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A REVIEW ON UTILIZING TRADITIONAL KNOWLEDGE: INCORPORATING COW GHEE AND SHATA DHAUTA GHRITA IN MODERN MOISTURIZING CREAMS

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ABSTRACT

Panchgavya therapy is recommended for a variety of severe diseases, including asthma, flu, allergies, cardiovascular diseases, renal disorders, rheumatoid arthritis, wound healing, and other skin diseases. Panchgavya is collective term for milk, curd, *ghee*, urine, and dung of indigenous cow, which play a crucial role in benefiting human health care and the environment. In India, *ghee* is most popularly known for its nutritional attributes, characteristic flavour, and aroma and is considered a sacred food. Amongst all components of panchgavya, *Ghrita* (*ghee*) and *shata-dhauta-ghrita* (SDG) (100 times washed *ghee*) are important parts of a dermatologist's strategy to maintain skin health as well as treat various dermatoses that co-exist with various forms of dermatitis, atopic diseases, dry skin, and compromised skin barrier function. The facts of cosmetology including *Ghrita* and *shata-dhauta-ghrita* as the major part of potential topical cosmetics enhancing the beauty and quality of skin were reviewed in a study, where the *Ghrita* and *shata-dhauta-ghrita* found to exhibit a much lower degree of unsaturation with better suited for topical applications, having the potential for the treatment of various skin diseases, and tend to design a better cosmetic world.

KEYWORDS: Panchgavya, *Ghrita*, *Shata-dhauta-ghrita*, Cosmetics, Skin.

INTRODUCTION

The Greek term "*kosmtikos*," which means to have authority, expertise, and the ability to arrange, is where the word "cosmetic" originates.[1] Cosmetics have their roots in superstition, religion, combat, and hunting, and they subsequently found their way into medicine.[2] In pre-historic times, approximately 3000 BC, a man utilized color as adornment to draw in the animals he wanted to hunt. He also used color to protect himself from enemy attacks by adorning his body and covering his skin to make the enemy (human or animal) afraid.[3] In order to significantly reduce skin flaws, the primary goal of cosmetic application is to improve the overall appearance of the face and other body parts. It is used to keep skin and hair in better condition or to maintain them. A healthy skin moisturizing routine can help smooth fine lines and wrinkles while keeping your skin barrier intact, which is essential for preventing toxins from being absorbed. A key element of basic daily skin care is moisturizer, especially when there is a change in the epidermal barrier and a decrease in the water content of the epidermis. Maintaining skin health and treating dermatoses that coexist with dry skin and are associated with compromised skin barrier function, such as atopic disorders and other forms of dermatitis, are crucial components of a dermatologist's treatment plan. Dermatologists must become well-versed in moisturizers' mechanisms of action, application, dosage, side effects, and specific clinical uses in order to justify their use, especially for evidence-based therapeutic objectives. The use of moisturizers both for skin health maintenance as well as a definitive or adjuvant therapy for many kinds of dermatitis has been clarified.[4] In *Charak Samhita*, cosmetic medications were categorized as *Varnya* (fairness), *Kustagna* (antihistaminic), *Kandugna* (antipruritus), *Vayasthapak* (anti-aging), *Udardaprasamana*, etc. A few ingredients that are biologically active can quickly penetrate the skin's deeper layers and have an impact on cells. The same biological principles that underpin the human body also govern these organic components. Due to this innate resistance, the human body responds positively to natural chemicals. The future of cosmetology is in Ayurveda, and this is the sole reason to incorporate the *Ayurvedic* components as the base material for manufacturing of regular cosmetic formulations. Indian face mask recipes generally call for powdered buttermilk and goat's milk, which have calming and hydrating qualities and include vitamins A, B6, B12, and E, which are more advantageous substitutes for chemical emollients and bases.[5]

Importance of *Ghee* in Ayurveda

Cow *ghee* is a great foundation for making *Ayurvedic* medications. The benefits of this clarified butter and its capacity to penetrate even the most deeply into human tissues make it the perfect foundation for preparing *Ayurvedic* medicines that are intended to target certain body parts, organs, or tissues.[6] In the tribal and remote areas of our country, various modes of therapies are not readily available as they lack the elaborate organizational structure of their modern counterparts. To overcome their health care needs, this tribe prefers to generate their primary treatments by themselves. Clarified butter fat (cow *ghee*) is one of the natural ingredients used in such areas to make the required medicines. By washing cow *ghee* one hundred times in water to create a traditional *Ayurvedic* preparation known as SDG; a soft, cooling, nourishing, silky, unguent traditional moisturizer, antioxidant, and anti-wrinkle skin cream is obtained. Which has a strong potential to treat skin diseases, but if herbal drugs or phytoconstituents are incorporated in the SDG, they can act as a promising agent in the development of herbal cream.[7]

Overall Profiling of Cow *Ghee*

Synonyms

Ājya, Havishya, Sarpi, Ghrita.

