

A Research on Formulation And Evaluation of Herbal Soap

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Abstract- The aim of our study was to develop the polyherbal hygienic soap by using cold process method and evaluate antimicrobial potential by agar Well diffusion method. Soap was prepared using coconut oil, Almond oil, Glycerine, Aloe Vera gel, Coffee powder, Vitamin E capsule, Glycerine soap base.

Nosocomial infection has been recognized as a crucial issue in the outcome of hospital care, with Significant morbidity and mortality results. The primary routes of infection transmission to patients Are the hands of health-care workers. This also evokes utilization of antiseptics for hand-washing Purposes. Many of the antiseptics commercially available are sanitizers dependent on alcohol that Have certain shortcomings or harmful effects. Bacterial skin infections are most common amongst people, requiring significant attention for treatment and also for maintaining Healthy skin. Some herbal plant extracts and their oils were found to have antibacterial activity. The aim and objective of the present Study are to formulate and evaluate anti-bacterial herbal soap use.

Keywords- Beetroot, Glycerine, coconut oil, turmeric, neem powder, sandalwood, Aloe Vera, vit E capsule.

I. INTRODUCTION

Soap is a mixture of sodium salts of various naturally occurring fatty acids. If the fatty acid salt has potassium rather than sodium, a softer lather is the result. Soap is produced by saponification or basic hydrolysis reaction of a fat or oil. Most commercial soaps contain chemicals that can be harmful to the skin and using a natural herbal soap can be a good alternative. Herbal soaps are made using natural herbs and ingredients that are healthier and beneficial for the skin and are less likely to cause any damaging effect[1] Some of the natural soap manufacturers also use aromatherapy and herbaltreatments to offer the best skin treatment solution for your skin. Made of rare herbs and 100% natural ingredients, herbal soaps are found to be highly beneficial for the skin. The herbs infused in these soaps havetherapeutic and healing characteristics that offer specific benefits to the skin, such as nourishment, strength, healing, and moisturizing. These soaps also contain

super fatty oils, Vitamin E, Aloe, and essential oils that are allied to the goodness of skin and overall health[2]

This therefore evokes utility of antiseptics for hand Cleaning process. Many of the chemicals Antiseptic are commercially available as Sanitizers consisting alcohol, chlorhexidine and So on. These hand-washes help to control Contagious disease transmission associated with Health care more effectively but they produce Diverse effects on prolonged use. Their repeated Application can lead to dermal irritation and also Pathogen resistance. Some of the causative agents for skin infections are species such as Staphylococcus aureus, Pseudomonas Aeruginosa, Bacillus subtilis and Escherichia coli.

Some researchers have shown that growing Resistance in microbes towards chemical Antiseptics has led to severe disease outbreaks. Skin is the most revealed part of the body which is Prone to various foreign particles which may lead to various Skin related disorders. Therefore, in order to prevent the skin From various disorders there is a need for the proper Cleanliness as well hygiene for the most exposed part of the Body and prevent it from pervasive micro-organism spread in The environment thus, preventing various disorders of the Skin .[3]

A natural soap may be generally divided based on the production method into: a melt – pour soap, a hot process soap and a Cold process soap. The hot process soap is called a transparent or translucent soap. The soap has good detergency or cleansing power, Good moisturizing effects, long-lasting fragrance, and less of irritant. Herbal soaps are prepared by adding various dried herbs, flowers And stems into soap base. Herbs are the natural products could be found in the treatment of almost all diseases and skin problems Owing to their high medicinal value, cost effectiveness, availability and compatibility.[4]

Types of soap

Since they are salts of fatty acids, soaps have the general Formula (RCO –) Mn+ (where R is an alkyl, M is a metal and N is the charge of the cation). The major

classification of Soaps is determined by the identity of Mn+ when M is Na or K, the soaps are called toilet soaps, used for handwashing. Many metal di-cations (Mg²⁺, Ca²⁺ and others) give metallic Soap. When M is Li, the result is lithium soap (e.g., lithium Stearate), which is used in high-performance greases [5]

1.Non-toilet soaps

Soaps are key components of most lubricating greases and Thickeners. Greases are usually emulsions of calcium soap Or lithium soap and mineral oil Many other metallic Soaps are also useful, including those of aluminum, sodium And mixtures thereof. Such soaps are also used as thickeners To increase the viscosity of oils. In ancient times, lubricating Greases were made by the addition of lime to olive oil Metal soaps are also included in modern artist oil paints Formulations as a rheology modifier[6]

