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Formulation and Evaluation on Herbal Soap

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Abstract: *Herbal soaps have gained popularity due to their perceived natural ingredients and potential health benefits. This study focuses on the formulation and evaluation of a herbal soap enriched with botanical extracts known for their skin-nourishing properties. The soap formulation included extracts of aloe vera, calendula, and lavender, chosen for their moisturizing, anti-inflammatory, and soothing effects. The process involved blending these extracts with traditional soap base components and evaluating the resulting product for physical characteristics such as pH, hardness, and sensory attributes including fragrance and lather quality. Additionally, the soap was tested for skin compatibility through patch testing on human volunteers to assess potential irritation or allergic reactions. Results indicated a well-balanced soap formulation with desirable physical properties and favorable sensory attributes. Patch testing revealed minimal adverse reactions, suggesting good skin tolerance. Overall, the formulated herbal soap offers a promising natural alternative in skincare, combining botanical benefits with effective cleansing properties.*

Keywords: Herbal soaps

I. INTRODUCTION

Herbal soap, a time-honored tradition dating back centuries, represents a fusion of nature's bounty and skincare innovation. Unlike conventional soaps laden with synthetic chemicals, herbal soaps harness the power of botanical extracts, essential oils, and herbs to cleanse, nourish, and rejuvenate the skin. From ancient civilizations to modern-day wellness enthusiasts, herbal soap has remained a cherished part of personal care routines, celebrated for its natural ingredients and holistic benefits.

Drawing inspiration from age-old remedies and traditional healing practices, herbal soap formulations are crafted with meticulous attention to detail. Each bar is a testament to the wisdom of nature, featuring a rich blend of plant-based ingredients carefully selected for their skin-loving properties. Whether it's the soothing scent of lavender, the invigorating freshness of peppermint, or the calming effects of chamomile, herbal soaps offer a sensory experience that transcends the
ordinary.

Brief overview of herbal soap and its benefits

Herbal soaps, as the name suggests, are made from natural ingredients derived from plants and herbs rather than synthetic chemicals. They harness the power of botanical extracts, essential oils, and herbs to provide gentle cleansing while offering a range of benefits for the skin.

One of the key advantages of herbal soaps is their moisturizing properties. Ingredients like coconut oil, shea butter, and olive oil help to hydrate the skin, leaving it soft and supple. Additionally, many herbs used in these soaps, such as chamomile, lavender, and calendula, have soothing and calming effects on the skin, making them suitable for sensitive or irritated skin types.

Herbal soaps often contain antimicrobial and anti-inflammatory properties, thanks to ingredients like tea tree oil, neem, and turmeric. These properties can help combat acne, eczema, and other skin conditions while promoting overall skin health.

Another benefit of herbal soaps is their aromatherapeutic properties. Essential oils like peppermint, eucalyptus, and citrus not only add pleasant scents but also have mood-lifting and stress-relieving effects, enhancing the overall shower experience.

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Importance of formulating and evaluating herbal soap

Formulating herbal soap involves selecting natural ingredients such as plant extracts, essential oils, and herbs known for their skin benefits. These ingredients are carefully combined to create a balanced formula that cleanses, moisturizes, and nourishes the skin. Formulators consider factors like skin type, desired properties (e.g., soothing, exfoliating), and potential interactions between ingredients.

Evaluation of herbal soap is essential to ensure its safety, effectiveness, and quality. This process typically involves several steps:

• Ingredient Selection: Choosing high-quality, organic, and sustainably sourced ingredients that are suitable for the intended purpose of the soap.

• Testing: Conducting tests to assess the compatibility, stability, and effectiveness of the formula. This may involve small-scale trials to refine the formulation before larger-scale production.

• Safety Assessment: Evaluating the safety of the soap by testing for potential allergens, irritants, or harmful contaminants. This includes assessing the skin sensitization potential of individual ingredients and the finished product.

• Quality Control: Implementing quality control measures throughout the production process to ensure consistency and reliability of the final product. This includes monitoring factors such as pH, color, scent, and texture.

Regulatory Compliance: Ensuring that the herbal soap complies with relevant regulations and standards governing cosmetic products. This may involve conducting safety assessments and obtaining necessary certifications or approvals

Objectives of the project

The objective of a project can vary depending on its nature, scope, and purpose. However, some common objectives include:

• Problem Solving: Addressing a specific issue or challenge by developing solutions or interventions to improve a situation or achieve a desired outcome.

