporated into various forms, of human use.	
9	Patel Anu, Patel Anar, Patel Janhanvi, BhuvsarHarmal	Formulation And Evaluation Of Herbal Soap International Journal Of Scientific Research	The aim of our study to develop the herbal hygienic soap by using the cold process method and having an antimicrobial agent. Herbal soap was prepared using coconut oil, castor oil, neem oil, lavender oil, rose oil, and NaOH (lye) and different extracts were included into basic saponification reaction content, foaming index,	2022
10	Pius A. Skiki, HadizaTaninOnyibe, BasiruOlgitan	A Component Study Of Physiochemical Properties And Antimicrobial Qualities Of Abused Moringa Potravinartva Slovak Journal Of Food Science	They are prepared by the saponification process, which is, reacting the oil that contains triglycerides with caustic soda (NaOH) to give the soap. In the present work prepared a total ten numbers of herbal soaps by using guava and neem	2017

III. MATERIAL AND METHOD:

1. Lemon
2. Tulsi
3. Coconut oil
4. Vitamin C
5. Glycerine soap base
6. Rose water
7. Lavender essential oil

1. Lemon



- Lemon act as a anti-bacterial.
- The skin has become lighten more moisturizing by using the Lemon extract.
- Lemon also having moisturizing & whitening properties.

2. Tulsi

- Tulsi having an antimicrobial property.
- Tulsi helps to prevent the acne.
- They also help to prevent hairloss.

3. Coconut oil:

- Coconut oil leaves the skin with a Nourishing property.
- Adding Coconut oil to cold process soap is an excellent method of creating a robuster lather.

International Journal of Pharmaceutical Research and Applications
Volume 9, Issue 4 July-Aug 2024, pp: 266-272www.ijprajournal.com ISSN: 2456-4494

4. Vitamin C:

- Prevent wrinkles.
- Act as a cleansing agent.
- Act as a skin hydration.
- Lighten dark spots.
- Reserve premature skin.

5. Lavender essential oil:

- Antioxidant property.
- Promotes healthy skin & hair

Formulation Ingredients:

Sr. No.	Name of Ingredients	Batch 1	Batch 2	Batch 3
01	Lemon	3 g	3.5 g	4 g
02	Tulsi	3 g	3.5 g	4 g
03	Coconut oil	2 g	1 g	1.5 g
04	Vitamin C	0.1 g	0.1 g	0.1 g
05	Rose water	q.s.	q.s.	q.s.
06	Glycerine soap base	22 g	21 g	20 g
07	Lavender essential oil	1 ml	1 ml	1 ml

- **METHOD**

Add 5 g of lemon powder in beaker

↓

Then add 2g of Tulsi, 3g of Coconut oil, 1.5 g vitamin C, rose water 5 ml and add 0.5g of Benzoin

↓

Then all ingredients mix for 2 to 3 minutes

↓

Extract was incorporated into 22g Glycerine base of melted solution with continuous agitation for 30 minutes until molten mixture became homogeneous

↓

The semisolid mixture was poured into a mould and allowed to solidify

IV. EVALUATION PARAMETERS:

[4, 5]. To verify the efficacy and quality of herbal soap, following physicochemical characteristics were tested viz. color, aroma, pH, clarity, dirt, dispersion, foam height, form retention, skin irritation, saponification value etc.

International Journal of Pharmaceutical Research and Applications
Volume 9, Issue 4 July-Aug 2024, pp: 266-272www.ijprajournal.com ISSN: 2456-4494

The formulations were tested by using following standard methods.

1. **Color:** A white background was used to determine the color and visualize the clarity of soap.
2. **Odor/ Aroma**: Odor or aroma of sample were analyzed by heating the soap sample on a hot plate.
3. **Shape:** Sensory and Visual evaluation of organoleptic properties like shape and clarity was done to obtain correct results.
4. **pH:** The pH or hydrogen ion concentration of the sample was determined by preparing 1% of sample, using buffer solution and using pH meter to take the final pH.
5. **Dirt Dispersion**: 1% of sample solution was prepared and 2 drops of ink are added to the sample which is taken in a straight glass jar. The jar was then shaken and ink was allowed to settle down and foam was noticed.
6. **Foam Forming Ability**: 1 % soap sample solution was prepared and was added to 50 ml water, this was then put in a 10 ml measuring cylinder and the cylinder was then vigorously shaken for more than 10 times. After, shaking for 1 minutes height of the foam was measured and total volume of foam was recorded.
7. **Foam Stability**: 1 % soap sample solution was prepared and was added to 50 ml water, this was then put in a 10 ml measuring cylinder and the cylinder was then vigorously shaken for more than 10 times and after 10 minutes volume of foam was calculated.
8. **Moisture Content**: For, the estimation of moisture content 10 gm of material was heated in hot air oven at 100oC for an hour. After, this the initial weight of sample was deducted from the final weight of the sample. The moisture content was calculated by using following formula.

Moisture Content= (Difference in Weight/Initial Weight)X 100

9. **Skin Irritation Test**: Sample was applied on clean skin to observe any signs of irritability.

Table 1: Evaluation parameters:

Sr. No.	Characters	F1 Formulation	F2 Formulation	F3 Formulation
1	Color	Green	Greenish brown	Dark green
2	Odor	Characteristics	Characteristics	Characteristics
3	Shape	Rectangular	Rectangular	Rectangular
4	pH	6.8	7.0	7.2
5	Dirt Dispersion	Good	Good	Good
6	Foam Forming ability	15	15	16
7	Foam stability	10	12	13
8	Moisture content	10	12	12
9	Skin irritation test	No	No	No

V. RESULT AND DISCUSSION:

The extraction of the constituents of lemon and tulsi was examined, when the created formulation is tested for various parameters, positive results are obtained. It doesn't cause skin irritation.

Additionally, the produced soap was standardized by assessing a number of physical and chemical characteristics including pH Appearance, and odor, all of which showed adequate result. Formulation batch F3 shows best result as compare to F1 and F2.

ACKNOWLEDGEMENT:

We are very thankful to the Principal of SMBT INSTITUTE OF D. PHARMACY and also SMBT Sevabhavi trust, Dhamangaon, Nasik, Maharashtra, India for providing facilities for the research work.

REFERENCES:

[1]. Annapurna J. Pradhan, Prathamesh M. Pukale, Mayuri M. Pukale, Anjali J. Rajbar. Formulation and Evaluation of Herbal Soap. International Journal of Research Publication and Reviews, 2024, Vol 5(5), pp 11322-11340.

[2]. AshleshaGhanwat, Sachin Wayzod and VanjireDivya. Formulation and Evaluation of Herbal Soap. Current Trends in Pharmacy and Pharmaceutical Chemistry, 2020, vol 2(2), pp 21-26.

[3]. Pandey Shivanand,MeshyaNilam, D.Viral. Herbs Play an Important Role in the Field of Cosmetics. International Journal of PharmTech Research, 2010, Vol.2(1), pp 632-639.

[4]. Ranjeet Singh, Satvir Kaur, Dr. Rajesh Gupta and Dalip Kumar. Formulation and evaluation of herbal soap. World Journal Of Pharmacy And Pharmaceutical Sciences, 2023, Vol 12(6), 772-783.
[5]. ShiviBhasin, Arvind N. Shukla, Shristi Raj, SusmitaNath and Rushaan Abdulla. Formulation And Evaluation Of Herbal Soap. European Journal Of Pharmaceutical And Medical Research, 2023, 10(10), 474-483.