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FORMULATION AND EVALUATION OF HERBAL LOTION USING COW GHE AND SHAT DHAUT GHRIT

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ABSTRACT

Shat Dhaut Ghrita (SDG) is a traditional Ayurvedic formulation prepared by repeatedly washing cow ghee with water one hundred times, resulting in a smooth, soft, and non-greasy semisolid preparation suitable for topical application. The present study was aimed at the formulation and evaluation of a herbal-based lotion using Shat Dhaut Ghrita as the base along with natural ingredients such as turmeric, lavender oil, vitamin E, rose water, and tragacanth powder. The prepared formulation was evaluated for various pharmaceutical parameters including organoleptic characteristics, homogeneity, spreadability, washability, acid value, saponification value, and antimicrobial activity. The formulation exhibited a smooth texture, good homogeneity, easy spreadability, and acceptable physical appearance. The acid value and saponification value of the prepared Shat Dhaut Ghrita were found to be 0.11 and 25.96, respectively, indicating improved stability and suitability for topical use. Preliminary antimicrobial evaluation suggested inhibitory activity against selected microbial strains. The combined effect of Shat Dhaut Ghrita and herbal ingredients may contribute to moisturizing, soothing, wound-healing, and skin-protective properties. The study concludes that the developed herbal lotion possesses promising pharmaceutical characteristics and has potential application as a natural topical formulation for skincare and wound management. Further clinical and stability studies are recommended to validate its therapeutic efficacy and long-term safety.

KEYWORDS: Shat Dhaut Ghrita, Herbal Lotion, Cow Ghee, Ayurveda, Wound Healing, Antimicrobial Activity, Topical Formulation, Skin Care.

INTRODUCTION

Traditional system of medicine had been completely responsible for the world's healthcare. This approach quickly gained acceptance since it made use of current knowledge in biology and chemistry for both research and therapy, and it today holds a key position in the healthcare industry. Despite this, conventional medical systems still contribute significantly to healthcare. Allopathic medicine's usage of single molecules can have negative side effects. Panchagavya, or five cow-derived products (cow milk, curd, ghee, urine, and dung) mentioned in Ayurveda, play a crucial part in the treatment of diseases. Ayurvedic is quite popular, being practiced throughout the country including tribal and remote areas where other modes of therapies are not readily available.1 Though it lacks the elaborate organizational structure of its modern counterpart, it has a significant impact on meeting the health-care needs of a large portion of India. Clarified butter fat (cow ghee) is washed one hundred times in water to create a traditional Ayurvedic preparation known as Shatdhauta ghrita (100 times washed ghee). This process transforms ghee into a soft, cooling, nourishing, silky unguent that is used as a traditional moisturizer, antioxidant, and anti-wrinkle skin cream.

Shat dhauta ghrita (SDG) is a handcrafted emollient that is excellent for damaged skin. In this review author mainly focused on preparation method of Shatadhauta ghrita, its mechanism, marketed scenario, benefit and need of SDG formulation. According to the review, Shat dhauta ghrita has potential as a topical product for treating skin diseases, but it must be evaluated using modern scientific parameters.2

SDG is act as an excellent cream base, if we incorporate herbal drug or phytoconstituent in the SDG it act as a promising agent in the development of herbal cream.

KEYWORD: SDG, Shat dhauta Ghrita, Ayurveda, Cow ghee, Samskara.

India is a country rich in traditions that connect social rituals and the scientific justifications behind them. A cow is known as a 'Gaumata' or a 'Kamadhenu' in India because of its nurturing nature, similar to that of a mother. 3

Kamadhenu is the name of a sacred cow who is thought to bring about desired results. Panchagavya is a health and medicinal treasure trove.