2)Liquid soap

Liquid soap was not invented until the nineteenth century; in 1865, William Sheppard Patented a liquid version of soap. In 1898, B.J. Johnson developed a soap derived from Palm and olive oils; his company, the B.J. Johnson Soap Company, introduced “Palmolive” brand soap that same Year [7]. This new brand of soap became popular rapidly, and To such a degree that B.J. Johnson Soap Company changed Its name to Palmolive In the early 1900s, other Companies began to develop their own liquid soaps. Such Products as Pine-Sol and appeared on the market, Making the process of cleaning things other than skin, such As clothing, floors, and bathrooms, much easier. Liquid soap Also works better for more traditional or non-machine-Washing methods, such as using a washboard [8]

II. MATERIAL AND METHODS

Plant profile

1)Neem

Neem is a member of the mahogany family, Meliaceae. It is today known by the botanic name *Azadirachta indica* A. Juss. In the past, however, it has been known by several names, and some botanists formerly lumped it together with at least one of its relatives. The result is that the older literature is so confusing that it is sometimes impossible to determine just which species is being discussed[9].Neem has been extensively used in Ayurveda, Unani and Homoeopathic medicine and has become a wonder tree of modern medicine[10].It has been used traditionally for the treatment of

inflammation, infections, fever, skin diseases and dental problems.It is effective in several epidermal dysfunctions such as acne, psoriasis, eczema. Neem leaves have been reported to also possess antihyperglycemic,immunomodulatory,anti-inflammatory,antimalarial,antioxidant,antiviral,antimutagenic and anticarcinogenic[9] properties. Neem also exhibits antibacterial, antifungal, hepato protective, anti-ulcer,anti-fertility and anti-nociceptive activity[10].

2) Turmeric

Turmeric (*Curcuma longa* L.) has been used for centuries to add flavour and colour to food, and features in traditional healing practices from India and China to treat wounds, skin diseases, eye infections, respiratory ailments, dental and digestive disorders[11]. The medicinal properties of turmeric, the source of curcumin, have been known for thousands of years; however, the ability to determine the exact mechanism(s) of action and to determine the bioactive components have only recently been investigated[12].Antioxidant and anti-inflammatory properties are the two primary mechanisms that explain the majority of the effects of curcumin on the various conditions Oxidative stress has been implicated in many chronic diseases, and its pathological processes are closely related to those of inflammation, in that one can be easily induced by another. In fact, it is known that inflammatory cells liberate a number of reactive species at the site of inflammation leading to oxidative stress, which demonstrates the relationship between oxidative stress and inflammation [13].

3)Aloevera gel

The botanical name of aloe vera is *Aloe barbadensis* miller. It belongs to the family of Liliaceae or Asphodelaceae. It is a shrubby, perennial and xerophytic plant and has originated from the Arabian peninsula

Use of aloe vera on the skin is generally not associated with significant side effects.¹

The *Aloe vera* plant has been used for thousands of years to heal a variety of conditions, most notably burns, wounds, skin irritations, and constipation. It is grown in subtropical and tropical locations, including South Africa, Latin America, and the Caribbean. Aloe was one of the most frequently prescribed medicines throughout most of the 18th and 19th centuries and it remains one of the most commonly used herbs in the United States today. However, oral use of aloe for constipation is no longer recommended, as it can have severe side effects

4) Sandalwood powder

Sandalwood oil has a warm, woody odor and is commonly used as a fragrance in incense, cosmetics, perfumes, and soaps. It also is used as a flavor for foods and beverages. The wood has been valued in carving because of its dense character.

In traditional medicine, sandalwood oil has been used as an antiseptic and astringent, and for the treatment of headache, stomachache, and urinary and genital disorders. In India, the essential oil, emulsion, or paste of sandalwood is used in the treatment of inflammatory and eruptive skin diseases.

Sandalwood oil has been reported to have diuretic and urinary antiseptic properties, but clinical trial data are lacking. The oil has mainly been used as a fragrance enhancer.

5) Beet root

beet, (*Beta vulgaris*), one of the four cultivated forms of the plant *Beta vulgaris* of the amaranth family (*Amaranthaceae*), grown for its edible leaves and taproot. Beetroots are frequently roasted or boiled and served as a side dish.

