Formulation And Evaluation of Anti Tanning Poly Herbal Soap Using Papaya

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Abstract-

Excessive sun exposure leading to tanning is a common concern in dermatology, prompting the exploration of natural remedies for skin protection. This abstract delves into the efficacy of anti-tanning herbal soap formulations in preventing and reversing the effects of sun-induced pigmentation.

Most of the commercial soaps contains chemicals that can be harmful to the skin. Use of nature Herbal soap can be a good alternative. Herbal products have become an item of global importance both Medicinally and economically and usage of herbal products has increased, their safety and efficacy. The aim and objective of the present study is to formulate Anti tanning poly herbal Bath soap using. The prepared Polyherbal soap were evaluated for various physicochemical parameters Such as ph, foam retention time for which good results were observed. The easy availability of plant and their Effectiveness on skin helps manufacturers with cost-effective benefits, easy availability and with less or no Side effects. Because some herbal Plant extracts have Antitanning properties, the goal of this research is to Make an Antitanning poly herbal bath soap using Carica Papaya, and curcuma longa.The polyherbal Formulation was prepared then evaluation for the analysis of pH, foam height, foam retention time, Soap solution comparing with standard was done .Also the evaluation tests showed that the herbal soap Studies suggest that regular use of anti-tanning herbal soap not only prevents further darkening of the skin but also aids in fading existing tan lines and hyperpigmentation. The gentle cleansing action of herbal soap removes dead skin cells, facilitating the penetration of active ingredients and promoting skin renewal.

Keywords: Cosmetics, Herbal, Soap, Formulation, Anti Tanning.

Published in IJIRMPS (E-ISSN: 2349-7300), Volume 12, Issue 3, May- June 2024

❖ INTRODUCTION [4]

Skin infections brought on by harmful bacteria and the transmission of skin hygiene Preventing infectious infections is crucial. This poly herbal soap contributes to a decrease in the spread of infectious diseases linked to healthcare. Throughout history, traditional medicine has made use of plants possessing therapeutic properties. Many medical conditions have been treated naturally with a range of extracts from the stems, roots, and leaves of different medicinal plants. Despite the fact that synthetic substances have replaced many plant-based treatments, ayurvedic remedies still have superior efficacy and safety. The safety and efficacy of ayurvedic products have not been established, and many plant-based medications have been supplanted by synthetic drugs. Compared to chemical therapies, herbal cures are more successful.

1. SKIN ANATOMY AND PHYSIOLOGY [6]

The outer surface of the body is covered by skin or skin membrane. It is the largest organ in the body by weight and surface area. Regulation of body temperature, acting as a blood reservoir, protection of the environment, skin sensation, secretion and absorption and vitamin D production are all functions of the skin.

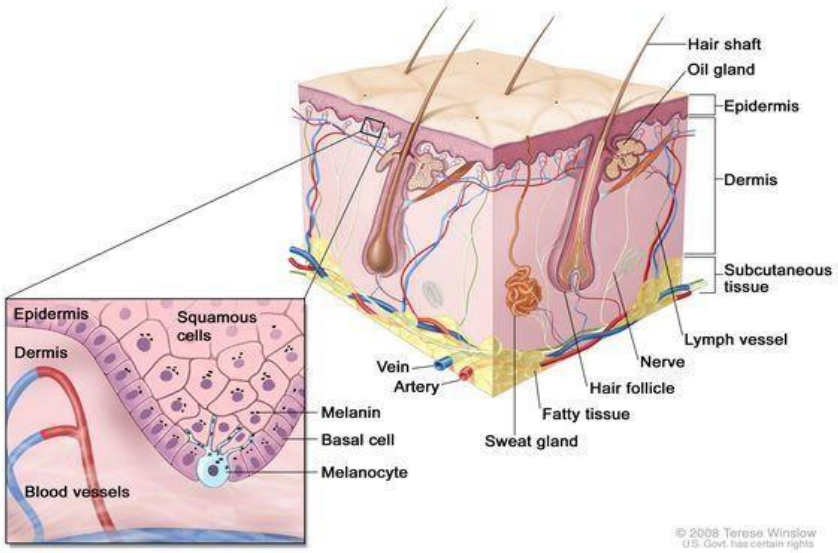

Figure.1: Anatomy of the skin

The skin is the area of the body most exposed to environmental pollutants, sunlight and some pathogens. Eczema, warts, acne, rashes, psoriasis, allergies and other diseases that often affect the skin. Staphylococcus aureus (S. aureus) is a gram-positive bacterium that can develop as a commensal organism on the skin, nose and throat. Aureus. colonises asymptomatically in about
30% of healthy individuals. From mild skin infections to abscesses, endocarditis, and sepsis, S. aureus can cause a variety of illnesses. aureus is a main cause of nosocomial infections and a significant contributor to food poising brought on by heat resistant enterotoxin .