The importance of using cow milk, ghee, urine, dung, and curd, all of which are referred to as 'gavya,' has been described in the Ayurvedic medical system (i.e, obtained from ‘Gau’ means

cow) for the treatment of a variety of diseases. Each product has unique components and applications in human health, agriculture, and other fields. 'Panchgavya' is a combination of two words: 'Panch' (five) and 'gavya' (water)., which represents five items derived from a cow (Fig. 1). Each 'gavya' has a unique medicinal effect against a wide range of diseases. Panchgavya treatment or therapy is called ‘Cowpathy’, comparable to other pathies (Allopathy, homeopathy, and naturopathy). Each 'gavya' can be used on its own or in combination with other products or treatments. Furthermore, all five products can be used alone or in conjunction with other products of synthetic, herbal, or mineral origin.3

Shata-dhauta-ghrita (SDG) washed cow ghee 100 time with water (shata = one hundred, dhauta = washed). Traditional texts mention it for treating burns, chicken pox, scars, wounds, herpes, leprosy, and other skin diseases, as well as as a vehicle for drugs to be applied externally. The Ayurvedic preparation was evaluated for its physicochemical parameters in the study, and changes that occurred during washing were investigated. An attempt is made to find out the rationale behind washing cow ghee 100 times with water.

The characteristic odour and granular, oily consistency of cow ghee are not present in shata dhauta ghrita, and so it is a homogeneous, smooth, non-oily product that is easier to apply so Patient compliance is thus improved. When compared to the acidic pH value of ghee, the neutral pH of shata dhauta ghrita makes it beneficial by preventing skin irritation.

Because of the smaller particle size of shata dhauta ghrita, the product is non-granular, non sticky, and homogeneous, making it easy to apply to the skin and possibly increasing the rate of absorption through the skin. Washing results in a homogeneous oil-in-water emulsion with better consistency and viscosity, which makes it suitable for use in topical application.

In India, clarified butter is called as Ghrita. Ghrita is the primary type of cooking oil used in all regional cuisines of India. It is also used medicinally and is a component of several Hindu religious rituals. As a result, Ghrita has enjoyed a long history of being well valued for a variety of reasons. Thus, Ghrita has been so highly regarded for so long for so many things. When we say Ghrita, we mostly mean Goghrita (cow ghee). 4

Role of Ghrita as Sneha Dravya in Ayurvedic

Pharmaceutics Ghrita (ghee) is a critical component in Ayurvedic pharmaceutical procedures, serving both as a therapeutic agent and as a lipid vehicle (Sneha Dravya) in formulations. In

Sneha Kalpana, ghrita extracts lipid-soluble active constituents from herbs, transfers the pharmacological properties of the drug into the oil base, and significantly enhances drug absorption [source]. It is widely employed in Avaleha preparations to ensure homogenous mixing and improved mucosal absorption, used in Shodhana (purification) of drugs such as gandhaka and hingui, applied for preservation of guggulu kalpana, and utilized in Bhajana Samskara—where it coats the inner vessel surface during the Sandhana process in Asavarishta preparations. Ghrita also forms part of dosage forms like kruta yusha and kruta mamsarasa.5 Cow ghrita is a rich source of essential fatty acids (omega-3 and omega-9), fat-soluble vitamins (A, D, E, K), beta-carotene, and antioxidants . These constituents support reported benefits including memory enhancement, improvement of lipid profiles, anti-inflammatory and wound healing activities, hepatoprotection, immunostimulation, antineoplastic and antiasthmatic effects, and maintenance of vision and epithelial integrity . Ghrita's melting point (~35 °C) is below normal human body temperature, and its digestibility/absorption coefficient is reported at approximately 96%, the highest among dietary fats, which together facilitate rapid assimilation and efficient delivery of co-administered phytochemicals [source]. Its lipophilic nature enables facilitated transport across lipid-rich cell membranes to target organs and intracellular sites such as mitochondria, microsomes, and nuclear membranes [source]. Clinically, ghrita is co administered with remedial treatments in formulations such as Brahmi ghrita (cognitive function), Vasa ghrita (respiratory system), Shatadhauta ghrita (skin diseases), Bhallatakadi ghrita (wound healing), and Kaamdev ghrita (sexual disorders).

In summary, ghrita's dual role as a bioactive substance and lipid carrier underpins its indispensable use across Ayurvedic dosage forms and processing techniques. Its capacity to extract lipophilic constituents, modulate drug properties, enhance absorption and tissue delivery, and provide intrinsic nutritive and pharmacological effects supports its continued relevance in integrative pharmaceutics and formulation development.

