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Formulation and Evaluation of Polyherbal Body Cleanser

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ABSTRACT:
"The majority of commercial Cleanser contain ingredients that may hurt skin. Natural Polyherbal Cleanser can be a good substitute. In terms of medicine and commerce, Polyherbal products have gained relevance on a global scale, and their use has grown due to their efficacy and safety. The most common skin infections in people are caused by bacteria, require careful attention for treatment, improved skin preservation, and maintenance of healthy, youthful-looking skin. Some Polyherbal plant extracts have properties that are antimicrobial, antibacterial, anti-inflammatory, anti -itching etc.The current study's goal is to create antibacterial poly Polyherbal bath Cleanser using ingredients like coconut oil, azadirachta indica, ocimumtenuiflorum, tinospora cordifolia, acacia concina and rose water. Good results were seen when the manufactured PolyPolyherbal Cleanser was tested for several physicochemical parameters like pH. and foam retention time. Plants are easily accessible, have positive skin effects, and provide producers with advantages in terms of cost-effectiveness, accessibility, and side effects that are minimal or non-existent.he purpose of this research is to create an antibacterial Polyherbal bath Cleanser using azadirachta indica, ocimumtenuiflorum, tinospora cordifolia, acacia concina because some Polyherbal plant extracts have antibacterial qualities. After the polyPolyherbal formulation was created, it was evaluated for pH, moisture content, foaming index, foam retention duration, ethanol soluble matter, and antibacterial activity, spreadability, permeability using various Cleanser solution concentrations and comparing them to standards. Additionally, the assessment tests revealed that the Polyherbal Cleanser has good antibacterial outcomes".

Keywords: Polyherbal cleanser, tusli, neem, shikakai

I. INTRODUCTION:

Cleanser are fatty acid salts of sodium or potassium that are water soluble. Contrary to how the phrase is typically used, Cleanser are manufactured by chemically processing fats and oils with a potent alkali. Cleanser is excluded from the restrictions of the food medicine and cosmetics act. The majority of commercial Cleanser on the market now contain chemical ingredients with possible depilatory effects on skin pathogens and antibacterial action. Cleanser are thought of as a necessary disinfectant in regular hygiene practise.Cleanserare sodium-or potassium-soluble in water. [1]

Cleanser are cleaning agents that can be solid, liquid, semi-solid,or powder. They are used to remove dirt, dust, microorganism stains, foul odours, and other impurities from surfaces in order to maintain health, beauty, and odour-free skin. Due to the disadvantages of conventional Cleanser, people are now gravitating more towards Polyherbal Cleanser. Unlike commercial products, Polyherbal Cleanser don't contain artificial flavours, colours, or other additives. the high therapeutic efficacy of plants. The benefits of Cleanser include smooth skin, a thick lather, protection against skin disorders, the treatment of skin infections, and gentleness on the skin. [2]

A key natural supply antibacterial,bacteriocidal antioxidant anti-aging, property of the azadirachta indica, ocimumtenuiflorum, tinospora cordifolia. The neem plant and coconut, Tulsi Giloy, Shikakai, Ritha are having huge pharmacological activity that can help to replace the synthetic chemical Cleanser and provide chemical free Polyherbal Cleanser for better hygiene and somehow antibacterial,bacteriocidal antioxidant anti-aging with natural odour and flavours. [3]

As Polyherbal products are in demand than synthetic products,following are some of the benefits of Polyherbal products: - [4]

- ✓ Lesser Side effects

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- ✓ Better safety and efficacy
- ✓ Easily available
- ✓ Better compatibility with additives
- ✓ Potent therapeutic effect.
- ✓ Cost-friendly
- ✓ Greater are for selection
- ✓ No requirement of animal testing
- ✓ Better compatibility with all types of skin

Skin is the part of the body which is susceptible to various microorganisms which leads to skin related disorders. Therefore, to protect the skin there is a need for cleanliness and hygiene in the exposed part of the body to protect our skin against various microorganisms. The better and efficacious way is to use Cleanser to remove all the foreign particles present in our body. It helps in cleaning the skin also with anti-microbial properties. Various micro-organisms such as Staphylococcus aureus, pseudomonades., Klebsiella pneumonia and Proteus vulgaris being the causative agents for various skin infections. [5]