Figure.2 skin infection

Figure.3: skin infection

Hand cleanliness is crucial to preventing the transmission of infectious diseases and protecting the skin from harmful bacteria. Many of the chemical antiseptics are currently offered in the market as products containing chlorohexidine, alcohol-based sanitizers, etc.
However, they have some drawbacks or negative effects. This poly herbal soap or solution helps prevent healthcare-associated transmission of contagious diseases more efficiently.
Since the beginning of time, people have used plants with therapeutic properties as a form of traditional medicine. Various medicinal plants' leaves, stems, and roots have been used as a natural cure to treat a variety of maladies and afflictions. The safety and effectiveness of ayurvedic products could not be matched, despite

the replacement of numerous plant-based treatments by synthetic compounds. Compared to chemical treatments, herbal medications have less adverse effects and are more affordable and easily accessible. As a result, significant progress has been made in developing natural goods that are superior to chemical ones in terms of quality, cost, and side effects.8However, their systematic usage as herbal soap, either alone or in combination, can become easier if these compounds are separated from herbs. Tea, soy, flax, tomato, ginseng, garlic, turmeric, neem oil, fenugreek, and other herbs are all incredibly healthy. utilizing plant extracts like Curcuma longa, Azadirachtaindica, and Allium sativum, we created herbal soap. The leaf extract in aqueous form demonstrates a range of pharmacological effects, including anti-bacterial, anti-fungal, and anti-inflammatory activity.1A solid soap recipe included the extract with the best antibacterial and antioxidant properties.

The Allium sativum (garlic) is utilized in the treatment of pulmonary disorders as a carminative, expectorant, stimulant, and disinfectant. There is antibacterial action in allicin. Almost every component of the neem tree has medical use. Neem-based products are used in traditional medicine to treat conditions like cancer, cardiovascular disease, diabetes, and even skin infections. Neem kernel oil is beneficial for some ulcers and chronic skin conditions. According to reports, the oil has antifungal, antiseptic, and antiasthmatic properties. Neem oil, or Azadirachtaindica, is widely used in Ayurveda, Unani, and homoeopathic treatment and has a broad spectrum of antibacterial activity. Traditional uses for the rhizome of curcuma longa (turmeric) include antibacterial and insect repellent properties. Numerous investigations have confirmed curcumin's broad-spectrum antibacterial action.

2. SOAP [1]

Typically, a mixture of sodium salts of different natural fatty acids makes up soap.

- **DIFFERENT METHODS OF MAKING SOAP**

A. MELT AND POURED SOAP

Technically speaking, all homemade soap is called "glycerin soap." Many commercial soaps have had their surplus glycerin removed. Thus, there is a significant proportion of glycerin in all handcrafted soap. Usually, more glycerin is added to the clear soap to make a bar that is more nourishing and moisturizing. Here, "humectant" means glycerin. It hydrates skin; the theory goes that if you wash with glycerin soap, a thin layer of the soap will stay on your skin and draw moisture in. You may purchase large blocks of clear soap foundation that need to be melted down, colored, and scented before pouring the mixture into molds. The ease of usage of melt and pour soap manufacture is contributing to its increasing popularity. This strategy takes into account all factors.

B. COLD-PROCESS SOAP

Fatty acids are found in all oils, and cold process soap is made with sodium hydroxide (lye). In order to make cold process soap, sodium hydroxide and water must react chemically. It is a demanding, durable quality method.

C. HOT PROCESS SOAPS

There are various variations of the cold process approach. Put all the components into a pot and place it over a heat source, such as a stove, to make hot process soap. The excess water is being drained off as the soap is processed through its various steps.

D. REBATCHING SOAPS

Rebatching is an additional technique for making cold process soap, which is also referred to as triple milled or French milled soap. Grind the materials and mix them with a little liquid in a kettle to make your own cold process soap.

