



"FORMULATE AND EVALUATE THE HERBAL BATH SOAP" USING EXTRACTS OF THREE PLANTS HAVING ETHNIC AND DERMATOLOGICAL IMPORTANCE IN AYURVEDA, NAMELY AZADIRECTA INDICA, CURCUMA LONGA, OCIMUM TENUIAFLORUM "

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ABSTRACT

Formulated and evaluated the Herbal soap by selected ingredients includes two for fragrance and three for skin care. The Herbal soap was formulated by using Naturally Obtained herbs and the extraction of oils was performed without using any chemicals The pH which found for F1, F2, F3, F4, F5 are between 7-9 Which is good pH for skin acceptance Foam height which found for F, F2, F3, F4, F5 are between 3-5 cm. Which shows less foam height compared to standard. Foam retention for F1, F2, F3, F4, F5 are between 3-5 min Shows the good retention. Skin- irritation test proven as No irritation by comparing standard Marketed herbal soap. Total Fatty Matter was found as between 6-10 which indicates good percentage (%). And other evaluations are tested as positive response by comparing with standard marketed Herbal soap

Keywords: Formulate, Evaluate, Azadirecta indica, curcuma longa, ocimum tenuiaflorum

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INTRODUCTION

Herbal preparation called "Phytopharmaceuticals" or "phytomedicine" are preparation made from different parts of the plants. They came in different formulations and dosage forms including tablets, capsules, elixirs, powders, extract, tinctures, ointments, creams and gels. Herbal products in the crude state are also used. A single isolated principle derived from plants such as digoxin and reserpine tablets are not considered as an herbal medicine.

Drugs are chemical compounds and they rarely administered or dispensed to patients in their native forms but are formulated into dosage forms that ensure large scale manufacture, reproducibility of product quality, accurate dosage, predictive therapeutic response, convenience of prescribing and

administration as well as compliance with usage directive by the patient.

Dosage forms vary from the very simple forms such as tablets, capsules, liquid preparations, creams and suppositories to the more complex drug delivery systems such as the transdermal patches and the intravenous pumps. The design, formulation and manufacture of dosage forms entail the use of substances known as excipients or additives which ensure that the characteristic physical features of the desired dosage form are obtained and that the therapeutic performance, safety parameters and stability of the active drug substance are not compromised. Such pharmaceutical ingredients are



MATERIALS ANDMETHODS

Coconut oil, Lavenderoil, Shikakaipowder, Aloe Veraoil, Turmericoil, Tulsi oil, Neemoil
 Roseoil, Soap base(glycerin)

Equipment's:

Clevengerapparatus, Petridish, Burner, Heatingmantel, RBF, Condenser ,Glassrod, Measuringcylinder Funnel

Table No :1 Morphological characters of ingredients: -

S.NO	INGREDIENTS	COLOUR	ODOUR	TASTE
1.	Coconut Oil	Color Less	Sour	Neutral Flavor
2.	Lavender Oil	Color Less	Pleasant	Pungent
3.	Shikakai Oil	Brown	Bitter	Bitter
4.	Aloe vera Leaves	Green	Pungent	Bitter
5.	Turmeric Rhizome	Yellow	Bitter	Bitter
6.	Tulsi Leaves	Green	Bitter	Bitter
7.	Neem Leaves	Green	Bitter	Bitter
8.	Rose Oil	Light Yellow	Little Sweet	Bulsamlo

Directions to Make Soap Base from Scratch

Step 1 – Melt the butters, wax & oils.

- Turn your crockpot or slow cooker on high. Add the wax and butters, making sure the butters are broken up in small pieces first, for ease of melting. Add the coconut oil, and any other liquid oils (like sweet almond) that the recipe callsfor.Cover the crockpot with itslid.

Step 2 – Make the lyesolution.

- After the wax, butters, and oil mixture have been melting for about 10 minutes, start the lyesolution. Wearing gloves and goggles and using proper safe soap making procedures (see Soap making 101), carefully sprinkle the lye into the water, using heavy duty plastic or stainless-steel containers. (Glass can shatter, and aluminum or cast iron can react negatively with the lye, so are notrecommended.)Stir until the lye is completely dissolved. Avoid breathing in the momentary strong fumes and use caution when handling lye. Set the lye solution aside for a few moments in a safe spot, such as your kitchensink.

Step 3 – Blend in arrowroot & zinc oxide, ifusing.