Cleanser are defined as the cleaning 1343 agents–solid, liquid, semisolid powders which help in removing dust, dirt, micro-organisms, stains and for maintaining health and beauty. [6] Thefree fatty acids when reacted with an alkaline base by the process of saponification comprises of a Cleanser. Fatty acids such as lauric acid, palmitic acid, stearic acid help in imparting washing property of Cleanser. [7]

The origin of the basic Cleanser can be traced back to the Egyptians when an alkaline plant was mixed with animal fats for the generation of crude Cleanser. Polyherbal Cleanser have gained importance in the recent years which include the extracts of various plant extracts incorporated in to the basic Cleanser reaction. [8] It is reported that Polyherbal antimicrobial Cleanser have been reported to have about 60-80% of the property to inhibit the growth of micro-organisms. Production natural as well as handmade Cleanser have been a total artistry work involving various factors such as skill, ingredients, creativity and thoughts tend to produce a quality Cleanser.

Qualities of Cleanser are:

- ✓ Ability of lather producing
- ✓ Color of the Cleanser
- ✓ Fragrance of the Cleanser
- ✓ Moisturizing ability
- ✓ Compatibility of the skin
- ✓ Storage Stability

Polyherbal Cleanser can be defined as fatty acids in combination with alkali salts being derived from vegetable or plant origin containing natural fragrances or organic ingredients. The method of preparation is by two processes – hot process and cold process which involves the presence of base such as potassium hydroxide and sodium hydroxide along with the fatty acids to form Cleanser. Cold process is usually preferable process by the artisans. The quality of the Cleanser is dependent on various factors such as type of alkali used, its hardness, foam height, solubility etc. [9]

Various types of oils are used depending upon the properties they impart such as: Olive oil, Castor oil, Sunflower oil, Palm oil,Rice bran oil, soybean oil etc. Additivesinclude anti-oxidants which help in suppression of the oxidation of fatty acids in the Polyherbal Cleanser bar. For instance: Rosemary extracts, tomatoes, fruits etc. Fragrance and colouring agent are also included (Burke, 2005). The aim of this study is to formulate an antimicrobial Polyherbal Cleanser containing various extracts incorporated into one.

1.1 DRUG PROFILE

The Polyherbal ingredients used for this formulation of Polyherbal bath Cleanser is neem, coconut oil, tulsiritha, giloyshikakai .

A. NEEM:

Common known name: Neem
Botanical name: Azadirachta Indica
Family: Meliacea
Part of the plant used: Leaves
Chemical constitutes: Nimbin, Azadirachitin
Property: Antibacterial, Antioxidant
Uses: Skin diseases septic source and infected burn.

Neem has been well known for its medicinal values in the ancient country. From the leaf to root. Neem tree drew attentionof natural products chemists by Ayurveda. During the last five decades considerable progress has been achieved regarding the biological and medicinal activities. Its origin is mainly in the southeastern Asia commonly in Bangladesh, India, Pakistan andNepal. Various parts the plant such as leaves, barks, fruits, seeds and roots have developed the properties of antibacterial, antimicrobial, antipyretic etc.

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Fig.no.1.1 : Neem plant

Werner Fabret in their study tested the extracts ofAzadirachtaindicaagainst 150 strains of bacteria from 7 different bacteria.The minimum inhibitory concentration reached by 50% and 90%of the strains for the extracts ofA. indica (stem bark). Because of the crucial role. Aindicain antibacterial activity further studieshave also been carried out. For a preliminary study it has beenfound that beta sitorol a phytochemical found inA. indicahas a rolein strengthening the immune system. Beta carotene inA. Indicaiswell known for anti-bacterial property functioning against bothgram positive and gram-negative bacteria.

B. TULSI:
Common known name: Tulsi
Botanical name: Ocimum Sanctum
Family: Lamiacea
Part of the plant used: Leaves
Chemical constitutes: linalool, eugenol, citral
Property: Antibacterial, Antioxidant
Uses: insect bite, natural cleanser .

Tulsi is the realm of Ayurveda. Inferable from its antibacterial, antifungal and calming properties, Tulsi benefits the skin by forestalling zits and skin break out.It is an aromatic perennial plant of the family lamiaceae. It is native to the Indian subcontinent. Tulsi is cultivated fopreligious and traditional medicine purposes and also essential oil.