DRUG & EXCIPIENT PROFILE :

1. PAPAYA LEAVES[17]
BIOLOGICAL NAME : Carica Papaya
BIOLOGICAL SOURCE : Theis indigenous to Central America and the South of Mexico. It is commonly grown in the subtropical and tropical regions and cultivated in many countries worldwide.
FAMILY:- Caricaceae
PART USED : Leaves
USES : Antitanning
CHEMICALCONSTITUENTS: alkaloids,glycosides,tannins,saponins,

Figure.4. Papaya leaves

2. TULSI[1]
BIOLOGICAL NAME- Ocimumtenuiflorum**.**
BIOLOGICAL SOURCE : Tulsi consists of fresh and dried leaves of Ocimum sanctum Linn.
FAMILY:-Lamiaceae
PART USED- leaves.
USE : Anti – viral
CHEMICAL CONSTITUENTS : oleanolic acid, rosmarinic acid, ursolic acid eugenol, linalool, carvacrol

Figure.5. Tulsi

3. ALOE VERA[1]
BIOLOGICAL NAME : Aloe barbadensis
BIOLOGICAL SOURCE : Aloe is dried latex of leaves of it.

Figure.6. Aloe Vera

FAMILY : Asphodelaceae
PART USED : Leaves
USES : Anti-aging
CHEMICAL CONSTITUENTS : Lupeol, salicylic acid, urea nitrogen, cinnamonic acid, phenols and sulfur.

4. TURMERIC[1]
BIOLOGICAL NAME : Carcuma longa
BIOLOGICAL SOURCE : which originated from India and is currently grown in parts of the world, including Southeast Asia, China, and Latin America
FAMILY:- Zingiberaceae
PART USED : Root
USES : Antibacterial
CHEMICAL CONSTITUENTS : carbohydrates, water, protein,fat,dietary minerals, essential oils, dietary fiber and curcuminoids**.**

Figure.7. Turmeric

5. HONEY[1]
BIOLOGICAL NAME: Apismillifera
BIOLOGICAL SOURCE : From nectar of flowers by honeybees
FAMILY:-Zingiberaceae
PART USED : Root
USES : Antibacterial
CHEMICAL CONSTITUENTS: phenolic and flavonoid

Figure.8. Honey

6 . JASMINE OIL
BIOLOGICAL NAME: Jasminum
BIOLOGICAL SOURCE : the white flowers of the common jasmine plant, also known as Jasminunofficinale
FAMILY:- olive family (Oleaceae)
PART USED : Flowers
USES : Perfume
CHEMICAL CONSTITUENTS :alkaloids, coumarins, flavonoids, tannins, terpenoids, glycosides

Figure.9 .Jasmine

7. SHIKAKAI[1]
BIOLOGICAL NAME: Acacia concinna
BIOLOGICAL SOURCE : It consists the fruits of the plant Acacia concinna Linn**.**
FAMILY:-Mimosaceae
PART USED : Seed
USES : Cleanser
CHEMICAL CONSTITUENTS : Lupeol, spinasterol, acetic acid, lactone

Figure.10. shikakai

8. STEARIC ACID
IUPAC NAME : Octadecanoic acid
OTHER NAMES : Stearic acid
CHEMICAL FORMULA : C18H36O2
MOLECULAR WEIGHT : 284.484 g·mol−1
APPEARANCE : White solid
ODOR : Pungent, oily
USE : Lubricants, softening and release agents

Figure.11. stearic Acid

9. ETHANOL
IUPAC NAME : Ethanol
OTHER NAMES : absolute alcohol, alcohol, cologne spirit, drinking alcohol, ethylic alcohol
CHEMICAL FORMULA : C2H6O
MOLECULAR WEIGHT : 46.069 g·mol−1
APPEARANCE : Colourless liquid
ODOR : wine-like, pungent
USE : solvent

Figure.12. Ethanol

❖ MATERIAL & METHODOLOGY

1. MATERIAL

The drug excipients and equipment's used for the formulation and evaluation studies are listed as follows**:**

Sr. No.	Ingredients	Company name
1.	Mango leaves	From nature
2.	Tulsi	From nature
3.	Soap base	Mihai Ltd.
4.	Alovera gel	Patanjali Ayurveda Ltd.
5.	Turmeric	Local market
6.	Honey	Shree badidynathayurved Ltd.
7.	Jasmine oil	BO International, Wazirpur Industrial Area, New Delhi
8.	Shikekai	Local market
9.	Steric acid	Thermo fisher scientific india Ltd.
10.	Ethanol	Jiangsu Huaxi International Trade, Ltd

Table no. 1 List of Materials

2. METHODOLOGY [1]

Selection of plant :

In the present study, I have selected the plant Carica Papaya (Papaya leaves), Ocimumtenuiflorum (Tulsi).

Collection of plant :

The Carica Papaya (Papaya leaves), Ocimumtenuiflorum (Tulsi) leaves from Saikrupa Institute Of Pharmacy Campus situated in village of Ghargaon, Ahmednagar.

Preparation of Herbarium :
After that we have prepared herbarium of Carica Papaya, for the herbarium the plant specimens are properly dried, pressed & mounted on sheets.