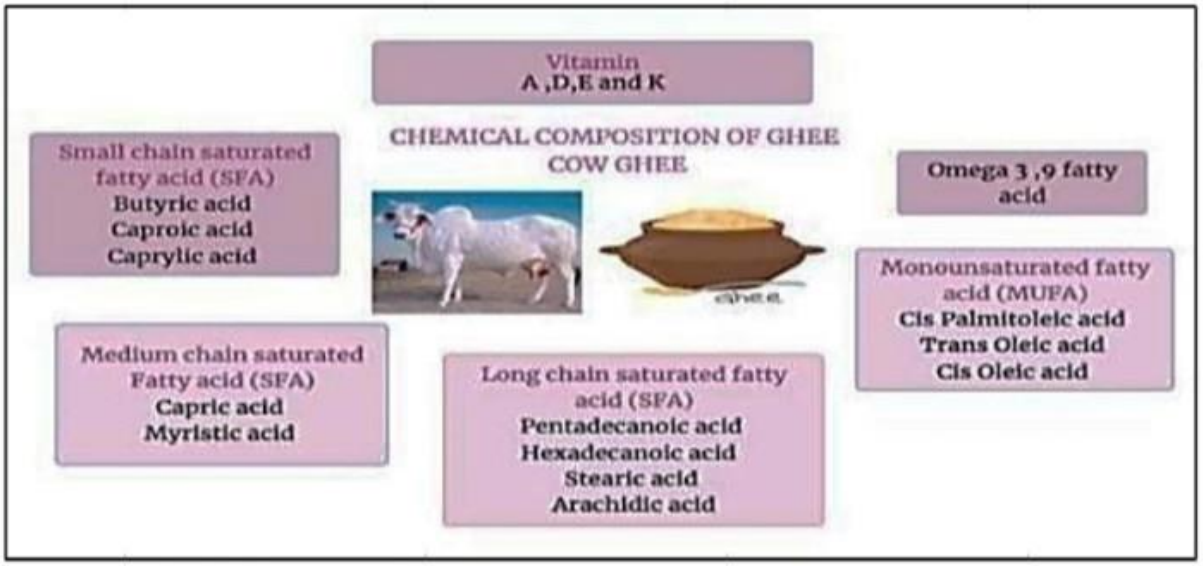

Fig. No. 01: Shata-dhauta-ghrita.

AIM AND OBJECTIVES

AIM: Formulation and evaluation of Herbal based lotion using cow ghee and Shat dhaut ghrit.

OBJECTIVES

- Preparation of Shat Dhaut Ghrit

To prepare Shat Dhaut Ghrit by the traditional Ayurvedic method of washing cow ghee repeatedly with purified water for hundred times in order to obtain a smooth, soft, cooling, and semisolid formulation suitable for topical application.

- Assessment of Pharmaceutical Parameters

To determine various pharmaceutical evaluation parameters such as spreadability, washability, homogeneity, irritancy, and extrudability for assessing the ease of application, patient acceptability, and performance of the formulation.

- Study of Skin Benefits

To evaluate the moisturizing, cooling, soothing, and nourishing effects of Shat Dhaut Ghrit on the skin and to study its role in maintaining skin hydration and reducing irritation and inflammation.

- Therapeutic Application Study

To study the therapeutic potential of Shat Dhaut Ghrit in the management of burns, wounds, cuts, skin irritation, dryness, inflammation, and other dermatological conditions due to its

traditional Ayurvedic healing properties.

- Modern Evaluation of Ayurvedic Formulation

To analyze and validate the traditional Ayurvedic formulation using modern pharmaceutical evaluation techniques and scientific parameters in order to establish its effectiveness, safety, and quality.

- Promotion of Herbal and Ayurvedic Formulations

To promote the use of natural, herbal, and Ayurvedic topical formulations as safer and cost effective alternatives to synthetic skincare and wound healing products

DRUG PROFILE

A. Pharmacogenetic profile of ghee

1. Source and origin Derived from milk fat of:

Cow Buffalo Goat

Yak (traditional Himalayan ghee)

In Ayurveda, cow ghee ("Ghrita") is considered the most medicinally valuable.

2. Organoleptic characters

These are sensory evaluation parameters used in pharmacognosy. Parameter Characteristics

Color

- Golden yellow to pale yellow Odor
- Pleasant, nutty aroma Taste
- Bland to slightly sweet Texture
- Smooth, oily, semi-solid Appearance
- Clear liquid when melted

3. Physicochemical parameters

Used for quality control and adulteration detection. Common pharmacognostic tests include:

Fig. No. 2: Ghee.

