

Traditional and Ayurvedic Formulation Shata Dhauta Ghrita Containing Turmeric for Wound Healing

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Abstract: *Ayurveda the science of health care system of medicine has been considered very important since ages. It has narrated many important principles regarding svastya (health), ahara (diet), vyadhi (disease) and aoushadha kalpanas (formulation of medicine). Ghrita is one among the chaturvidha sneha explained in Ayurveda and widely used as ahara and aoushadha. Many ghrita samskara's are explained in classical texts of Ayurveda. Shatadhouta ghrita is one such unique preparation and an example for dhouta samskara. This study evaluates the efficacy of Shata dhauta Ghrita (SDG) combined with turmeric for wound healing, assessing their potential as modern treatments. Shatadhouta Ghrita, an Ayurvedic formulation used for topical application has been accredited with wound healing properties. Shatdhaut Ghrita is a classical Ayurvedic formulation prepared by repeatedly washing purified cow ghee one hundred times with water, a process that profoundly alters its physicochemical and therapeutic properties. This traditional technique transforms oily ghee into a soft, cooling, and easily absorbable emulsion, making it especially valuable for topical application. The present review explores the historical background, classical references, methods of preparation, physicochemical characteristics, pharmacological actions, and therapeutic applications of Shatdhaut Ghrita. This research emphasizes the importance of integrating traditional knowledge with scientific validation.*

Keywords: Wound healing, Shatadhouta Ghrita, Panchavalkala, Ayurveda, SDG, Anti-inflammatory, Cow ghee, Samskara, Ayurvedic formulation, etc

I. INTRODUCTION

One prominent Ayurvedic formulation used for external applications is Shata Dhauta Ghrita (SDG), which is prepared by repeatedly washing clarified butter (ghee) with cold water a hundred times. This formulation has been praised for its exceptional wound healing properties and has been traditionally used to treat conditions such as burning sensations, irritations, erysipelas, and other similar skin disorders. When combined with Panchavalkala, SDG is believed to enhance the wound healing process significantly. The current research aims to evaluate the efficacy of Panchavalkala Siddha SDG Group (PSSG) using experimental methods to understand the roles of both SDG and Panchavalkalas in wound healing. SDG's therapeutic benefits extend beyond wound care. For instance, Rokohl et al. recommended its use in treating fever-related burning sensations through the method of rinsing ghee a hundred times to produce a light and smooth product. In dermatological contexts, SDG is used to alleviate burning sensations associated with certain skin conditions, further demonstrating its versatility and importance in traditional medicine [1].





Fig No.1: Shata Dhauta Ghrita Containing Turneric

Ayurveda considers Shatdhaut Ghrita as a highly effective topical preparation for various skin ailments. It is believed to balance Pitta dosha, which is primarily responsible for heat and inflammation in the body. When applied externally, it provides a cooling and soothing effect, helping to relieve burning sensations, redness, irritation, and inflammatory skin disorders. Because of its excellent moisturizing nature, it nourishes the deeper layers of the skin and promotes tissue regeneration [2].

Shata Dhauta Ghrita is a result of an ancient Ayurvedic ritual of washing cow ghee (clarified butter) 100 times with purified water in a copper vessel while chanting vedic mantras. The result is butter like odorless silky cream which has the incredible property of penetrating all the seven layers of the skin without blocking the pores [3].

Wounds are defined as interruptions in the continuous layer of skin or mucosa, which can be caused by injuries, whether accidental or surgical. The disruption of skin integrity leads to cell death, blood vessel damage, leakage of blood components. This knowledge serves as a critical foundation for developing new therapeutic strategies to minimize the detrimental effects of injuries [1]

A wound is defined as a disruption in the normal anatomical structure and function of the skin and underlying tissues caused by physical, chemical, or biological injury. Wounds may vary from minor superficial injuries to severe tissue damage involving muscles, nerves, and blood vessels.

The aim of this study was to determine the traditional formulations like SDG as the potential of ancient remedies in modern wound care. The integration of traditional knowledge with contemporary research could lead to innovative therapeutic approaches that enhance the healing process while reducing complications and treatment costs [4].