Authentication of herbal plant :
The Carica Papaya (Papaya leaves), Ocimumtenuiflorum (Tulsi) these both herbs was identified and authentified M.J.S collage , shrigonda Dist. Ahmednagar. (Head of department of botany)

Preparation of powder :
The leaves were dried under shade for about 2 weeks and then made into powdered from using mortar and pestle then sieved.

Experimental Work

Identification Test for Carica Papaya [17]
Identification test for Papain present in Carica Papaya
The Bradford method :

Three drops of papain extract was added to 10ml of 20% powdered skim milk

↓

was adjusted to 5.5 using acetic acid

↓

it was incubated at 37°C

↓

Result: Presence of papain in papaya leaf and latex was confirmed By the coagulation of milk

Figure.13. identification test

EXTRACTION OF CARICA PAPAYA

1.By cold maceration method : [3]

Then Carica Papaya (Papaya leaves), Ocimumtenuiflorum (Tulsi), Acacia concinna (shikakai) Carcuma longa (Turmeric) was extracted with ethanol by maceration process 5gm of above
stated powder was taken in conical flask and extracted with 50 ml ethanol for 3-4 days.

Figure.14. Extraction with Ethanol

- **Pre-formulation study of pure drug:**

Pre-formulation is a stage and procedure used to generate stable, secure, and efficient dosage forms by characterizing the physical, chemical, and mechanical properties of novel medicinal substances both individually and when mixed with excipients. Understanding physical attributes may ultimately give rise to a justification for formulation design, establish the necessity of molecular change, or simply serve to confirm that there are no major obstacles to the development of new formulations. As a result, pre-formulation investigations on the received drug sample comprise analyses of the medication's colour, solubility, melting point, determination, and compatibility. Every medicine has an inherent chemical and physical characteristic that was taken into account before pharmaceutical formulations were created.
These characteristics offer the framework for medication combination with medicinal

- **Organoleptic Characteristics:**

Carica Papaya was studied for the organoleptic characteristics such as color, odor and taste.omponents during dosage form manufacture.

❖ **FORMULA FOR POLY HERBAL SOAP**

S.NO	INGREDIENTS	F1	F2	F3	F4	F5	F6	USES
1.	Soap base	83.33%	83.33%	83.33%	83.33%	83.33%	83.33%	Remove dirt from skin
2.	Papaya leaves extract	3.44%	4.44%	5.92%	5.92%	5.55%	5.55%	Antitanning
3.	Tulsi extract	2.47%	2.22%	1.47%	2.22%	1.47%	2.22%	Anti-viral
4.	Alovera gel	2.95%	2.95%	2.95%	2.95%	2.95%	2.95%	Antioxidant, Antibacterial, Anti-aging

5.	Turmeric	1.73%	0.73%	0.73%	0.73%	0.73%	0.73%	Anti-septic, Antimicrobial
6.	Honey	1.47%	1.47%	1.47%	1.47%	1.47%	1.47%	Antibacterial
7.	Shikakai	1%	1.6%	1.33%	1%	0.88%	0.66%	Cleanser
8.	Jasmine oil	0.51%	0.51%	0.51%	0.51%	0.51%	0.51%	Perfume
9.	Stearic acid	0	0.97%	1.11%	1.47%	1%	2.22%	Harding agent
10.	Ethanol	1.47%	1.47%	1.47%	1.47%	1.47%	1.47%	Solvent

Table no 2: Formula of Poly herbal soap.

❖ POLY HERBAL SOAP FORMULATION PROCEDURE: [1]

For making poly herbal soap, place the necessary amount of soap base in a 500 ml beaker and heat it on a water bath without stirring while maintaining the desired temperature. The soap foundation will next be transformed into liquid form. Additionally, add all of the ingredients to the aforementioned mixture. To get the right combination without stirring, bring the ingredients to a boil over a water bath. Then the mixture was poured into the soap molds, which were then frozen for two to three hours. Remove the soap molds from the freezer after a couple of hours, and wait five minutes for the soap to develop.

❖ EVALUATION PARAMETERS [3] :

1. **Physical parameters :**

Colour, shape, texture and state were examined with the naked eye.

2. **Odour:**

The formulation's odour was assessed by rubbing some on the hand and smelling the scent.

3. **pH:**

Using a pH strip and a digital pH meter, the produced soap's pH was measured by first dissolving 1 gramme in 10 ml of water and then comparing the results.

4. **Foam Height:**

A sample of 0.5 grammes of soap was dissolved in 25 ml of distilled water. Then, pour it into a 100 ml measuring cylinder after adding water to make the volume 50 ml. 25 strokes were administered while standing until the aqueous volume reached 50 ml, at which point the height of the foam above the aqueous volume was measured.