- Refractive index Specific gravity Acid value Saponification value Iodine value Peroxide value
- Reichert–Meissl value Polenske value These parameters help determine:

Purity Fat composition Oxidative stability Presence of adulterants

Studies also use FTIR, TLC, GC-FID, and chromatography for authentication.

4. Chemical constituents Major constituents:

- Triglycerides Saturated fatty acids Oleic acid
- Butyric acid Linoleic acid Cholesterol Phospholipids
- Fat-soluble vitamins (A, D, E, K) Minor bioactive compounds: Conjugated linoleic acid (CLA) Tocopherols
- Carotenoid Antioxidants.1

Fig. No. 02: Ghee.

B. Pharmacognostic study of Gulab Jal (Rose Water)

1. biological source

- Prepared from fresh petals of: Rosa damascena
- Rosa centifolia Family: Rosaceae
- Rose water is commonly obtained by: Steam distillation
- Hydro-distillation of rose petals

2. Organoleptic characters Parameter Characteristics Color

- Colorless to pale pink Odor
- Pleasant floral aroma Taste
- Slightly sweet, aromatic Appearance
- Clear liquid pH
- Mildly acidic

Fig No. 3: Rose Water

3. Macroscopic characters of the crude drug (rose petals) Character Description Shape

- Ovate to obovate petals Color
- Pink to deep red Texture

- Soft and delicate Surface
- Smooth Fragrance
- Strong characteristic rose odor

4. Microscopic characters

Microscopic examination of rose petals may show:

- Epidermal cells with cuticle

- Pigment-containing cells Oil glands Parenchymatous tissue Pollen grains
- These help in botanical authentication.

5. Chemical constituents

Major phytochemical constituents include:

- Volatile oils Citronellol Geraniol Nerol
- Phenyl ethyl alcohol Flavonoids Quercetin Kaempferol Phenolic compounds Tannins
- Gallic acid

Other constituents Anthocyanins Terpenes Glycosides

These compounds contribute to aroma, antioxidant activity, and therapeutic effects.2

Fig. No. 03: Rose water.

C. Pharmacognostic study of Tragacanth Powder

1. Biological source

a. Dried gummy exudation obtained from: Astragalus gummifer

b. Other Astragalus species Family

c. Fabaceae (Leguminosae) Geographical source Mainly obtained from:

d. Iran Turkey Syria Iraq

2. Synonyms Gum tragacanth Tragacanth gum Goat's thorn gum
3. Method of collection

The gum exudes naturally or after making incisions in the stem and branches. It is: Collected Dried

Processed into flakes, ribbons, or powder

4. Organoleptic characters Parameter

a. Characteristics Color
b. White to pale yellow Odor
c. Odorless Taste Mucilaginous Texture
d. Tough, horny flakes or powder Solubility
e. Swells in water to form gel

Fig. No. 4: Tragacanth Powder.

5. Macroscopic characters Character Description Shape

a. Ribbon-like or flaky Fracture
b. Short and horny Surface Translucent Nature
c. Swells in water
d. Two forms commonly occur:
e. Ribbon tragacanth Flake tragacanth

6. Microscopic characters Powder microscopy may show: Irregular mucilage masses Calcium oxalate crystals Starch absent No lignified tissues

When mounted in water, it swells greatly due to mucilage.

7. Chemical constituents

Main constituents are polysaccharides.

a. Major components Bassorin (tragacanthic acid) Water swellable
b. Forms gel Tragacanthin Water soluble
c. Produces colloidal solution Sugars obtained after hydrolysis Arabinose
d. Xylose Galactose Fucose
e. Galacturonic aci

Fig. No. 04: tragacanth powder.

D. Pharmacognostic Study of Lavender Oil

1. Biological source

- Lavender oil is obtained by steam distillation of the fresh flowering tops of: Lavandula angustifolia
- Lavandula latifolia Lavandula officinalis Family
- Lamiaceae.

2. Method of preparation Extraction method Steam distillation

- Hydro-distillation
- The flowering tops are distilled to obtain volatile oil.