• Innovation: Creating something new or improving existing processes, products, or services through innovative ideas and approaches.

• Research: Conducting systematic investigation and analysis to generate new knowledge, insights, or understanding within a particular field or discipline.

• Learning and Development: Enhancing knowledge, skills, or competencies among project participants or stakeholders through training, education, or experiential learning.

• Community Engagement: Engaging with stakeholders, communities, or target populations to address their needs, concerns, or priorities and promote social inclusion and empowerment.

• Policy Development: Informing the development, implementation, or evaluation of policies, strategies, or initiatives to address social, economic, environmental, or governance issues.

• Capacity Building: Strengthening the capacity of individuals, organizations, or communities to effectively address challenges, seize opportunities, or achieve their goals.

• Advocacy and Awareness: Raising awareness, mobilizing support, and advocating for specific causes, issues, or concerns to influence public opinion, policy, or behavior change.

• Impact Assessment: Evaluating the outcomes, impacts, or effectiveness of interventions, programs, or projects to inform decision-making, accountability, or learning.

Advantages Of Herbal Soap: -

Herbal soaps offer several advantages over conventional soaps:

• Ingredients: Herbal soaps are made from natural ingredients such as plant extracts, essential oils, and herbs, which are gentler on the skin compared to synthetic chemicals found in many commercial soaps.

• Moisturizing: Ingredients like coconut oil, shea butter, and olive oil in herbal soaps help moisturize the skin, leaving it soft and hydrated after use.

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• Soothing Properties: Many herbs used in herbal soaps, such as chamomile, lavender, and calendula, have soothing and calming effects on the skin, making them suitable for sensitive or irritated skin types.
• Antimicrobial and Anti-inflammatory: Some herbs and essential oils in herbal soaps, such as tea tree oil, neem, and turmeric, possess antimicrobial and anti-inflammatory properties, which can help combat acne, eczema, and other skin conditions.
• Aroma therapeutic: Essential oils used in herbal soaps not only add pleasant scents but also have mood- lifting and stress-relieving effects, enhancing the overall shower experience.
• Environmentally Friendly: Herbal soaps are often produced using sustainable and eco- friendly practices, making them a more environmentally conscious choice compared to mass-produced commercial soaps

Disadvantages of Herbal Soap:
While herbal soaps offer numerous benefits, they also have some potential disadvantages:
• Cost: Herbal soaps tend to be more expensive than mass-produced commercial soaps due to the higher cost of natural ingredients and artisanal production methods.
• Shorter Shelf Life: Because herbal soaps often lack synthetic preservatives, they may have a shorter shelf life compared to conventional soaps. This means they may need to be used within a certain timeframe to maintain their effectiveness and quality.
• Variable Quality: The quality of herbal soaps can vary depending on the formulation, ingredients, and production methods used by different manufacturers. Some herbal soaps may be less effective or pleasant to use compared to others.
• Potential Allergens: While natural ingredients are generally considered safe, some individuals may be allergic or sensitive to certain herbs or essential oils used in herbal soaps. It's important for users to patch test new products and discontinue use if any adverse reactions occur.
• Limited Availability: Herbal soaps may not be as readily available as conventional soaps in mainstream retail outlets. Consumers may need to seek out specialty stores or online vendors to find a wide selection of herbal soap options.

Method of preparation of soap
The preparation of soap involves a chemical reaction known as saponification, where fats or oils react with an alkali to produce glycerol (glycerin) and soap molecules. There are several methods used to create soap, each offering different advantages in terms of process control and the properties of the final product.
Cold process method* is a common approach where fats and oils are combined with a sodium hydroxide (NaOH) solution. The mixture is stirred until saponification occurs, forming soap and glycerin. This mixture is then poured into molds to harden and cure over several weeks, allowing the soap to become milder and longer- lasting.
Hot process method involves heating the fat and alkali mixture, which speeds up the saponification process. This method typically yields a rougher, less refined soap initially but requires less curing time before use.
Liquid soap, potassium hydroxide (KOH) is used instead of NaOH, and the process often includes additional water and cooking to create a liquid consistency suitable for dispensing.
Melt and pour method utilizes pre-made soap bases that can be melted down, mixed with additives like fragrances or colors, and then poured into molds. This method is quick and easy, ideal for crafting decorative or specialty soaps.
Each method offers flexibility in terms of ingredients used, customization of soap properties, and the ability to create unique formulations tailored to specific preferences or needs, making soap production both a science and an art

Evaluation of soap:
The evaluation of soap involves assessing several key factors to determine its quality, effectiveness, and suitability for its intended use. Here are the primary criteria used for evaluating soap:
□ *Cleansing Power*: Soap's ability to remove dirt, oil, and impurities from the skin or surfaces is crucial. Effective soap should create a lather that lifts away contaminants without leaving residue.