5. **Foam Retention:**

A 100 ml graduated measuring cylinder was filled with 25 ml of the 1% soap solution. Hands were placed over the cylinder and it was shaken ten times. For four minutes, the volume of foam was measured at one-minute intervals.

6. **Irritation:**

It involves applying soap to the skin for 10 minutes to irritate it. If there is no irritation, the product is regarded as non-irritating.

7. **Wash Ability:**

We tested how easy it is to wash off soap from our hands using tap water. soap were easy to wash off.

RESULT AND DISCUSSION

Sr. NO	PARAMETERS	F1	F2	F3	F4	F5	F6
1.	Colour	Yellowish brown	Yellowish brown	Yellowish brown	Yellowish brown	Yellowish brown	Yellowish brown
2.	Odour	Aromatic	Aromatic	Aromatic	Aromatic	Aromatic	Aromatic
3	Shape	Round	Round	Round	Round	Round	Round
4	Texture	Smooth	Smooth	Smooth	Smooth	Smooth	Smooth
5	State	Solid	Solid	Solid	Solid	Solid	Solid
6	pH	9.0	9.2	9.0	8.7	9.0	9.2
7	Foam height	2.2 cm	2.5 cm	2.7 cm	2.9 cm	3 cm	4 cm
8	Foam retention	3min11sec	3min15sec	3min17sec	3min25sec	3min32sec	3min 45sec
9	Irritation	Non irritant	Non irritant	Non irritant	Non irritant	Non irritant	Non irritant
10	Wash ability	washable	washable	washable	washable	washable	washable

Table 3: Evaluation parameters of all batches

The poly herbal soap's colour, scent, form, pH, irritability, foam height, and foam retention are all described in the table above. All six formulations were a yellowish brown colour. All six formulations had an aromatic scent. All six formulations had an oval shape. According to evaluation tests, formulation F6 may be the most conventional formulation when compared to other formulations because its pH is 9.2, which is likely close to that of the skin, and it causes no irritation in addition to having foam retention and foam ability that may be much better than those of other formulations.

1. Physical Parameters:

Sr.No	Parameters	F6
1	colour	Yellowish brown
2	odour	Aromatic
3	Texture	Smooth
4	State	Solid
5	Shape	Round

Table 4: Physical parameters of soap

Figure.16. poly herbal soap

2. Irritancy:

Sr. No	Formulation	Irritant Effect	Erythema	Edema
1	F6	Nil	Nil	Nil

Table 5: Irritancy test of soap

3. Wash ability test:

Figure.17.Irritancy test of soap

Sr.No	Formulation	Wash ability
1	F6	washable

Table No-6

4. pH :

Figure.18 pH Of Soap

Sr .No	Formulation	Minutes	Foam hight
1	F6	12 min	4 cm

Table .7 .pH of soap

5. Foam Height:

Table 8 :foam hight of soap

Sr. No	Formulation	pH
1	F6	9.2

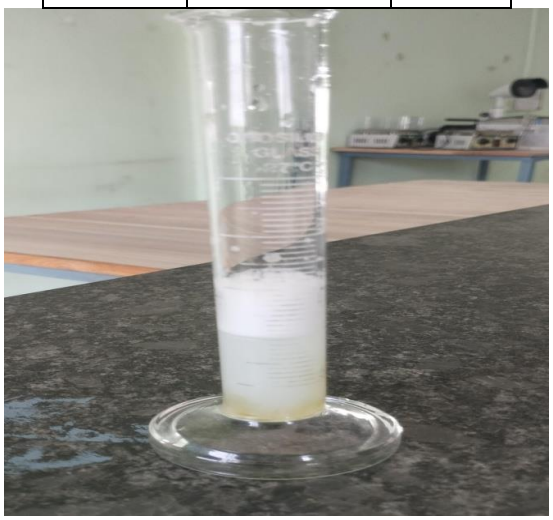

Figure.19: foam hight of soap

6. Foam Retention:

Sr.No	Formulation	Minutes
1	F6	3min 45sec

Table 9: Foam Retention

Conclusion:

The plant Carica Papaya, Ocimum tenuiflorum, Curcuma longa, Allium sativumwere extracted using ethanol and Subjected to various evaluation test according to previous research the antimicrobial activity of Neem was studied. The Prepared formulation when tested for different test gave good results. It does not give any

irritancy to skin it was determined By using these soap by few volunteer hence it is proved that soap does not give any irritancy to skin. Furthermore the Prepared soap were standardized by evaluating various physico chemical properties such as pH appearance odour in which The exhibit satisfactory effect.

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