Fig No.2: Tyoes of Wounds

Topical applications for wound healing have been prominent throughout history, appearing frequently in ancient literary works. In Ayurvedic literature, emphasized the formulation of topical remedies, highlighting the deep-rooted tradition of external applications for wound care. Ancient texts have noted the importance of addressing wounds that may arise due to imbalances in bodily doshas or as a result of physical injuries. Numerous traditional topical medications have been described in detail, illustrating their extensive use in treating a variety of skin conditions and wounds [5].

VARIOUS INGREDIENTS USED IN SHATA DHAUTA GHRITA CONTAING TURMERIC:

GHEE/CLARIFIED BUTTER:

In the Ayurvedic system of medicine, ghee plays a vital role, both as a vehicle to deliver the active constituent and a base for incorporating active components to formulate the dosage forms. Ayurveda also supports the co-administration of ghee along with other remedial treatments. For example, Brahmi ghrita for cognitive function; Vasa ghrita for the respiratory system; Shatadhauta ghrita for skin diseases, Bhallatakadi ghrita for wound healing and Kaamdev ghrita for sexual disorders. Saleem et al have performed molecular characterization studies on Cow ghrita [7]. The study revealed that Cow ghrita is a rich source of essential fatty acids (omega 3 and omega 9), vitamins like A, D, E, and K. Memory enhancement, lowering bad cholesterol, preventing skin and cardiovascular diseases, promoting skin health, maintaining digestion, generating energy, purifying the blood, protecting the liver, and other health benefits of cow ghee. Ghee has been shown to have antiinflammatory, antineoplastic, vision-improving, and wound-healing properties. It has beneficial effects such as immunostimulant, anti-cholinergic activity, antiasthmatic effect, and aids in the treatment of paralysis, among others [7].



Fig No.3: Ghee



According to Ayurveda, cow's ghee is superior and has numerous medicinal uses. Cow's Ghee has a special quality known as *samskaranuvartana*, which indicates that when being processed with herbal liquids or pastes, Cow's Ghee combines the effects of herbal medicines that are applied without sacrificing its own therapeutic properties. Ayurvedic medicated Ghee is prepared by processing Cow ghee along with herbal paste and decoction as per classical reference. These medications are demonstrated to have the greatest therapeutic effects when taken orally. According to Ayurveda, Ghee has Mrudu, Somaya Guna, Madhura Rasa, Sheeta Virya, Madhura Vipaka, Balya, Medya, Rasayana etc properties [8].

COLD WATER:

Cold water is an essential component in the preparation of Shata Dhauta Ghrita. Traditionally, cold water is used repeatedly during the washing process. The theoretical importance of cold water can be understood through both Ayurvedic principles and modern scientific perspectives.

From an Ayurvedic viewpoint, ghee possesses *Snigdha (unctuous)* and *Ushna (slightly hot)* properties. However, for wound healing, especially in conditions involving inflammation, burning sensation, or *Pitta aggravation*, a cooling (*Sheeta*) and soothing formulation is preferred. The repeated washing of ghee with cold water imparts *Sheeta guna* (cooling property), thereby reducing its inherent heat and making it more compatible for inflamed or damaged tissue.

TURMERIC/CURCUMIN POWDER:

Turmeric (*Curcuma longa*), a well-known medicinal herb belonging to the Zingiberaceae family, has been extensively used in traditional systems such as Ayurveda for its therapeutic properties. The rhizome of turmeric contains bioactive compounds, primarily curcuminoids, of which *Curcumin* is the most significant. Curcumin is responsible for the characteristic yellow color and possesses potent pharmacological activities including anti-inflammatory, antimicrobial, antioxidant, and wound healing effects [9].

During the inflammatory phase, curcumin inhibits pro-inflammatory mediators such as tumor necrosis factor-alpha thereby reducing excessive inflammation and preventing tissue damage. This modulation helps create a favorable environment for healing [10].



Fig No.4: Turmeric

It improves drug penetration through the skin due to its lipid base and enhances the bioavailability of curcumin, which is otherwise poorly soluble in water. The synergistic effect of turmeric and SDG results in improved wound contraction, epithelialization, and scar reduction [11].