Fig.no. 1.2: Tulsi plant

The medicinal plants are widely used by the traditional medicinal practitioners for curing various diseases in their day-to-day practice. In traditional system of medicine, different parts (leaves, stem, flower, root, seeds and even whole plant) of Ocimum sanctum Linn. have been recommended for the treatment of bronchitis, malaria, diarrhea, dysentery, skin disease, arthritis, eye diseases, insect bites and so on. The O. sanctum L. has also been suggested to possess anti-fertility, anticancer, antidiabetic, antifungal, antimicrobial, cardioprotective, analgesic, antispasmodic and adaptogenic actions. Eugenol (1-hydroxy-2-methoxy-4-allylbenzene), the active constituents present in O. sanctum L. have been found to be largely responsible for the therapeutic potentials. The pharmacological studies reported in the present review confirm the therapeutic value of O. sanctum L. The results of the above studies support the use of this plant for human and animal disease therapy and reinforce the importance of the ethno-botanical approach as a potential source of bioactive substances.

C. GILOY:
Common known name: Giloy, Guduchi, Gurbel
Botanical name: Tinospora cordifolia
Family: Menispermaceae
Part of the plant used: Bark (Powder)
Chemical constitutes: Giloin, Tinosporan acetate
Property: Antioxident,antimicrobial
Uses: Combating pimples,dark spots, and fine lines.


Fig.no.1.3: Giloy

Natural products with medicinal value are gradually gaining importance in clinical research due to their well-known property of no side effects as compared to drugs. Tinospora cordifolia commonly named as “Guduchi” is known for its immense application in the treatment of various diseases in the traditional ayurvedic literature. Recently the discovery of active components from the plant and their biological function in disease control has led to active interest

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in the plant across the globe. Our present study in this review encompasses.

D. Shikakai

Common known name: Virala, sari, dipta
Botanical name: Acacia,Concinna
Family: Mimosaceae
Part of the plant used: Fruit
Chemical constitutes: Giloin, Tinosporan acetate
Property: Antioxident,antimicrobial
Uses: Combating pimples,dark spots, and fine lines.

Fig.no.1.4: Shikakai

Acacia concinna Linn. (Leguminosae) is a medicinal plant that grows in tropical rainforests of southern Asia and the fruits of this plant are used for washing hair An attempt has been carried out in respect to the authenticity and assay of Shikakai (Acacia Concinna Linn.) fruit. Present paper reports on pharmacognosy, physico-chemical parameters including the Thin Layer Chromatography of fruit. The result shows the presence of saponin cavity in mesocarp, stone cells in pericarp region, pitted vessels were observed. The phytochemical analysis of the prepared sample by implementing organoleptic, microscopic, physicochemical, preliminary phytochemical screening and quantitative estimation shows 8.04 % then after Chromatographic study to ensure suitable parameters for its quality control.

II. MATERIAL AND METHODS

Table 1.1: Material Required for Formulation of PolyPolyherbal Body Cleanser

S.N.	INGREDIENTS	F1	F2	F3
1	COCONUT OIL	23.86	29.82	35.79
2	SODIUM HYDROXIDE	4.77	5.96	7.15
3	SODIUM LAURYL SULFATE	2.38	2.97	3.57
4	GLYCERIN	2.38	2.97	3.57
5	AZARDIRACHTA INDICA	0.95	1.19	1.43
6	OCIMUM TENUIFLORUM	0.23	0.29	0.35
7	TINOSPORA CORDIFOLIA	0.23	0.29	0.35
8	ACACIA CONCINA	0.47	0.58	0.71
9	SAPINDUS MUKOROSSI	0.71	0.88	1.06
10	STEARIC ACID	0.23	0.29	0.34
11	ETHANOL	1.19	1.48	1.79
12	SOFT PARAFFIN	0.16	0.2	0.24
13	TRIETHANALOAMINE	2.38	2.97	3.57
14	ROSE WATER	Q.S.	Q.S.	Q.S.