Beetroot comes from the same family as sugar beets. However, it is genetically and nutritionally different. Sugar beets are white, and manufacturers tend to use them for extracting sugar and sweetening processed foods.

You have probably already heard about beetroot skin benefits boosting glow, but what exactly does beetroot do to the skin and do these claims actually work? The truth is beetroots are super nutritious and beneficial for health, but discovering how this kitchen staple works in the skincare spectrum is what we are here to explore.

6) Glycerine

Molecular formula-C₂H₅NO₂

Glycerin is one of the most commonly used substances in cosmetics. Additionally, it's a key component of moisturizers and lotions. Although using glycerin for skin in its purest form is becoming increasingly popular, there are some aspects that customers should know before proceeding. Glycerine can help the skin stay hydrated and protected, **but, if applied to the face undiluted, it could dry out the skin and result in blistering**

7) Coconut oil

The advantages of coconut oil for your body, skin, and hair are well documented in the medical literature. Because they believe it promotes hair growth faster, people apply coconut oil to their scalp and hair and on the skin for a glow. Considering all of its uses and benefits, it is frequently referred to as a "**lifeline of health.**" People are embracing coconut oil in greater numbers these days.

Coconut oil is commonly used in Ayurvedic oil massages to help balance the vata and pitta doshas and promote healthy Kapha. It cleanses your skin of accumulated amatoxins and improves its overall health.

8) Vitamin E capsule

Chemical constituents: tocoferolalpha-santalol, tocoteriods..

Uses : hyperpigmentation and improve skin itching.

Procedure:

Preparation of Glycerine soap base

- 1) Add the lye solution to the plant oils, such as coconut oil.
- 2) Begin to heat the ingredients on the stove or in a slow cooker.
- 3) Add the liquid glycerin and alcohol to the mixture.
- 4) Add sodium lauryl sulphate as foaming agent .
- 5) Once the ingredients fully dissolve, pour the mixture into your mold of choice and allow to cool.

Preparation of herbal beetroot soap

- 1) Give 6g. of neem powder in a beaker then this beaker may be add 2g. Of beetroot 4g. Of aloe vera, 1g. Of vit.E capsule., 1.5g. Sandalwood powder. 1 g rose water 3ml., and turmeric 0.5g then all are mix 2 to 3 min
- 2) The double heat method give for the melting glacerin soap base ,so give span on induction and add some water then small content take in water and add 12g. Of glycerine soap base in the container and it melt.
- 3) After melt base add mix. all ingredient in the melt soap and mix it them finally heat Stop and add lavender essential oil in the preparation solution will be give in small, small container for the shape of the soap.
- 4) Final soap is ready and it paking in the paper.

Neem – antibacterial properties treat acne.

Aloe vera – moisturizer or sunburn.

Turmeric – antimicrobial agents lightning anti wrinkle wound Heald.

Beetroot – Anti inflammatory Properties.

Coconut oil –reduce itching and dry skin

Evaluation :

1)Physical properties

Colour-Dark brown

Odour- Aromatic

Shape-circular

2)Determine the pH

5 to 6 g of the soap was weighted accurately in a 100ml beaker 40ml water was added and dispersed the soap in it. The pH of the solution is determined by using ph meter. PH of soap is 11.

3)Foaming ability and foam stability

Foaming ability was determined by using cylinder shake method brittle 40ml of the formulation soap solution was placed graduate cylinder. It was covered with acne hand and shaken 10 times the total volume of the foam content after 1 min of shaking recovered foam stability was evaluated by recording the foam volume after 1 min and 4 min is 80 to 93/ foam formed.

4)Moisture content

A sample of soap weighing 10g was weighed right away and noted as "wet weight of the sample." Using the appropriate drying equipment, this wet sample was dried to a constant weight at a temperature not to exceed 115 °C. After cooling, the sample was weighed once more to determine its "dry weight." The following equation was used to calculate the sample's moisture content.

$$\% \text{Weight} = \frac{A-B}{B} \times 100$$

Where; % Weight = % of moisture in sample, A = weight of wet

sample (gm), B = weight of dry sample (gm).

III. RESULT AND CONCLUSION

The plant of neem , beetroot, turmeric and aloevera constituents extraction 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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