The need for turmeric in this formulation arises from its natural origin, safety profile, cost-effectiveness, and multi-targeted mechanism of action. Unlike synthetic drugs, turmeric offers a holistic approach to wound management with



minimal side effects. Therefore, its incorporation into SDG provides a promising herbal formulation for effective wound healing [12].

HISTORICAL BACKGROUND:

The origin of Shatadhauta Ghrita (SDG) dates back to ancient Ayurvedic texts, where ghee (Ghrita) was considered one of the most sacred and therapeutically versatile substances. In Ayurveda, Ghrita is regarded as the best Sneha Dravya (oleaginous substance) due to its ability to penetrate deep into body tissues (Sukshma, Vyavayi, and Yogavahi properties). The process of washing ghee multiple times to enhance its cooling and soothing properties was developed as a specialized pharmaceutical technique known as “Dhaavana Samskara” — a type of Shodhana (purification) method described in classical Rasa Shastra and Bhaishajya Kalpana texts.

Effective wound management necessitates the use of optimal dressing materials that not only expedite healing but also reduce the loss of essential components such as proteins, electrolytes, and fluids from the wound site [13].

MATERIAL AND METHOD:

Shatadhauta Ghrita containing turmeric was prepared by the scholar as per the classical ayurvedic method and analysis was done at Maharashtra Institute of Pharmacy Betala (Bramhpuri).

MATERIALS:

SR.NO.	INGREDIENT	USES
1.	Pure cow ghee	Use for wound healing Anti-Inflammatory
2.	Water	Improve texture, colling effect
3.	Turmeric	Anti-Microbial

SHATA DHAUTA GHRITA CONTAINING TURMERIC FORMULATION METHOD:

The preparation of Shata Dhauta Ghrita involves a sequential washing process. Initially, a measured quantity of pure cow ghee is taken in a clean, dry mortar pestle or copper or stainless steel vessel. An equal quantity of cold distilled water is added to the ghee. The mixture is then triturated thoroughly using a spatula or by hand until a uniform emulsion is formed.

After sufficient mixing, the mixture is allowed to stand undisturbed for a short period, leading to phase separation. The upper aqueous layer is carefully decanted and discarded. Fresh cold water is again added to the remaining ghrita, and the process of trituration and washing is repeated.

This washing procedure is carried out 100 times (Shata = 100, Dhauta = washed). With each cycle, the ghrita gradually loses its greasy texture and becomes progressively lighter in color, smoother in consistency, and more absorbable. The final product is a semi-solid, odorless, and cooling cream-like substance [25].[14].





Fig No.5: Shata dhauta Ghrita Preparation

Incorporation of Turmeric

After completion of 100 washings, a predetermined quantity of finely sieved turmeric powder or standardized turmeric extract is incorporated into the prepared Shata Dhauta Ghrita. The turmeric is added gradually with continuous trituration to ensure uniform distribution throughout the base.

The mixture is trituated until a homogeneous formulation is obtained. Care is taken to avoid lump formation and to maintain uniform consistency. The final product is then passed through a muslin cloth if required, to remove any coarse particles and ensure smoothness [26].[15].



Fig No.6: Final Preparation

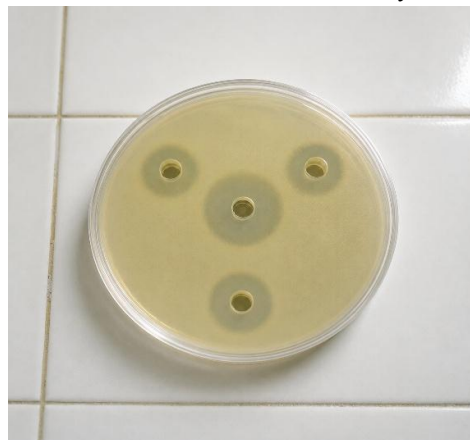
EVALUATION OF SHATA DHAUTA GHRITA WITH TURMERIC FORMULATIONS:

Prepared formulations were evaluated for various physicochemical parameters such as antimicrobial activity, homogeneity, pH, spreadability, viscosity.