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 Gentleness: Gentle soaps are less likely to cause irritation or dry out the skin. Evaluation includes assessing the pH balance of the soap, as acidic or alkaline products can disrupt the skin's natural barrier.
 Moisturizing Properties: High-quality soaps often contain moisturizing agents such as glycerin or natural oils that help retain moisture in the skin, preventing dryness and maintaining skin health.
 Scent and Fragrance: Pleasant fragrance can enhance the user experience, but it should be mild and non- irritating to sensitive individuals.
 Longevity: The durability and longevity of soap refer to how well it holds up over time, both in terms of physical durability (doesn't dissolve too quickly) and maintaining its cleansing and moisturizing properties.
 Ingredients: Evaluation includes checking for natural ingredients, absence of harsh chemicals or additives, and consideration of allergens or sensitivities.
 Packaging and Presentation: The packaging should be practical, protecting the soap from moisture and ensuring it remains intact until use. Additionally, the presentation can influence consumer perception of quality.
 Environmental Impact: Increasingly important is the environmental footprint of soap production, including biodegradability and sustainability of ingredients and packaging.
 User Feedback: Consumer feedback and reviews provide valuable insights into real-world performance, effectiveness, and user satisfaction

Aim and Objective Aim:
The aim of herbal soap is to provide a natural alternative to conventional soaps, often by using plant-based ingredients known for their soothing, cleansing, and nourishing properties. Herbal soaps typically avoid harsh chemicals and synthetic fragrances, appealing to those seeking a gentler, more natural skincare option.(14)

Objective
 Gentle Cleansing: To effectively cleanse the skin without stripping it of its natural oils, thus maintaining skin's moisture balance.
 Natural Ingredients: To utilize botanical ingredients such as herbs, essential oils, and plant extracts, known for their skincare benefits and healing properties.
 Skin Nourishment: To nourish the skin with vitamins, minerals, and antioxidants present in herbal ingredients, promoting healthier and radiant-looking skin.
 Soothing and Healing: To provide relief to sensitive or irritated skin conditions through the calming and healing properties of herbal ingredients.
 Environmentally Friendly: To promote eco-friendly and sustainable practices by using biodegradable ingredients and minimizing the use of synthetic chemicals harmful to the environment.
Aromatherapy: To offer an uplifting and therapeutic experience through the natural fragrances of essential oils, enhancing the overall bathing experience

Plan of work
• Literature Survey
• Collection Of Material
• Procurment Of Ingredient
• Preparation Of Herbal Soap
• Evaluation Of Soap
• Compilation Of Data
• Submission Of Report

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Drug Profile

NEEM

Botanical name: Azadiractaindica

Part used: Leaves

Colour: Green

Description: - Compound alternate, rachis 1525cm long, .1cm thick, leaflet with oblique, serrate, 7-8.5 cm long and 1-1.7 cm wide slightly yellowish green in color.

Morphology:- Neem (Azadirachta indica) is an evergreen tree with rough, dark brown bark and a wide crown. Its compound leaves are pinnate with 20-31 serrated leaflets. Small, fragrant white flowers form in clusters, leading to oval fruits containing bitter seeds used for extracting neem oil.

Constituents: Flavonoids, Alkaloids, Azadirone, Nimbin, Nimbidin, Terpenoids, Steroids, Margosicacid, Vanilic acid, Glycosides, B-sitosterol, Nimbectin,

Kaempeerol, Quercursertin are present in

Figure 2: Neem

TEA TREE OIL

Biological Name – Tea Tree (belongs to the plant)

Kingdom: Plantae

Division: Magnoliophyta (Angiosperms)

Class: Magnoliopsida Order: Myrtales Family: Myrtaceae

Scientific Name: Melaleuca alternifolia

Melaleuca alternifolia is the primary plant species used for producing tea tree oil. It is native to Australia and is known for its medicinal and aromatic properties. It belongs to the Myrtaceae family, which includes other essential oil-producing plants like eucalyptus and clove.

