



Fabrication And Valuation Of Poly Herbal Soap Via Utilizing A Variety Of Herbal Extracts

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Abstract: The main objective of our study to develop and evaluate polyherbal hygienic soap by using different herbs which is fulfilled with different activities such as anti-ageing, anti-wrinkles, anti-inflammatory, anti-acne, anti-bacterial etc. Our polyherbal soap prepared by using the soap base compose of coconut oil, palm oil, safflower oil, glycerine, sugar, sodium hydroxide (lye), and different extracts such as extract of *Brassica oleracea var. Capitata* (Cabbage), *Azadirachta indica* (Neem), *Rubia cordifolia* (Manjistha), as well as *Cassia fistula* (Garmalo) and essential oil jasmine which were incorporated into the basic saponification reaction. We subjected the soap for the evaluation after prepared and we studied the parameters such as appearance, pH, physical evaluation, foam height, foam retention, high temperature stability. Furthermore, this formulation showed no redness, erythema, and irritation during the irritation study. Our polyherbal soap showed significant different activities. Based on results we can suggest that formulation was stable and can be safely use on the skin.

Keywords: Polyherbal soap, *Brassica oleracea var. Capitata*, *Azadirachta indica*, *Rubia cordifolia*, *Cassia fistula*

I.INTRODUCTION

Our body's external surface is being covered by skin or cutaneous membrane. Surface area and weight wise its largest organ of the body. The skin regulates the different functions such as body temperature regulation, blood reservoir, provide protection from external environment, cutaneous sensation, excretion and absorption, synthesis of vitamin D. The most exposed part to the sun light, environmental pollution and to some pathogens is skin. The list of most frequently appear skin disorders are eczema, warts, acne, rashes, psoriasis, allergy etc.[1, 3]

Since prehistoric times herbal medicines, plant products, and extracts, are imitative for its utilisation. Since the existence of mankind as functional foods, medicines, cosmetics, dyes as well as in prevention, cure and treatment of various diseases the plants comprised with different pharmacological active properties are in utilize. The extracts produced by roots, stems, leaves, flowers possessing medicinal properties which act as a natural remedy for the disease or ailment.[4]

For the maintain and enhance the enthusiasm of skin the soaps are one of modern era cosmetics. For the washing and maintaining the body by use of soap was first time mentioned by Galen. Currently present some chemical soaps can frequently causes the dryness and skin irritation. Due to the efficacy on topical disorders the popularity of herbal-based soap is increasing. [5] The most commonly soap making were taken from animal and nature; many industries and peoples made soap by using the animal fats with lye. On the current day soap is fabricate with fats and an alkali with a most common method cold process also some peoples make soap using historical hot process.[6]

The definition of hygiene if as maintenance of cleanliness practices which carries utmost importance of health. The most common mode of transmitting the microorganism are hands. Hand washing is absolutely important precaution to prevent the spreading of contagious diseases. There are many chemically based market products are available of which frequent use can lead to irritation of skin also resistant among pathogen. For centuries plant extracts and products have been used in traditional medicine, functional foods, etc. In compare to chemical products main merit of natural source is that they are available easily, cheap, and harmless. [7, 9] there are many polyherbal or monoherbal soap with different plant extracts such as *Aloe vera*, *Cassia fistula*,), *Azadirachta indica*. [10, 12] but in present study we have prepared and evaluate polyherbal soap using different plant extracts.

The aim of present study to prepare polyherbal soap using the extract of *Brassica oleracea var. Capitata (Cabbage)*, *Azadirachta indica (Neem)*, *Rubia cordifolia (Manjistha)*, as well as *Cassia fistula (Garmalo)* and to evaluate the parameters such as appearance, pH, physical evaluation, foam height, foam retention, high temperature stability so that it can further standardized and used commercially. [13, 17]

II. MATERIALS AND METHODS

2.1 Materials

The active ingredients are collected from different sites and local market. *Brassica oleracea var. Capitata (Cabbage)* extract was obtained from flipkart. *Azadirachta indica (Neem)* extract, was obtained from Patanjali store. *Rubia cordifolia (Manjistha)* bark, was used by us which was already available in our institute of which we made extract. *Cassia fistula (Garmalo)* liquid extract was obtained from online website namely addressed as shoaphealthy. Jasmine essential oil was ordered from amazon.com.

2.2 Preparation of *rubia cordifolia (manjistha)* bark extract

We ordered spray dried extract of *Brassica oleracea var. Capitata (Cabbage)*, and *Azadirachta indica (Neem)*. Which are fine in nature and have great solubility in every solvent. So, we directly intended both the extract in formulation of soap: whereas, *Rubia cordifolia (Manjistha)* bark are firstly converted into the powder after that the powder was taken to prepared a hydroalcoholic extract of *Rubia cordifolia (Manjistha)*. *Rubia cordifolia (Manjistha)* weighed sufficiently and mixed with 100:100 ml water and alcohol respectively in clean and dried beaker, then transfer the mixture present in this beaker into round bottom flask (RBF), then place condenser on the top of RBF and fit tubes to condenser for inlet and outlet of water. Applied the heat using proper heating source for 2 hours continuously. After 2 hours dissembled the whole assembly and take out the mixture from RBF, then filtered the mixture and collected filtrate is further put for evaporation till they get converted to gel form. The material collected on the upper side on filter paper is reused for the extraction by using same method till material become colourless.