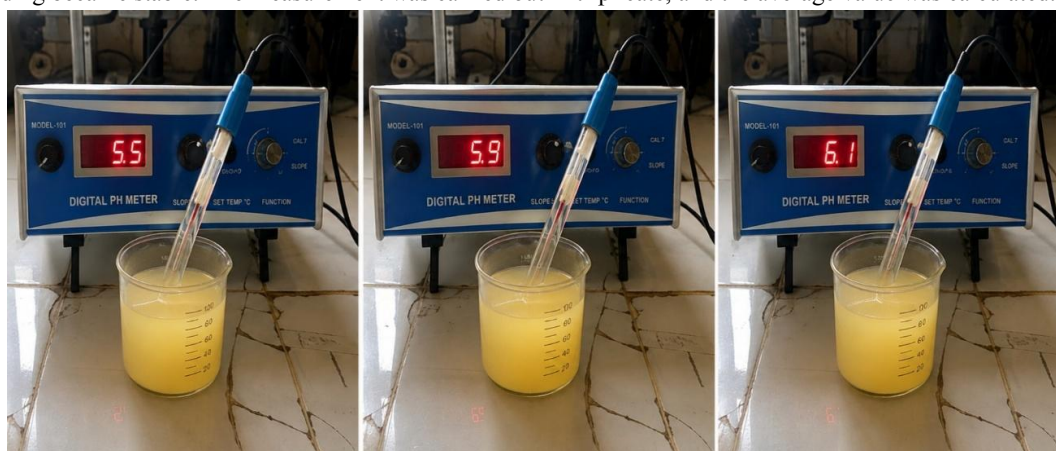
ANTIMICROBIAL ACTIVITY:

The antimicrobial activity was evaluated by agar well diffusion method against common wound pathogens such as *Staphylococcus aureus* and *Escherichia coli*. Sterile Mueller–Hinton agar plates were inoculated with bacterial cultures using a sterile cotton swab. Wells of about 6 mm diameter were prepared in the agar using a sterile borer, and different concentrations of the formulation were introduced into the wells. Standard antibiotic solution was used as positive control, while blank base served as negative control. The plates were incubated at 37°C for 24 hours. After incubation, the antimicrobial activity was determined by measuring the diameter of the zone of inhibition around each well in millimeters. Larger zones of inhibition indicated better antimicrobial activity of the formulation [16,17].



MEASUREMENT OF PH:

About 1 g of Shata Dhauta Ghrita containing turmeric was accurately weighed and transferred into a beaker. To this, 10 mL of distilled water was added. The mixture was then stirred continuously using a magnetic stirrer to obtain a uniform dispersion. The dispersion was allowed to stand for a few minutes to equilibrate at room temperature ($25 \pm 2^\circ\text{C}$). The electrode of the pH meter was then immersed into the aqueous phase of the dispersion, and the pH was recorded once the reading became stable. The measurement was carried out in triplicate, and the average value was calculated.



HOMOGENEITY:

A small quantity of the prepared *Shata Dhauta Ghrita containing turmeric* is taken from different portions of the formulation (top, middle, and bottom of the container). The samples are visually examined for uniformity in color,



texture, and appearance. The formulation should exhibit a consistent pale yellow to yellow color without any visible lumps, aggregates, or phase separation. A small amount of the formulation is then spread gently on a clean glass slide or between two fingers to assess smoothness and uniform distribution.



MEASUREMENT OF VISCOSITY:

Viscosity of the Shata dhauta ghrita containing turmeric is determined using a Brookfield viscometer with spindle No. 1, which is suitable for low to medium viscosity samples. In this method, the formulation is placed in a clean beaker and maintained at a constant temperature to ensure accurate results. The spindle No. 1 is attached to the viscometer and immersed vertically into the gel up to the specified mark, ensuring that no air bubbles are present. The viscometer measures the (resistance) offered by the Shata dhauta ghrita containing turmeric to the rotating spindle and displays the viscosity in centipoise (cP).