3. Organoleptic characters Parameter. Fig No. 5 : Lavender oil

- Characteristics Color
- Colorless to pale yellow Odour
- Pleasant, aromatic, floral Taste
- Slightly bitter Consistency Thin liquid Volatility Highly volatile

4. Macroscopic characters of crude drug Character Description Plant part used Flowering tops Color

- Purple-violet flowers Surface
- Hairy stems and leaves Aroma
- Strong characteristic fragrance

5. Microscopic characters

Microscopy of lavender flowers/leaves shows:

- Glandular trichomes Oil glands Epidermal cells Covering hairs Pollen grains
- Oil glands contain volatile constituents responsible for aroma and activity.

6. Chemical constituents

Major constituents of lavender oil include:

- Compound
- Activity Linalool
- Sedative, antimicrobial Linalyl acetate Fragrance, calming Cineole
- Mild antiseptic Camphor Cooling effect Terpinen-4-ol Antimicrobial Lavandulol
- Aroma constituent

Other constituents Geraniol Borneol Caryophyllene Pinene.2

Fig. No. 05: Lavender oil.

E. Pharmacognostic Study of Vitamin E Capsule

1. Biological / Chemical source

- Vitamin E is a fat-soluble vitamin naturally found in: Vegetable oils
- Wheat germ oil Sunflower oil Nuts and seeds
- Green leafy vegetables
- Commercial capsules usually contain: Alpha-tocopherol
- Alpha-tocopheryl acetate

2. Category Antioxidant vitamin Nutraceutical / pharmaceutical preparation
3. Dosage form

- Vitamin E is commonly available as: Soft gelatin capsules
- Hard gelatin capsules Oil-filled capsule

Fig No. 6: Vitamin E Capsule

4. Organoleptic characters Parameter Characteristics

- Color

- Yellow to golden Odor
- Mild characteristic odor Taste
- Bland oily taste Appearance
- Transparent or opaque soft capsule Nature
- Oily liquid inside capsule

5. Macroscopic examination Capsule shell Soft, elastic gelatin shell Oval or spherical shape Fill material Yellow viscous oily liquid
6. Microscopic evaluation

7. Microscopy mainly applies to capsule shell components:

- Gelatin structure
- Absence of particulate impurities Uniform fill distribution
- Since vitamin E is oil-based, microscopy has limited use compared with analytical techniques.

8. Chemicalconstituents Main active constituents:

Alpha-tocopherol Tocopheryl acetate

Other possible forms

- Beta-tocopherol Gamma-tocopherol Delta-tocopherol Excipients
- May include:
- Soybean oil Glycerin Gelatin Purified water Preservatives.2

Fig. No. 06: Vit. E. Capsule.

F. Pharmacognostic Study of Haldi (Turmeric)

1. Biological source

- Turmeric consists of the dried rhizomes of: Curcuma longa
- Family Zingiberaceae

2. Synonyms Turmeric Indian saffron

- Curcuma

3. Macroscopic characters Parameter

- Characteristics Shape
- Cylindrical, branched rhizomes Size
- 2–7 cm long Color
- Yellowish-brown outside, deep orange-yellow inside Odour. Fig No.7: Turmeric
- Aromatic Taste
- Bitter, slightly pungent Surface
- Rough with annulations

4. Organoleptic characters Parameter

- Characteristics Color
- Bright yellow Odor
- Characteristic aromatic smell Taste
- Bitter and warm Texture
- Hard when dry

5. Microscopic characters Powder microscopy shows:

- Starch grains Oleoresin cells Cork cells
- Fibrovascular bundles Parenchymatous cells Diagnostic features Large oval starch grains Yellow-orange pigment Thin-walled parenchyma

6. Chemical constituents Major active constituents Curcuminoids

- Curcumin Demethoxycurcumin Bisdemethoxycurcumin
- Curcumin is the principal active compound responsible for yellow color and many pharmacological effects.
- Volatile oils Turmerone Atlantone Zingiberene Sabinene.24

Fig. No. 07: Turmeric powder.

5. PLAN OF WORK

1. Selection of Formulation

- Shat Dhaut Ghrit is selected as the Ayurvedic semisolid topical preparation for formulation and evaluation studies.
- The formulation is selected because of its cooling, moisturizing, wound-healing, and skin protective properties.