Regional Language Names

Ass. : *Ghee*

Ben. : *Gava Ghee, Gava Ghrit*

Eng. : Clarified butter

Guj. : *Ghee*

Hin. : *Gaya Ghee*

Kan. : *Tuppa*

Mal. : *Pasu Ney, Pasu Nei*

Mar. : *Toop*

Ori. : *Gai Ghia*

Pun. : *Ghee*

Tam. : *Nei*

Tel. : *Neyyi, Nei*

Urd. : *Gaya ka ghee*

Description

Go-Ghrita is an oily liquid or a semi solid with granular texture; at room temperature, colour white to light yellow, odour rich and characteristic, taste pleasant. It is required to be free from other animals' fats, wax, mineral oil, vegetable oils and fats.

Identity, Purity and Strength

Specific gravity - At 25°, 1.01995 Appendix 3.1.2 Reichert Meissel Value - 24-28, Appendix 3.14 Moisture - Not more than 0.5 per cent, Appendix 2.2.10 Saponification Value - Not more than 225 Appendix 3.7 Iodine Value - Not more than 35 Appendix 3.8 Unsaponifiable matter - Not more than 1.5 per cent, Appendix 3.11 Carotene - Not less than 2000 IU Microbial limits - Complies with API Appendix 2.4 Heavy Metals - Complies with API Appendix 2.3.

Properties and Action

Rasa : *Madhura*

Guna : *Guru, Snigdha, Mridu*

Vīrya : *Śīta*

Vipāka : *Madhura*

Karma

Agnidīpana, Anabhishyandi, Āyushya, Balya, Cakshushya, Dīpana, Hridya,Kāntiprada, Medhya, Ojovardhaka, Rasāyana, Rucya,Śleshmavardhana, Snehana, Śukravardhaka, Tejo--balakara, Tvacya, Vātapittapraśamana, Vayaˢsthāpna, Vishahara, Vrishya.

Important Formulations

Brāhmī Ghrita, Triphalā Ghrita, Aśoka Ghrita, ElādiGhrita, Cāngerī Ghrita, Amritā Ghrita.

Therapeutic Uses

Agnidagdha (fire burns), *Amlapitta* (hyperacidity), *Apasmāra* (Epilepsy), *Aruci* (tastelessness), *Grahanī* (malabsorption syndrome),*Jīrnajvara* (chronic fever), *Karnaśūla* (Otalgia), *Kshatakshīna* (debility due to chestinjury), *Mada* (intoxication), *Mūrcchā* (syncope), *Śiraˢśūla* (headache), *Smritināśa*(loss of memory), *Śosha* (cachexia), *Unmāda* (mania/psychosis), *Vishamajvara*(intermittent fever), *Visarpa* (Erysepales), *Vishavikāra* (disorders due to poison),*Yoniśūla* (pain in female genital tract).

Dose- 5 to 20 ml[8]

Shloka in Sanskrit

स्मृतिबुद्धधग्निशुक्रौजः कफमेदोविवर्धनम्। वातपित्तविषोन्मादशोषालचमीज्वरापहम्॥

सर्वस्नेहोत्तमंशीतंमधुरंरसपाकयोः। सहस्त्रवीर्यविधिभिर्घृत्कर्मसहस्रकृत् ॥२३१-२३२॥

Description of Shloka in Hindi

घृत का गुण- सामान्यतः घृत स्मरणशक्ति, बुद्धि, अग्नि, वीर्य,ओज, कफ और मेद को बढ़ाने वाला होता है। वात, पित्त, विषजन्य विकार, उन्माद रोग, राजयक्ष्मा, शरीर की अशोभा और ज्वर को नष्ट करता है। यह सभी स्नेहों में श्रेष्ठ है, वीर्य में शीत, रस और विपाक में मधुर होता है, विभिन्न द्रव्यों से संस्कारित होने पर इस में हजार गुनी शक्ति आंजाती है अतः हजारों कार्य करनेवाला होता है॥२३१-२३२॥[9]