Check the wax, oils, and butters mixture. If needed, use a fork to break up any unmelted bits, to help them melt faster. They may need another 5 or 10 minutes to finish melting.Once those are melted or almost melted, add the arrowroot powder and zinc oxide if using, then blend into the oils with a stickblender.

Step 4 – Combine the lye solution andoils.

- Turn the crockpot tolow. Pour the lye solution into the oils/butters/arrowroot mixture. Using a combination of hand-stirring and brief pulses with your stick blender, bring the mixture totrace.

Step 5 –Cook.

- Cover the crockpot with its lid and set a timer for 15 minutes. Keep an eye on the soap, between the 15 minute intervals, since it may expand up to the top of the crockpot. If that happens, just stir it down until it behaves again.
- After 15 minutes, check the soap and stirit.Set a new timer for 15 more minutes, then check and stiragain.
- Set the timer for 15 more minutes ofcooking.
- At this point, your soap has been cooking for around 45 minutes. You might notice it turning more translucent and Vaseline-like because it's gelling, though it will be harder to see with zinc oxide added to thebatch.
- Because crockpot temperatures vary widely, your soap may reach this stage sooner, or later than 45 minutes. These



photos just show how crockpot runs. Cook for 15 more minutes, for a total of 1-hour cook time

Step 6 – Add the vegetable glycerin.

- Weigh out 14 to 16 ounces of glycerin and stir into the hot soap paste in the crockpot. Mix well. Glycerin is what makes the soap base able to be melted.

Step 7 – Dissolve the soap paste into the glycerin.

- Cook for 20 to 30 minutes, stirring occasionally.
- If needed, sparingly use your stick blender to gently and briefly pulse floating chunks of solid soap so that they blend into the glycerin better. Don't overuse your stick blender here, or you'll get lots of unwanted bubbles and foam on top of your finished soap base. Cook until the soap paste has completely melted into the glycerin. This depends on your recipe and crock pot temperature and might take anywhere from 30 minutes to an hour or longer.

Step 8 – Finishing up.

- Pour the finished soap base into a soap mold and generously spritz the top with alcohol. **Tip:** The mold I used for this project is "Crafter's Choice Regular Silicone Loaf Mold 1501" Leave the soap base undisturbed and uncovered overnight or for 12 to 24 hours, to allow the soap time to completely cool and harden. Remove soap base from the mold.
- If you added zinc oxide to the oils for a whiter soap base, you may notice a thin whiter layer of soap on the top of the soap base. That's normal for these recipes and will melt together nicely when you make your projects.
- As mentioned above in the tips section, I let my soap base cure for a few weeks in the open air before using, but that's optional. You may also use the base right away if you wish!

TABLE:2 FORMULA FOR PREPARATION OF SOAP:

S. No	Ingredients	Activity	F1	F2	F3	F4	F5
1.	Soap Base	Cake formation	65g	65g	65g	65g	65g
2.	Coconut oil	Moisturizer	18ml	18ml	18ml	18ml	18ml
3.	Shikakai	Surfactant	10Drops	10Drops	10Drops	10Drops	10 Drops
4.	Aloevera oil	Anti -oxidant	20ml	20ml	20ml	20ml	20ml
5.	Lavender oil	Fragrant	5Drops	5Drops	5Drops	5Drops	5Drops
6.	Rose oil	Fragrant	5Drops	5Drops	5Drops	5Drops	5Drops
7.	Turmeric oil	Anti-Bacterial	5Drops	5Drops	5Drops	5Drops	5Drops
8.	Neem oil	Anti- fungal	5Drops	5Drops	5Drops	5Drops	5Drops
9.	Tulsi oil	Anti-microbial	5Drops			5Drops	5Drops

PHYTOCHEMICAL TEST:

Phytochemical test for saponins [soapnut]:

Take 5ml of solvent extract in a test-tubes add a drops of sodium bicarbonate, shaken vigorously and kept it stands for 3mins development of cloudy white precipitate indicated that the occurrence of saponins.

Phytochemical test for triterpenoids [lavenderoil]:

Add 2ml of solvent extract 1ml of CHCl₃ followed by 1ml of acetic anhydride in test tube and shake gently. Add 1ml of con. H₂SO₄ added along the sides of the test tube. Appearance of 2 junctions indicated that the occurrence of triterpenoids.