2. Procurement of Materials

- Procure pure cow ghee, rose water, turmeric, lavender oil, tragacanth powder, Vitamin E capsules, and other required ingredients.
- Collect all glassware, chemicals, and laboratory equipment required for preparation and evaluation.

3. Pharmacognostic Study of Ingredients

- Perform organoleptic evaluation of cow ghee and herbal ingredients.
- Study physicochemical parameters and chemical constituents of the selected materials.
- Evaluate purity and authenticity of ingredients using standard pharmacognostic methods.

4. Preparation of Shat Dhaut Ghrit

- Take purified cow ghee in a clean vessel.
- Add purified water or rose water and triturate continuously.Remove the upper water layer after washing.
- Repeat the washing process 100 times until a soft, smooth, non-greasy cream is obtained.

5. Formulation Development

- Incorporate herbal ingredients such as turmeric extract, lavender oil, or Vitamin E into the prepared SDG base.

- Optimize concentration and consistency for smooth application and stability.

6. Evaluation of Formulation

- Evaluate the prepared formulation for
- Color
- Odor
- Texture
- Consistency
- pH
- Washability
- Homogeneity

7. Spreadability Study

- Determine spreadability using slide apparatus method.
- Measure the time required for spreading the formulation uniformly.

8. Extrudability Study

- Evaluate the force required to extrude the formulation from collapsible tubes.
- Assess ease of application and consumer acceptability.

9. Determination of Acid Value

- Determine acid value of the formulation to evaluate free fatty acid content and stability.

10. Determination of Saponification Value

- Determine saponification value to assess fatty acid composition and quality of the formulation.

11. Stability Study

- Store the formulation under different temperature conditions.
- Observe changes in color, odor, pH, consistency, and phase separation over time.

12. Data Interpretation and Conclusion

- Analyze all evaluation parameters and stability study results.
- Interpret the suitability of Shat Dhaut Ghrit as a topical herbal formulation.

6. MATERIALS AND EQUIPMENTS

Procedure and mechanism

- Goghrita (Clarified Butter) was taken in shallow vessel, water added in vessel containing ghrita & kneading action was
- performed. After performing kneading action for 2-3 mins the mixture was allowed to settle down & then above water was
- drained. This procedure was repeated for 100 times. Shatadhauta Ghrita was obtained after repeating the procedure 100 times
- In this method, ghrita was triturated with water, resulting in the formation of a water in oil type of emulsion because water is in the dispersed phase and oil is in the continuous phase. As the washing process continues, the particle size of fat granules.
- decreases due to the pressure applied during agitation (as per texture it was non granular and smooth).Eventually, successive.
- washings result in o/w type of emulsion. It is possible that it might lead to formation of a complex system like w/o/w emulsion.
- The reason may be passage of water globules in fat molecules by forming water oil (w/o) emulsion and leads to swelling of
- Ghrita. The pigment may leak out into the water from repeated washings, changing the colour of the item (Dhauta). In this
- process the triglyceride is converted into a glycerol in presence of water.
- In preparation of Shatadhauta ghrita ghee converted in to a soft cream in this process fat splitting process was take place
- due to presence of water so triglycerides is converted