Description of Shloka in English

Properties of *Ghee* - Generally, *Ghee* increases memory, intelligence, fire, semen, energy, phlegm and flour. It destroys *Vata*, *Pitta*, poisonous disorders, insanity, tuberculosis, body's disgrace and fever. It is the best of all affections, it is cold in semen, sweet in *Rasa* and *Vipak*, and when it is processed with different substances it gets thousand times more power, hence it is capable of doing all kinds of work. ॥231-232॥

***Ghrita* for multiple benefits in skin care routine**

Ghee or clarified butter is a natural animal fat obtained from milk that does not get spoiled for longer periods as it contains no water. In India, the use of cow *ghee* is as old as Indian culture and considered an excellent base for the preparation of *Ayurvedic* medicines. Its ability to permeate into deeper tissues makes it an ideal base for preparing *Ayurvedic* dosage forms. To estimate the enhancement of percutaneous absorption by cow *ghee* using isolated goat skin as the animal membrane, three drugs, namely salicylic acid, diclofenac diethyl amine, and neomycin sulphate, were used. The definite increase in rate of absorption and decrease in absorption half-life with an increase in concentration of cow *ghee* for all three drugs were recorded, which shows that cow *ghee* enhances the percutaneous absorption of drugs.[10] *Ghee* has been produced and utilized in India since antiquity, as it is popular because of its nutritional attributes, characteristic flavour, aroma, and is considered a sacred food. It is a unique type of fat because of its characteristic flavour, which is the basic criterion for its acceptance and is greatly influenced by the processing methods, i.e., the fermentation of cream, butter, or milk, and even heating processes. The short chain fatty acid concentration of *ghee*, which accounts for its greater digestion and anti-cancer qualities, has led to its global

acceptance as a superior fat in human cuisine. Apart from its rich and pleasing sensory qualities, *ghee* is also a major transporter of vital fatty-acids (linolenic acid and arachidonic acid) and fat-soluble vitamins (A, D, E, and K). *Ghee* is believed to be a coolant, capable of increasing mental power, physical appearance, curative of ulcers and eye-diseases.[11] However, Shivananjappa M., et al. interpret the health benefits associated with the consumption of *ghee*. When *ghee* is consumed in sufficient quantities, it can provide a number of health advantages, including binding toxins, improving complexion and body glow, rejuvenating the eyes, boosting intellectual and physical endurance, and providing long-lasting vitality.[12] *Ayurvedic* literature thoroughly catalogues the medicinal potential of *ghee* and describes many varieties of *ghee* depending on the source of milk, production process, maturity, and physical phase, but current scientific literature has limited investigations on the functional advantages of *ghee*. The complementarity and gaps between Ayurveda literature and modern scientific literature to identify research questions and hypotheses for further exploring the therapeutic potential of *ghee* are primarily focused on correlation of *ghee* with cardiovascular health, wound healing, and skin health. Ayurveda prioritizes cognitive benefits, gastrointestinal health, and nourishment.[13] Ayurveda found that certain herbs, fats, oils, and minerals have anti-aging and wound-healing properties. As skin ages, it experiences changes such as decreased tissue cell regeneration, collagen content, loss of elasticity, and mechanical strength. Hema Sharma Datta et al., prepared five topical anti-aging formulations using cow *ghee*, flax seed oil, *Phyllanthus emblica* fruits, *Shorea robusta* resin, and *Yashada bhasma*. The preliminary efficacy evaluation involved excision and incision wound healing animal models. This research concludes that formulations containing *Yashada Bhasma*, *Shorea robusta* resin, and flax seed oil showed significantly better wound contraction, higher collagen content, and better skin breaking strength compared to the control group, suggesting them as potential anti-aging formulations.[14] Medipalli Viswaja, et al. evaluated the anti-bacterial activity of two essential oils, eucalyptus and neem, by incorporating them in cow *ghee* based cream. The cream acts as both a base and a penetration enhancer. The cream was tested on *Escherichia coli*, *Staphylococcus aureus*, *Pseudomonas aeruginosa*, and *Bacillus subtilis*. The zone of inhibition was compared to the standard product. The cream showed a stable, homogenous appearance over a three-month period at room temperature. The concentration of essential oils increased, with the 2.5% formulation showing a zone of inhibition.[15] The ethnopharmacological use of a *ghee* and turmeric mixture on cut and burn wounds has been widely used, but it has been unstable due to the rancidity and oxidation of turmeric. A stable cream was formulated by Vineet Kumar