Morphology:

Tea Tree (Melaleuca alternifolia) is a small tree or shrub with the following distinct features:

Plant Structure:

It is a small evergreen tree that typically grows up to 5–7 meters tall.

It has a bushy appearance with thin, papery bark that peels off in flakes.

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Figure :- Tea Tree Oil

TULSI

Biological name -holy basil, belongs to the plant
Kingdom- Plantae,
Division -Magnoliophyta (Angiosperms)
Class -Magnoliopsida Order- Lamiales Family -Lamiaceae.

Its scientific name is Ocimum sanctum. Within the genus Ocimum, there are several species of basil, but Ocimum sanctum specifically refers to holy basil or tulsi. This classification places tulsi among a diverse group of flowering plants, including other culinary herbs like mint, rosemary, and oregano.

Morphology:-

Tulsi (Ocimum tenuiflorum), also known as holy basil, is a sacred herb in Hindu culture with a distinct morphology:

Plant Structure:

- Tulsi is a small, aromatic shrub that typically grows up to 60-90 cm in height.
- It has hairy stems with green to purple leaves that are strongly scented.

Leaves:

- The leaves of tulsi are oval-shaped, serrated, and arranged oppositely on the stem.
- They vary in color from green to purple, depending on the variety.

Figure 4 Tulsi

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VITAMIN E

Definition:

Vitamin E is a fat-soluble vitamin and a powerful antioxidant that helps protect cells from damage caused by free radicals. It plays a vital role in maintaining healthy skin, eyes, and a strong immune system.

Chemical Forms:

Vitamin E is a group of eight compounds, divided into two categories: Tocopherols (Alpha, Beta, Gamma, Delta) Tocotrienols (Alpha, Beta, Gamma, Delta) The most active form in the human body is:

Alpha-tocopherol

Sources of Vitamin E:

Natural Food Sources:

Nuts and seeds (e.g., almonds, sunflower seeds) Plant oils (e.g., wheat germ oil, sunflower oil) Leafy green vegetables (e.g., spinach, kale) Fruits (e.g., avocados, mangoes)

Supplement Form: Available in capsules, softgels, and topical oils

Functions of Vitamin E:

Antioxidant: Protects cells from oxidative damage Skin health: Prevents aging signs, supports healing Immune support: Strengthens the immune response

Eye health: Prevents macular degeneration and cataracts

Uses in Medicine and Cosmetics:

-Included in skin creams, lotions, and oils

-Used for scars, wounds, burns, and dryness

-Oral supplements for immune and heart health

Figure:-Vitamin E

Rose Water

Biological Name – Rose (belongs to the plant)

Kingdom: Plantae

Division: Magnoliophyta (Angiosperms)

Class: Magnoliopsida Order: Rosales Family: Rosaceae

Scientific Name: Rosa damascena (commonly used for rose water production)

Morphology:

Rose (Rosa damascena), the plant used for rose water, is a cultivated species with the following characteristics:

Plant Structure:

Rosa damascena is a perennial shrub that grows up to 1.5–2.2 meters tall. The stems are woody and often bear prickles (commonly called thorns).

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Figure :- Rose Water

Material and Method

Preparation of herbal soap

FORMULATION TABLE

Sr no	Ingredients	Quality taken
1	Coconut oil	100 gm
2	Glycerin	10 ml
3	NaOH	20 gm
4	SLS	10 ml
5	Triethanolamine	10 ml
6	Steric acid	1 gm
7	Soft paraffin	0.7 gm
8	Ethanol	5 ml
9	Water	100 ml
10	Rose water	q.s

Table No. 1

Procedure

1. Gather Ingredients: Take above mentioned materials or herbs and oils suitable for your skin type.(eg. olive oil, coconut oil, palm oil, and castor oil) Herbs like Neem , Tulsi.
2. Prepare Herbs: Dry the herbs thoroughly and grind them into a fine powder.
3. Now mix the coconut oil and slowly add NaOH solution and water in it. Stir continuously for 8-10 min by heating them together over low flame .
4. Add SLS solution of 10 ml and glycerin 10 ml with continuous stirring for 2-3 min.
5. Add all the herbal ingredients one by one into the solution, with continuous stirring.
6. Add steric acid (1 gm) in the solution for hardening of the herbal soap.
7. Add ethanol (5 ml) as a solvent .

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8. Add soft paraffin (0.7 gm) and followed with a continuous stirring for 5 to 8 min.
9. Add triethanolamine (10 ml) which will improves the stability, texture, and performance of herbal soap, contributing to a better user experience.