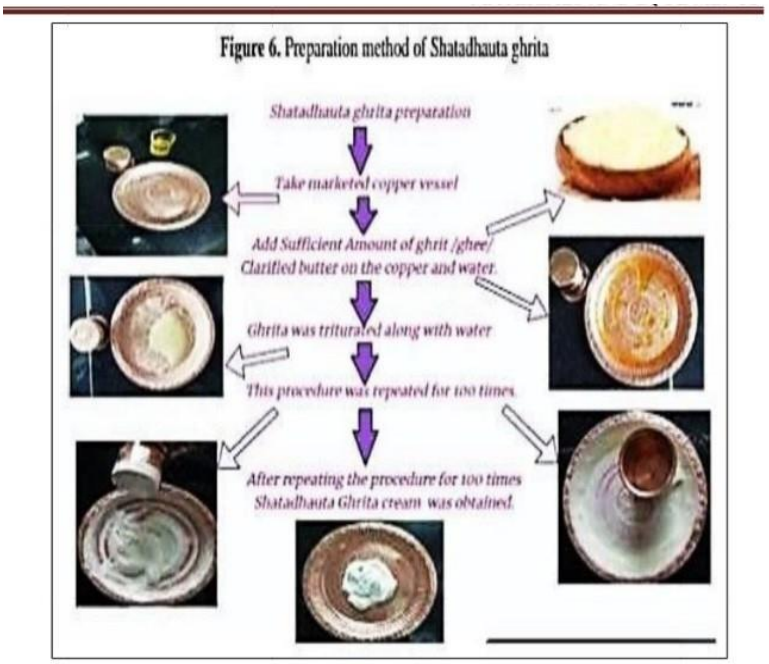

Fig No. 8 : Fat Splitting Process

7. EXPERIMENTAL WORK

Evaluation tests

- Spreading coefficient After 1 hour
- Spreadability was determined by in-house fabricated apparatus in the laboratory suggested by Mutimer et al (1956).
- It consists of wooden block, which is provided by a pulley at one end. By this apparatus Spreadability was measured on the basis of ‘ Slip and Drag’ characteristics of cream.
- A ground glass slide was fixed on the block. An excess of cream (about 2gm) was placed
- on the ground glass slide. The cream was then sandwiched between top and ground glass slides. The ground glass slide is provided
- with a hook, pulley and weight holding plate.
- A 1kg weight was placed on the top of the two slides for 5 minutes to expel air and to provide a uniform film of cream
- between the two slides. Excess of cream was scrapped of from the edges. The top plate was then subjected to pull off 40gms of weight
- with the help of string attached to the hook and the time (in seconds) required by the top

slide to cover a distance of 7cm to be noted.

- Less time required for spreading indicates better Spreadability.

Extrudability study

- It is usual practical test to measure the force required to extrude the material from the tube.
- The method applied for determination of applied shear in the region of the rheogram corresponding to shear rate exceeding the yield
- values and exhibiting consequent plug flow.
- In the present study, the method adapted for evaluating cream formulation for extrudability.

Cream extruded from lacquered

- aluminum collapsible tube on application of weight in grams required to extrude at least 0.5cm strip of cream in 10 seconds.
- quantity extruded better is extrudability. The extrudability of each formulation was taken in triplicate and the average values were presented.

The extrudability was then calculated by using formula:

Extrudability = Applied weight (gm) / extruded cream from tube (cm2) Determination of Acid Value:

- The acid value of a fat or oil may be defined as the number of milligrams of KOH required to neutralize the free organic acid
- present in 1 gm of fat or oil. It was determined by dissolving by weighted quantity of oil and fat in alcohol and titrating against standard alkali.
- It was calculated as:

Acid value = a×0.00561×1000/W

Where, a= is the number of ml of 0.1N potassium hydroxide required and W= is the weight in gm of the sample taken

Saponification value

- The saponification value is the number of mg of potassium hydroxide required to saponified 1 gram of oil/ fat.
- It is an index of mean molecular weight of the fatty acids of glycerides, comprising a fat.

Lower the saponification value, larger the molecular weight of fatty acids in the glycerides

and vice versa.

Ester value

Ester value was calculated by using following formula:

Ester value= Saponification value- Acid values

Evaluation of Antimicrobial Activity

- Antimicrobial Activity by Serial Dilution Method

Microbial evaluation of the SDG lotion was carried out by the serial dilution technique and compared with a soil sample as a reference environmental specimen. Briefly, 1 g of soil was aseptically suspended in 9 mL of sterile distilled water to obtain the initial [10^{-1}] dilution. Serial tenfold dilutions were then prepared by transferring 1 mL of the preceding dilution into 9 mL of sterile distilled water up to the 8th dilution. The SDG lotion sample was first dissolved in sterilized normal saline solution under aseptic conditions and further diluted, if required.

Appropriate dilutions of both samples were inoculated onto nutrient agar medium and incubated under suitable conditions to permit microbial growth. After incubation, the colonies were observed and counted to determine the microbial load. The presence of Escherichia coli was assessed as part of the microbial quality evaluation.

Fig. No. 9: Prepared Agar media Microbial Strains Used

The following microbial strains were selected for the study:

- Escherichia coli (E. coli) Table No. 1: Properties Parameter Go ghee SDG Organoleptic properties Colour Golden yellow White Odour Characteristic, Pleasant Odorless Taste Characteristic Tasteless Texture Granular, oily Smooth, non oil.