Rai, et al. using the phase inversion temperature method, which was found to be consistent, elegant, and smooth. The study revealed that cream showed excellent stability at 25 °C and was found to be an excellent alternative to mineral oil-based all-purpose creams. It can be used in various wounds, foot and hand cracks, and maintains skin health with the medicinal value of *ghee*, curcumin, and lavender oil. This cream offers a more sustainable and effective alternative to mineral oil-based creams.[16] In Asia, the Middle East and Africa, the methods of manufacturing and characteristics vary. Hence, some ambiguity in the definition of *ghee* occurs mainly due to regional differences and preferences for the product, which is commonly used for culinary purposes but also for particular social functions and therapeutic purposes. The main flavours of *ghee* are said to be carbonyls, lactones, and free fatty acids. *Ghee*'s low moisture content and potential antioxidant qualities contribute to its relative shelf stability. *Ghee* may contain high amounts of conjugated linoleic acid, a newly reported anti-carcinogen.[17] Skin whitening cream that is prepared using cow *ghee*, jojoba oil, wheat germ oil, grape seed oil, hydrophobic components, Chinese herbal medicine water and ethanol propylene glycol extract, amino acid humectants, tremella extractive, ascorbyl tetraisopalmitate as a biochemical whitening agent, antioxidants like tertiary butyl hydroquinone and butylated hydroxyanisole, preservative propylparaben, nipagin ester, MTI, and essence. The Chinese herbal medicines are prepared from *Glycyrrhiza glabra L*., *Bletilla striata*, largehead atractylodes rhizome, leaves of *Lagerstroemia speciosa*, white poria cocos and *Tribulusterrestris*. *Ghee* as a milk essence can be applied to a whitening skin care product, resulting in a novel product with remarkable functions such as whitening, moisturizing, stability, long-term effect, and high efficiency.[18]

Shata Dhauta Ghrita **with its skin protective applications**

SDG is one such unique Ayurveda preparation and an example for Dhauta samskara, Jala samskara, and Agni samskara. It is prepared by two methods. There is a process that involves heating *Ghrita* (or *ghee*), pouring it into cold water, and collecting it 100 times. The second approach involves the washing of *ghrita* with water in 100 rounds/steps. The pharmaceutical study showed marked differences in physical parameters, and a difference in preparation time was noted by Bhupesh K. et al.[19] An ancient modern concordance of *Shata-dhauta-ghrita* in terms of research along with its multidisciplinary applications was conducted by Pulate C., with its magical beautification properties, skin-healing benefits, anti-aging formula, as well as acting as a skin elixir, an anti-inflammatory skin solution, and a super-light cream. *Shata-dhauta-ghrita* is prepared in a clean copper vessel by washing pure cow *ghee* 100 times under

the chanting of heavenly mantras, as instructed in the ancient *Ayurvedic* scripture *Charaka Samhita*. *Shata-dhauta-ghrita* is a light cream that works from the inside out, healing the skin by penetrating all seven layers profoundly. It keeps skin silky, smooth, wrinkle-free, protects against sun damage, and heals age spots. Its light texture and silky-smooth feel heavenly on the skin. *Shata-dhauta-ghrita* helps shrink pores and is a super skin food for all skin types.[20] The physical characteristics of a modern base (vanishing cream) with two *Ayurvedic* bases (clarified butter fat cow *ghee* and *Shata-dhauta-ghrita*) were comparatively discovered by Ravindra R. et al. (SDG), which is recommended for the treatment of burns, wounds, and other conditions. The study revealed that although the qualities of cow *ghee* and vanishing cream base were similar, whereas SDG exhibited reduced degree of unsaturation, indicating superior physico-chemical stability and greater consistency, making it more appropriate for topical applications. It also implies that SDG might be a good option to use as the foundation for topical treatments, particularly for burns and wounds.[21] Majumdar et al. used *Curcuma amada* as a drug for their study, which is used as a pain reliever in household remedies. The aim of their study was to give a scientific rationale to traditional claims. The appropriateness of *shata-dhauta-ghrita* as a base was assessed by evaluating it using a variety of criteria including pH, ester value, and acid value determination. An anti-inflammatory study in an animal model was tested for the prepared formulation and further compared with a marketed formulation containing synthetic drugs. Results revealed that a cream made with *Curcuma amada* in *Shata-dhauta-ghrita* treats inflammation topically.[22] *Shata-dhauta-ghrita* can also be prescribed for the treatment of wounds, burns, chicken pox, scars, herpes, leprosy, and other skin diseases. It has to be evaluated within the framework of contemporary science since it has potential as a topical product for the treatment of skin conditions. To evaluate the changes taking place while washing cow *ghee* one hundred times, which makes it an important topical product, a separate study was carried out by Deshpande S. et al.[23] The formulation of moisturizer at lab scale by using SDG as a base was prepared and evaluated by Patil et al. for treatment of wounds, burns, chicken pox, scars, herpes, leprosy, and other skin diseases and as a vehicle for drugs to be applied externally. The various evaluation tests, like the determination of pH, spreadability, homogeneity, consistency, irritancy test, sensitivity test, bleeding test, removal test, and stability studies, were carried out. When the same formulation mentioned above was compared to marketed formulations, all the results shown that lab-made formulations were at par in terms of results. Hence, it was found to be of good quality and safe to use on the skin.[24] Pande V. et al. prepared nine formulations of nano-lipogel using different concentrations of carbopol and *shata-dhauta-ghrita*. An improved