Phyto chemical test for tannins [coconut oil]:-

A cream gelatinous precipitate indicates the presence of tannins.



Ferric chloride test:-1ml of solvent was diluted with distilled water and add 2drops of ferric chloride .A transient greenish to black color indicates presence of tannins.

Phyto chemical test for glycosides:-

Glycoside test-0.5 mg of sample extract was dissolved in 1 ml of water and then aqueous NaOH solution was added. Formation of yellow color indicates the presence of glycosides.

Phyto chemical test for flavonoids:-

Test for flavonoids. The sample solution (1 mL) was taken in a test tube and added few drop of dilute NaOH solution. An intense yellow colour was appeared in the test tube. It became colorless when on addition of a few drop of dilute acid that indicated the presence of flavonoid.

Phyto chemical test for terpenoids:-

Salkowski test was used to detect terpenoids. Extract (5 ml) was mixed with chloroform (2 ml), and concentrated sulphuric acid (3 ml) was carefully added to form a layer. A reddish brown coloration of the inter face was formed to show positive results for the presence of terpenoids.

Phyto chemical test for phenols :-

Compounds with a phenol group will form a blue, violet, purple, green, or red-brown color upon addition of aqueous ferric chloride. This reaction can be used as a test for phenol groups.

TABLE:3 Phyto -chemical parameters: -

Sl. no	Chemical constituents	Coconut oil	Lavender oil	Shikakai powder	Aloeveraleaves	Turmeric rhizome	Tulsi Leave s	Neem Leave s	Rose oil
1.	Alkaloids	+	-	+	+	+	+	+	+
2.	Glycosides	+	-	+	+	+	+	+	-
3.	Tannins	+	+	+	+	+	+	+	-
4.	Flavonoids	+	+	+	+	+	+	-	+
5.	Terpenoids	+	+	-	+	+	+	+	+
6.	Phenol	+	+	+	-	+	+	-	+
7.	Saponins	+	+	+	+	+	+	+	+

METHOD OF PREPARATION OF SOAP: -

Collect all ingredients required for soap which are essential and suitable for preparation of herbal soap. which are extracted from crude leaves and rhizome foe turmeric oil.Place the requirements on the table includes: -burner, stirrer, dropper, measuring cylindersoap mold, soap base, gloves mask necessary while doing fragrance soaps and essential oils which have to be added.Now, pour the soap base into bowl and wait for 5 mins to melt completely. Add required essential oils to it based on formulas we prepared i.e.F1,F2,F3,F4,F5. Whereas F1&F2 for fragrance and remain formulas for medicinal activity (skin care).Now mix the content well and stir it for some time until complete homogeneity appears.Remove the bowl from the heat and pour the mixture into molds. Here only silicon molds preferred due to their heat acceptance and will not melt for even over heat and it is easy to take out from molds.After some time by concluding whether the mixture turn into solid shape or not .Now remove the soap samples from mold gently to avoid errors.Herbal soap was formulated now, evaluate it to know their uses and acceptance

FORMUALTED SOAPS:



Fig.No:1 Formulated soaps mold



FigNo:2 Formulated soaps mold



EVALUATION TEST:

- ❓ **pH:**
Take 1 gm of soap sample & dissolve it in 10 ml of water and take the p^H paper and test the p^H range of sample.
- ❓ **Foam Retention:**
1% of soap solution i.e., 25ml taken in 100 ml measuring cylinder now cover with hand & shake for 10 minutes. The volume of foam at 1 min intervals for 4 min was recorded
- ❓ **Foam Height:** 0.5g of sample in 25 ml distilled water. Transfer to 100ml measuring cylinder make the volume to 50 ml with water and shake 25 strokes and keep it aside for few minutes the foam height above the aqueous volume was measured
- ❓ **Determination of percentage of free alkali:**
5gms of sample in 50 ml alcohol and boil for 30 minutes and titrate with 0.1N HCL.
- ❓ **Alcohol Insoluble matter:**
Take 5gms of sample in conical flask add 50ml of warm ethanol shake it until it completely dissolves. Filter with 20 ml warm ethanol & dried it at 105^oC for 1 hr now note the dried paper
- ❓ **TFM (TOTAL FATTY MATTER):**
Take 10 grams of sample in 150ml of distilled water add 20ml of 15% H₂SO₄. Solidify it by 7gms of bee's wax and heat again now allow it to cake formation & remove to dry & weigh to made
- ❓ **Moisture content:**
Weigh the sample and dried it from 100 to 115^oC using a drier now cool the sample by using formula.
Formula:
Percentage Moisture Content = $\frac{\text{Initial Weight} - \text{Final Weight}}{\text{Initial Weight}} \times 100$
- ❓ **Saponification:**
It can be determined by back titration of potassium oxide in presence of phenolphthalein indicator with 0.5N



sulfuric acid. First a sample is mixed with 25 ml of alcoholic solution of KOH and left for 1 hour in steam bath to react.