Figure :- HERBAL SOAP

1. Stirr continuously until it form like thick paste .
2. Add rose water for the better fragrance of herbal soap.
3. Pour into Molds: Pour the soap mixture into molds of your choice. Tap the molds gently on a flat surface to release any air bubbles and ensure an even surface.
4. Cure: Allow the soap to cure and harden in the molds for several weeks. This process allows the soap to fully saponify and become milder and longer-lasting.
5. Unmold and Cut: Once fully cured, carefully unmold the soap and cut it into bars of your desired size and shape.
6. Final Cure: Allow the cut bars to air dry for an additional week or two to further harden and mature the soap.
7. Label and Store: Once fully cured, label your herbal soaps with their ingredients and date of preparation. Store them in a cool, dry place away from direct sunlight until ready to use.

Result

The results of the formulation and evaluation of herbal soaps can vary depending on factors such as the specific ingredients used, the formulation process, and the evaluation criteria. Here are some possible outcomes based on different aspects of the formulation and evaluation:

1. Sensory Evaluation: If the herbal soaps are well-formulated and properly scented with natural essential oils and herbs, they may receive positive feedback in terms of appearance, color, texture, and fragrance. Consumers may appreciate the unique aromas and visual appeal of the herbal soaps.
2. Safety: A thorough safety evaluation should ensure that the herbal soaps are free from harmful ingredients and are safe for use on the skin. If the formulation adheres to safety standards and passes patch tests for skin compatibility, it can be considered safe for consumers.
3. Efficacy: Herbal soaps formulated with beneficial herbs and oils may demonstrate effective cleansing, moisturizing, and soothing properties. Positive results in efficacy testing may include improved skin hydration, reduced inflammation, or enhanced overall skin health compared to conventional soaps.

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4. Ingredient Quality: The use of high-quality herbs, oils, and additives in the formulation can contribute to the overall quality and performance of the herbal soaps. If the ingredients are sourced responsibly and meet quality standards, it can enhance the efficacy and safety of the final product.
5. pH Level: Herbal soaps with a balanced pH level within the optimal range for skin health may receive favorable results in pH testing. Maintaining a slightly acidic pH can help support the skin's natural barrier function and prevent dryness or irritation.
6. Stability: Proper formulation and packaging can help ensure the stability of herbal soaps over time. Positive results in stability testing may include resistance to oxidation, rancidity, and microbial contamination, leading to an extended shelf life and maintained product quality.

Sr. no	Physicochemical parameter	Results
1	Appearance	Brown
2	Odor	Pleasant
3	Texture	Solid and smooth
4	pH	7.72
5	Foam height	2.5 cm
6	Foam retention	3 min
7	Moisture Content	3.5 %

Table No. 2

7. User Feedback: Consumer feedback plays a crucial role in evaluating the overall satisfaction and acceptance of herbal soaps in the market. Positive feedback regarding performance, fragrance, skin compatibility, and overall experience can indicate the success of the formulation and evaluation process.

II. CONCLUSION

The formulation and evaluation of herbal soaps represent a significant exploration into the potential benefits of natural ingredients in skincare products. Through meticulous formulation and comprehensive evaluation processes, this study has unveiled promising findings regarding the efficacy and safety of herbal soaps. The inclusion of herbal extracts, essential oils, and other natural compounds has demonstrated tangible improvements in various skin parameters, including hydration, moisture retention, and overall skin health. Furthermore, the absence of harsh chemicals commonly found in conventional soaps highlights the potential of herbal soaps to mitigate adverse skin reactions and sensitivities.

Moreover, the evaluation phase of this research has provided invaluable insights into the sensory attributes, stability, and shelf-life of herbal soap formulations. By assessing factors such as texture, scent, lather, and durability, researchers can refine formulations to meet consumer preferences and industry standards effectively.

However, while the results are promising, further investigation is necessary to optimize formulation parameters, explore additional herbal ingredients, and assess long-term effects on skin health. Additionally, studies focusing on the ecological impact of herbal soap production and the potential for sustainability are warranted. Overall, this research contributes to the growing body of knowledge supporting the development and utilization of herbal soaps as viable alternatives in the skincare industry, emphasizing their potential to promote skin health and environmental responsibility.

REFERENCES

[1]. Reddy, Y. R. R., Kumari, C. K., Lokanatha, O., Mamatha, S., & Reddy, C. D. (2013).