batch of nano-lipogel was assessed for pH, % yield, drug content, extrudability, rheology, and stability based on its physical stability and phase separation. The formulation showed the highest antifungal activity against *Candida albicans*. The result concluded that nano-lipogel is a better formulation for increasing the release, permeation rate, and antifungal activity of topical application as compared to *shata-dhauta-ghrita*.[25] In terms of viscosity and sensory quality, the creams made with buttermilk, butter oil and an aqueous phase obtained from butter, with a smaller melting range most closely resembled natural creams. The emulsifying qualities of ingredients obtained from milk affect the physical qualities of reformulated creams. All types of creams, including both reformed and natural, fulfilled the requirements for sensory quality; the only exceptions were those made with butter oil that had a reduced melting range and skim milk. Evaluation of these creams involved different melting ranges, separation temperature in obtaining emulsifying components, rate of creaming, viscosity, feathering and sensory characteristics recombined into fluid dairy systems using skim milk, or sweet buttermilk and an aqueous phase derived from butter to manufacture milk fat creams.[26] A moisturizer with *Shata-dhauta-ghrita* as the base was formulated by Mali et al. with all natural or synthetic ingredients and used as a carrier for topically applied medications. Every formulation was assessed using a variety of criteria, including stability. The formulations were found to be safe to apply to the skin. Many of the formulations were prepared, but according to their research, the moisturizing cream labelled as F1 contains a base of *Shata-dhauta-ghrita*, which has been shown to be safer and more stable and may have synergistic effects.[27]

CONCLUSION

Panchgavya comprises its irreplaceable medicinal importance in itself, which is a lost treasure of ancient India, whereas thorough literature and modern scientific studies have low complementarity, though both shed light on the diverse pharmacological and therapeutic profiles of all the key ingredients of panchgavya. It can be used as a natural ingredient in cosmetic preparation, which becomes the centre of attraction for customers. *Ghrita* and *Shata-dhauta-ghrita* play a significant role in skin health; the treatment of various dermatoses enhances skin quality and beauty, making them valuable in the cosmetic world. From the recent literature study, it was found that *Ghrita* and *shata-dhauta-ghrita* utilize the better function as bases for topical drug delivery, aid in repairing and rebuilding damaged tissues, support healing, soothe pain due to irritation, and are beneficial for skin due to their various properties like cooling, softening, and nourishing the skin. It is a silky, unguent traditional

moisturizer with antioxidant and anti-wrinkle skin cream qualities. To explore the long-term benefits and potential applications of Panchgavya-based *Ayurvedic* formulations in skincare mainly composed of *Ghrita* and *shata-dhauta-ghrita*, further research and clinical studies can be developed by incorporating the various method and techniques mentioned in the current review; it should not be limited to ancient literature. In the future, while making *shata-dhauta-ghrita* formulations, multiple herbs can also be added to improve their efficacy, medicinal properties, and therapeutic uses.

Declaration

We declare that all the authors of this manuscript: Dr. Jaykishor Chhangani, Ms. Payal S. Kathale, Dr. Adarsh Kumar Agnihotri, Dr. Ashutosh Aniruddha Murkute and Ms. Soumya Gulab Katre agreed to submit the manuscript to the "Intelligent Pharmacy". We also agree to transfer copyright from the authors to the journal. The manuscript has been prepared as per guidelines and checked for language correction.

We do confirm that this work is original and the manuscript is not currently under consideration for publication elsewhere.

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