Foam forming ability:

For the determination of the herbal soap for its ability to form foam about 1.0 grams of 50ml in a 100 ml graduated measuring cylinder. The measuring cylinder then shaken for about 2-3 minutes and it was allowed for about 10 mins. Foam height was measured after 10 minutes. Record the observation for 3 consecutive experiments and the mean was taken.

Skin Irritation test:

Wash your skin properly then apply the soap sample on skin and observe the any irritation or burning, itching i.e., symptoms..

RESULT & DISCUSSION:

The formulation and evaluation of herbal soap performed and the Phyto - chemical test were performed to selected ingredients our results show the presence of alkaloids, flavonoids, terpenoids, glycosides, phenols, saponins, tannins. Presence of alkaloids shown and used for inflammation. presence of flavonoids used as anti- oxidant protection. Terpenoids cause the fragrance by leaves presence of glycosides helps for the foam formation. presence of phenol can act as anti- fungi and helps to kill bacteria. saponins can act as detergent which helps for foam formation. Tannins can act as Anti- inflammatory. According to all these aspects, we have selected these ingredients for preparation of Herbal soap. These Phyto- chemical screening results show the beneficiary for skin. And evaluation tests which we have done includes pH, Foam retention, Foam height, Alcohol insoluble matter, Alkali Free matter, Colour , saponification ,Skin- irritation.

TABLE:3 Evaluation parameters: -

S. NO	PARAMETERS	F1	F2	F3	F4	F5
1.	Ph	7.3	7.0	7.2	7.0	8
2.	FOAM RETENTION	3.0	3.5	3.0	3.3	3.5
3.	FOAM HEIGHT	2.5	3	2.7	3	3.2
4.	PERCENTAGE FREE ALKALI	2	2	2.1	2.3	2
5.	ALCOHOLINSOLUBLE MATTER	18	15	16	15	18
6.	TOTALFATTY MATTER	40	55	58	56	45
7.	MOISTURE CONTENT	6	7.5	7	8	10
8.	SAPONIFICATION					
9.	FOAMFORMING ABILITY	3	3.5	2.7	3	3
10.	SKIN IRRITATION	-	-	-	-	-

TABLE:4 Phyto -chemical parameters: -

Sl. no	Chemical constituents	Coconut oil	Lavender oil	Shikakai powder	Aloevera leaves	Turmeric rhizome	Tulsi Leaves	Neem Leaves	Rose oil
1.	Alkaloids	+	-	+	+	+	+	+	+
2.	Glycosides	+	-	+	+	+	+	+	-
3.	Tannins	+	+	+	+	+	+	+	-
4.	Flavonoids	+	+	+	+	+	+	-	+
5.	Terpenoids	+	+	-	+	+	+	+	+
6.	Phenol	+	+	+	-	+	+	-	+



7.	Saponins	+	+	+	+	+	+	+	+
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The pH which found for F1, F2, F3, F4, F5 are between 7-9 Which is good pH for skin acceptance Foam height which found for F, F2, F3, F4, F5 are between 3-5 cm. Which shows less foam height compared to standard.Foam retention for F1, F2, F3, F4, F5 are between 3-5 min Shows the good retention. Skin- irritation test proven as No irritation by comparing standard Marketed herbal soap. Total Fatty Matter was found as between 6-10 which indicates good percentage (%).And other evaluations are tested as positive response by comparing with standard marketed Herbal soap

CONCLUSION: -

The conclusion of Formulated and evaluated the Herbal soap by selected ingredients includes two for fragrance and three for skin care. The Herbal soap was formulated by using Naturally Obtained herbs and the extraction of oils was performed without using any chemicals. As per our tests i.e. Evaluation parameters and Phyto- chemical parameters were shown good result for use of soap. By the conclusion we are trying to formulate the medicated herbal soap to be certified for publish in the market.

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