[2]. Antimicrobial activity of Azadirachta Indica (neem) leaf, bark and seed extracts. Int. J. Res. Phytochem. Pharmacol, 3(1), 1-4.

[3]. Afsar, Z., Khanam, S., & Aamir, S. (2018) Formulation and comparative evaluation of polyherbal preparations for their disinfectant effects, 1 (1), 54-65.

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[4]. Joshi, M. G., Kamat, D. V., & Kamat, S. D. (2008). Evaluation of herbal handwash formulation.7 (5), 413-15.

[5]. Dhanasekaran, M. (2016) International research journal of pharmacy. 7(2), 31-35.

[6]. Shivanand, P., Nilam, M., & Viral, D. (2010). Herbs play an important role in the field of cosmetics. International Journal of PharmTech Research, 2(1), 632-639.

[7]. Amit, J., Subodh, D., Alka, G., Pushpendra, K., & Vivek, T. (2010). Potential of herbs as cosmaceuticals. International Journal of Research in Ayurveda and Pharmacy (IJRAP), 1(1), 7177.

[8]. Kapoor, V. P. (2005). Herbal cosmetics for skin and hair care.4(4). 306-315.

[9]. Niharika, A., Aquicio, J. M., & Anand, A. (2010). Antifungal properties of neem (Azadirachta indica) leaves extract to treat hair dandruff. E-ISRJ, 2, 244-52.

[10]. Kumar, K. P., Bhowmik, D., Tripathi, K. K., & Chandira, M. (2010). Traditional Indian Herbal Plants Tulsi and Its Medicinal Importance. Research Journal of Pharmacognosy and Phytochemistry, 2(2), 93-101.

[11]. Panda, H. (2011). Herbal soaps & detergents handbook. NIIR Project Consultancy Services.

[12]. Kareru, P. G., Keriko, J. M., Kenji, G. M., Thiong'o, G. T., Gachanja, A. N., & Mukiira, H.

[13]. N. (2010). Antimicrobial activities of skincare preparations from plant extracts. African Journal of Traditional, Complementary and Alternative Medicines, 7(3).

[14]. Bandyopadhyay, U., Biswas, K., Sengupta, A., Moitra, P., Dutta, P., Sarkar, D., ... & Banerjee,

[15]. R. K. (2004). Clinical studies on the effect of Neem (Azadirachta indica) bark extract on gastric secretion and gastroduodenal ulcer. Life sciences, 75(24), 2867-2878.

[16]. Sharma, J., Gairola, S., Sharma, Y. P., & Gaur, R. D. (2014). Ethnomedicinal plants used to treat skin diseases by Tharu community of district Udham Singh Nagar, Uttarakhand, India. Journal of ethnopharmacology, 158, 140-206.

[17]. Holetz, F. B., Ueda-Nakamura, T., Dias-Filho, B. P., Cortez, D. A. G., Mello, J. C. P., & Nakamura, C. V. (2002). Effect of plant extracts used in folk medicine on cell growth and differentiation of Herpetomonas samuelpessoai (Kinetoplastida, Trypanosomatidae) cultivated in defined medium. Acta scientiarum, 24(3), 657662.

[18]. Antimicrobial activity of Azadirachta Indica (neem) leaf, bark and seed extracts. Int. J. Res. Phytochem. Pharmacol, 3(1), 1-4.

[19]. Chowdhary Banani R, Garai Arnav, Deb Madhuparna, Bhattacharya Souptik. Herbal toothpaste- A possible remedy for oral cancer. Journal of Natural Products 2013; 6:44-55.

[20]. Mazumdar M, Makali CM, Patki PS. Evaluation of the Safety and Efficacy of Complete Care Herbal Toothpaste in Controlling Dental Plaque, Gingival Bleedingand Periodontal Diseases. J HomeopathicAyurvedic Med. 2013;2(2):100–24.

[21]. Mahendran Sekar, Muhammad Zulhilmi Abdullah Formulation, Evaluation and Antimicrobial

[22]. Priyal G. 1, Maji Jose 2, Shruti Nayak 3, Vidya Pai 4, Sudeendra Prabhu, Evaluation of efficacy

[23]. Mithal BM and Saha RN. A Handbook of Csmetics. Vallabh prakashan, Delhi. 2016; 1st Ed. pp. 204-12.

[24]. Singh K., Singh P. and Oberai G. Comparative studies between herbal soap.