2.3 Preparation of soap base

Table 1: Formulation of soap base

Sr. No.	Ingredients	Quantity
1.	Distilled water	30 gm
2.	Sodium hydroxide (NaOH)	13 gm
3.	Palm oil	24 gm
4.	Coconut oil	29 gm
5.	Safflower oil	24 gm
6.	Glycerine	16 gm
7.	Sugar	20 gm
8.	Distilled water	14 gm

2.3.1 Procedure for soap base

The lye solution was made by taking sodium hydroxide (13 gm), in distilled water (30 gm), into a non-metallic pan and applied heat below 50°C temperature till the clear solution was achieved and then cool the solution. The solution of oil and fat was made in which palm oil, coconut oil, and safflower oil were heated at low temperature with occasional stirring and the previously prepared lye solution was added to it. Then place the lid on the apparatus and allow the soap base mixture to bake for several hours (around 3 to 5 hours) until it begins to get pellucid. Now add glycerine in it. Let the soap base to bake, covered and sealed, for around half an hour. The sugar solution was formulated, in which sugar completely dissolved in the water at lower temperature. After half an hour sugar solution was gently added to the previous mixture, then clear the foam

produced over the surface and pour the soap base solution into the mould carefully. Then allowed it to get solidified at room temperature.[2]

2.4 Preparation of polyherbal soap

Table 2: Formulation of polyherbal soap

Sr. No.	Ingredient	Quantity	Uses
1.	Soap base	85 gm	-
2.	<i>Brassica oleracea var. Capitata</i>	2 gm	Anti-Inflammatory Anti-Oxidant
3.	<i>Azadirachta indica</i>	3 gm	Anti-Bacterial Anti-Oxidant
4.	<i>Rubia cordifolia</i>	2 gm	Anti-Acne Anti-Oxidant
5.	<i>Cassia fistula</i>	5 drops	Anti-Parasitic Anti-Oxidant
6.	Essential oil (Jasmine)	4 drops	Flavouring agent

2.4.1 Procedure for polyherbal soap

To fabricate soap, we take the required amount of soap base in a beaker and adjust and maintain the temperature at 45°C for providing heat to the soap base via using water bath without stirring. Then the soap base will get converted into the liquid form. Then add all the material mentioned above table. Boil the mixture at 45°C using water bath to achieve proper mixture in the absence of stirring. Then mixture poured into the soap mould and allow to cool the soap on room temperature up to 2-3 hours. After 2-3 hours soap will be eventually formed.

2.5 Evaluation parameters

2.5.1 Organoleptic evaluation

By the sensory and visual inspection organoleptic evaluation (colour and clarity) was done

2.5.2 Determination of pH

The pH of all the prepared formulations was determined by using digital pH meter. The formulations were dissolved in 100 ml of distilled water and collected for two hours. The estimation of pH of formulation was carried out using previously calibrated pH meter.

2.5.3 Foam Height

0.5 grams of sample of soap is taken and dispersed in 25 ml distilled water. then, transferred it in to 100ml measuring cylinder; volume made up to 50 ml with water. 25 strokes were provided and allow to stand till aqueous volume estimated up to 50 ml and determined the foam height, above the aqueous volume.

2.5.4 Form Retention

25 ml of the 1% soap solution was taken in to a 100 ml graduated measuring cylinder. The cylinder was hooded with hand and off shaken 10 times. The foam volume at every 1 minute intermission for 4 minutes was recorded.

2.5.5 High temperature stability

Soap was allowed to stand at 50°C for 7 days. The stability of soap was observed during this period. The sample which was homogeneous and stable after standing was indicated as stable and the sample in which the crystals were roughened and the sample in which precipitation was caused; then the sample was said to be as unstable.

2.5.6 Irritancy Test

The soap solution is prepared and applied on the specific body area. This area is than kept under observation for 24 hrs to conduct irritancy test.

III. RESULT AND DISCUSSION

The organoleptic parameters of polyherbal soap such as colour, order, appearance as well as pH were performed. The formulation possesses a dark green colour, aromatic order as well as good and uniform appearance. Now the pH was found to be 7.4 which is desired pH other parameters like form height, form retention and irritancy test were also successfully performed.

Table 3: Physicochemical properties of polyherbal soap formulation

Sr. No	Parameters	Result
1.	Formulation	Soap
2.	Colour	Dark Green
3.	Odour	Aromatic
4.	Appearance	Good
5.	pH	7.4
6.	Form Height (cm)	3 cm
7.	Form Retention (cm per min)	1 cm per minute
8.	High temperature stability	45 °C
9.	Irritancy Test	Nil

IV. CONCLUSION

The *Brassica oleracea var. Capitata* (Cabbage), *Azadirachta indica* (Neem), *Rubia cordifolia* (Manjistha) and *Cassia fistula* (Garmalo) were selected for the preparation of poly herbal soap. These herbal ingredients showed significant activities such as, moisturizing, anti-aging, anti-acne, anti-inflammatory, anti-bacterial, etc. This soap is further standardized by evaluating various physicochemical parameters such as pH, foam height, foam retention as well as irritancy test. Based on the results, we can suggest that the formulation can be safely used to achieve the above listed activities. All the parameters of our formulated product nearly matching to range of the standard market products.

V. ACKNOWLEDGEMENT

The authors would like to thank Dr. Ravi Patel, Principal Shree Swaminarayan College of pharmacy, Kalol for his constant support to our department.

VI. CONFLICT OF INTEREST

The authors declare no conflict of interest.

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Figure:1



Figure:2



Figure:3



Figure:4



Figure:5



Figure:6



Figure:7



Figure:8



Figure:9

Figure no:1 Soap base

Figure no:2 *Brassica oleracea var. Capitata (Cabbage)* extract

Figure no:3 *Azadirachta indica (Neem)* extract

Figure no:4 *Rubia cordifolia (Manjistha)* extract

Figure no: 5 *Cassia fistula (Garmalo)* extract

Figure no: 6 Essential oil (Jasmine)

Figure no: 7 Mould containing soap

Figure no: 8 Poly-herbal soap formulation

Figure no: 9 Packed Poly-herbal soap