PROCEDURE :

- Weigh 23.86gm of coconut oil in 100ml beaker and heat theoil for 5 min in water bath.
- Solution of sodium hydroxide is added to the oil and is stirredunder homogenizer for 8-10 minutes.
- 2.38gm Sodium lauryl sulfate solution is added to the solutionand is continuously stirred for 2 minutes.
- Add 2.38gmglycerin and stir it for 2-8 minutes.
- Further add all the Polyherbal drugs to the solution:-Neem powder (0.95gm), Tulsipowder (0.23gm)
- Add the mixture of giloy (0.23gm), shikekai (0.47gm) and reetha(0.71gm)
- Stearic acid (0.23gm) is added to the solution for hardening.
- Add (1.19gm) ethanol and soft paraffin (0.169gm) and stir it for5-8 minutes.
- Triethanolamine (2.38gm) is added to the solution as anemulsifier and is stirred to form a thick paste.Further rose water (q.s) is added.
- The mixture is kept under homogenizer for 30 minutes untilmolten mixture becomes homogenous.

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- The semi-solid mixture is poured into mold and allowed tosolidify

Fig 1.5: Formulation of body cleanser

III. EVALUATION PARAMETERS:

3.1 Physical Appearance

Physical parameters define the physical characteristics ofthe formulation. It generally discusses the Clarity and colour of the formulation. Following are the result of the formulation. The physical appearance of the Cleanser was fine. Clarity is not transparent. The odour of the Cleanser formulation was soothing.

3.2 pH:

Cleanser is always alkaline with a safe ph range. Anything aboveph 11 is too harsh for the skin and will cause irritation. Anythingbelow ph 6 will have no cleansing property. The pH of the preparedformulation was determined by using digital pH meter. Theformulation were dissolved in 100ml of distilled water and storedfor 2 hours. It was calibrated by pH meter

Fig.No.1.6: pH test of formulation

3.3 Foam height :

0.5gm of the sample of Cleanser was taken dispersed in 25mldistilled water. Then transferred it into 100ml measuring cylinder,volume was shaken up to 50ml with water. 25 strokes were givenand stand till aq. Volume measured up to 50ml and measured thefoam height above the aqueous volume.

Fig.No.1.6: Foam height test of formulation

3.4 Foam retension:

25ml of the 1% Cleanser solution was taken in to a 100ml graduated measuring cylinder. The cylinder was covered with hand and shaken 10 times. The volume of foam at 1 minute intervals for 4 min was recorded

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Fig.No.1.6: Foam height test of formulation

3.5 Cell permeability:

The Franz Cell system is designed to imitate the behavior of actives and formulations when applied to skin. Test sample is placed in contact with a membrane and the rate of transfer is determined by collection of the permeate on the other side of the membrane. The use of Franz diffusion cell to assess skin permeability has evolved into a major research methodology, providing key insights into the relationships between skin, drug and formulation.

Fig.No.1.7: Franz diffusion test of formulation

IV. RESULT AND DISCUSSION :

The physicochemical parameters of the prepared Cleanser were determined. Parameters such as colour, odour, appearance characteristics as well as the pH were found in the range of 7.0 which is the desired pH. Other parameters such as foam height and foam retention were determined and showed good result.

The Cleanserhows good compatibility without any significant changes. The prepared formulation showing good physical characteristics. Onthe basis of evaluation studies the formulation provides excellentfoaming property:

S.N.	Evalution parameter	Readings
1.	pH	7.95
2.	Foam index	5.5 CM
3.	Foam retention time	10 min

V. CONCLUSION:

Polyherbal Cleanser are significantly superior than most of the conventional Cleanser available in the market. Polyherbal Cleanser serves as a good choice for people of all age with skin that is reactive to most synthetic chemical products. Naturally plants produce much number of secondary metabolites, these compounds show huge medicinal value, so undoubtedly can be used. A. indica is an important medicinal herb and extensively used in Ayurveda, siddha, Unani and traditional medicine. Fruit, roots, bark, leaves, fruit and flowers are used in the drug preparation. Historically neem was used in ethnobotanical purpose. The neem Cleanser contains the antibacterial and anti-microbial properties and thus is ecofriendly. Thus, it is safe and effective and can be used on wider basis. The result used for the development of Polyherbal Cleanser formulation can be useful commercially.

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