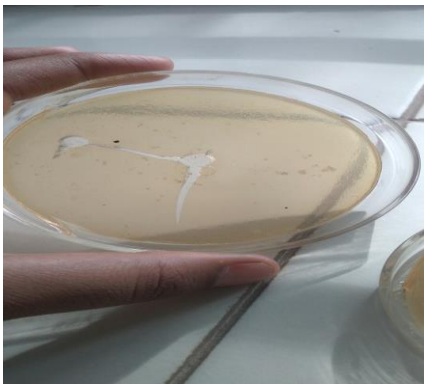

Fig. No. 09: Prepared Agar media.

RESULTS

The prepared Shat Dhaut Ghrit formulation exhibited antimicrobial activity against all selected microbial strains, as demonstrated by the formation of zones of inhibition around the wells. Acid value of Shat Dhaut Ghrita is 0.11, which is significantly lower than cow ghee's acid value of 0.84. This represents a 7.59 times decrease in acid value after the 100-time water washing process. The decrease indicates reduced free fatty acids, meaning less rancidity and better stability of the Shat Dhaut Ghrita formulation. Saponification value of Shat Dhaut Ghrita is 25.96, compared to cow ghee's saponification value of 234.26. This is a 9.02 times decrease. This decrease reflects the removal of short-chain fatty acids during the repeated washing process. Microbial testing of E. coli using the serial dilution method yielded failed/unreliable results due to temperature deviation during the experiment. The dilution buffer and/or agar medium were not maintained at the optimal 37°C for E. coli, causing thermal stress that reduced cell viability and colony formation. This resulted in significantly lower CFU counts (or no growth) compared to expected values.

DISCUSSION

The results of the study indicate that the prepared formulation possesses inhibitory activity against both fungal and bacterial test organisms. The antimicrobial effect may be attributed to the combined action of the herbal and functional ingredients present in the formulation, particularly turmeric, which has been widely reported for its antimicrobial potential in topical and traditional preparations.

The serial dilution method is considered suitable for preliminary evaluation of semisolid and extract-based formulations because it allows observation of diffusion-dependent inhibition of microbial growth in solid medium. However, the extent of zone formation may also depend on the diffusion characteristics of the formulation, viscosity, and concentration of active constituents, and therefore the test is primarily useful as a screening method rather than a complete quantitative assessment.

9. CONCLUSION

From the literature reviewed and the formulation study, it can be concluded that Shat Dhaut Ghrit is an important traditional Ayurvedic preparation with significant potential in topical therapy. Its repeated washing process gives it a desirable cream-like texture and improves its suitability for external application. The formulation is especially valued for its cooling, soothing, moisturizing, and wound-healing properties.

Modern research supports its use as a natural and effective base for topical formulations, particularly in cosmetic and dermatological applications. However, further scientific studies are still required for proper standardization, stability testing, and clinical validation. Overall, Shat Dhaut Ghrit represents a good example of a traditional Ayurvedic formulation with strong potential for modern pharmaceutical development.

10. FUTURE PROSPECT

Shat Dhaut Ghrit (100-times washed ghee) holds strong potential for expansion in both traditional Ayurvedic practice and modern dermatological and pharmaceutical applications. Its unique preparation method imparts lighter texture, enhanced skin absorbability, and cooling properties, making it a promising base for next-generation herbal skincare products. Key Future Directions

- Scientific Validation: Modern clinical trials and phytochemical analysis are needed to confirm its efficacy in treating skin diseases, burns, and inflammation
- Dermatological Products: Can be formulated as herbal moisturizers, anti-aging creams, sunburn relief gels, and post-inflammatory skincare products
- Pediatric & Sensitive Skin Care: Due to its gentle, non-irritating nature, it shows promise for pediatric dermatology and sensitive skin formulations
- Standardization & Quality Control: Development of standardized protocols for washing process, copper vessel usage, and shelf-life stability for commercial production
- Long-term Safety Studies : Long-term safety trials (12+ months) are required to establish chronic use safety profiles
- Combination Therapies: Potential as a base for herbal nano-formulations and combination with modern actives like hyaluronic acid, ceramides, or antioxidants
- Commercial Viability: Growing demand for natural, chemical-free skincare creates market opportunities for branded Shat Dhaut Ghrit product.

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