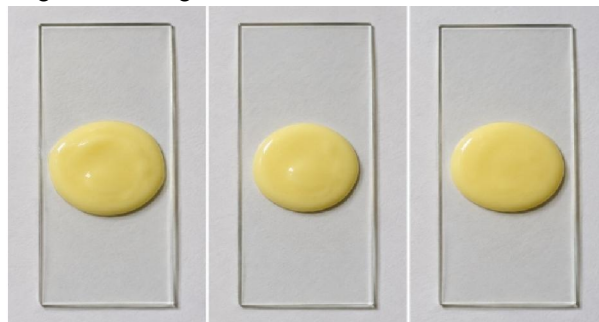


SPREADABILITY:

Spreadability was determined by wooden block and glass slide apparatus. The apparatus consists of a wooden block, which was provided by a pulley at one end. By this method, spreadability was measured on the basis of slip and drag characteristics of formulations. An excess of the formulation (about 2 g) was placed on this ground slide and then formulation was sandwiched between this slide and another glass slide (movable) having the dimension of fixed ground slide and provided with the hook. A weight of 50 g was placed on the top of the two slides for some time to expel air



and to provide a uniform film of the gel between the slides. A shorter interval indicates better spreadability. Spreadability was calculated using the following formula: $S = M \times L/T$



RESULT:

ORGANOLEPTIC PROPERTIES:

Organoleptic properties Parameter	Pure Cow Ghee	Shata dhauta ghrita containing turmeric
Colour	Golden yellow colour	Pale yellow
Odour	Typical ghee smell	Odourless
Taste	Characteristic	Tasteless
Texture	Grannular oily	Smooth, oily, homogenous mass
Weight	200gm	Increased after wash from 200gm to 250gm

CHEMICAL PROPERTIES:

Chemical properties Parametes	Pure Cow Ghee	Shata dhauta ghrita containing turmeric
Acid value	1.79±0.01	0.097 (decreased)
Saponification value	249.4±0.32	9.987 (decreased)
Iodine value	35.49±0.35	31.14 (decreased)



PHYSICAL PROPERTIES:

Physical parameters	Pure Cow Ghee	Shata dhauta ghrita containing turmeric
Moisture content	0.27	0.8 (increased)
Ph	4.6	5.4 (increase d)
Particle size	179.02	51.56um (decrease d)
Viscosity (cp) at 20rpm for 30 seconds	8000	9650 (increase d)

DISCUSSION:

Wound healing is a complex process involving hemostasis, inflammation, proliferation, and tissue remodeling, which together help restore damaged tissue to its normal condition. Shatadhauta Ghrita (SDG) containing turmeric showed potential wound healing activity due to its moisturizing, cooling, and tissue-repairing properties. Ghrita promotes nourishment and healthy tissue formation, while turmeric contributes anti-inflammatory and wound-healing effects. The preparation of SDG involved repeated washing of pure cow ghee with cold purified water for 100 times to obtain a smooth cream-like emulsion, followed by incorporation of turmeric powder. Being a water-in-oil emulsion, SDG provides better skin absorption and maintains a moist environment favorable for wound healing. It also helps reduce burning sensation, supports oxygen circulation, and promotes healthy scar formation, making it beneficial for topical wound management and healing.

II. CONCLUSION

Shatadhauta Ghrita with turmeric is a unique and valuable Ayurvedic formulation known for its excellent wound healing and wound management, cooling, soothing, and skin-healing properties. The traditional process of washing ghee one hundred times transforms it into a light, smooth, and easily absorbable emulsion. This modification enhances its moisturizing ability and reduces irritation, making it highly effective in calming inflammation, nourishing the skin, and supporting natural tissue repair. Its rich content of natural lipids and fat-soluble vitamins further helps protect the skin from damage and dryness.

Scientific studies support its anti-inflammatory, antioxidant, antimicrobial, and wound-healing actions, which make it useful in managing conditions such as burns, eczema, dermatitis, acne, and chronic wounds. Additionally, modern advancements like nanoemulsion and transdermal delivery systems have increased its therapeutic potential and relevance in pharmaceutical and cosmetic applications. With proper standardization and clinical validation, Shatadhauta Ghrita holds strong promise as a natural, safe, and effective bridge between traditional Ayurvedic medicine and modern scientific healthcare.

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