

Formulation And Evaluation of Shata Dhaut Ghrita Roll ON As Topical Treatment for Chicken Pox

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Abstract—Chickenpox is a highly contagious viral disease characterized by itchy vesicular eruptions, inflammation, irritation, and discomfort of the skin. Traditional Ayurvedic preparations have long been used to soothe skin conditions and promote healing. The present study focuses on the formulation and evaluation of a Shata Dhauta Ghrita (100-times washed cow ghee) roll-on incorporating natural ingredients such as neem (*Azadirachta indica*), turmeric (*Curcuma longa*), and rose (*Rosa damascena*) for topical application in chickenpox-associated skin lesions.

Shata Dhauta Ghrita was prepared by repeatedly washing cow ghee one hundred times to obtain a smooth, cooling, and easily absorbable base. Neem extract was incorporated for its antimicrobial, anti-inflammatory, and wound-healing properties, turmeric for its antioxidant and anti-inflammatory activities, and rose extract for its soothing, cooling, and skin-conditioning effects. The formulated roll-on was evaluated for organoleptic properties, pH, spreadability, homogeneity, skin irritation, and stability.

The developed formulation exhibited good physical stability, smooth texture, easy application, and acceptable skin compatibility. The synergistic action of Shata Dhauta Ghrita, neem, turmeric, and rose may help reduce itching, inflammation, and skin discomfort while supporting the natural healing process of chickenpox lesions. The formulation represents a promising herbal topical delivery system for the supportive management of chickenpox-related skin manifestations.

Index Terms—Shata Dhauta Ghrita, Cow Ghee, Chickenpox, *Azadirachta indica*, *Curcuma longa*, Herbal Roll-On, Topical Drug Delivery, Ayurvedic Formulation, Herbal Cosmetics, Natural Therapeutics, Dermatological Care

I. INTRODUCTION

In the early year cosmetic is highly demand in wordwild cosmetic derived from Greek word “Kosm

Tikos” having ability to decorating. The cosmetic substances or preparations designed to be rubbed, poured, sprinkled, or sprayed on the human body, or introduced into it, for cleansing, beautifying, promoting attractiveness, or altering the appearance. It shows the beneficial result in your body. Nowadays, herbal cosmetic is trendy in the people which looks for more natural and gentler product cosmetic is put on more value into the market. Shata Dhauta Ghritum is historic herbal and natural base cream which use face and body also to provide long effect to the skin with its various advantages. Shata Dhauta Ghrita is the powerful preparation to treat skin condition in natural way without damage. Many years ago, herbs are used for various purpose like food, medicine, beautifying. Herbal cosmetic is those product or preparations which give the benefits with natural elements. It also called natural cosmetic. The herbal cosmetics includes natural herbs and their various parts which gives herbal therapy. [1]

Shata Dhauta Ghrita is a traditional Ayurvedic preparation, made from ghee. It is 14,000-year-old preparation it is called as SDG (Shata Dhauta Ghrita). Shata Dhauta derived from Sanskrit words “Shata” means hundred “Dhauta” means washing and “Ghrita” means ghee combine to produce washed ghee ten hundred time called Shata Dhauta Ghrita. Copper boasts a multitude of benefits, including antimicrobial and anti-inflammation properties as well as to promote healthy skin and accelerate wound healing. “Charaka” is discovered the formulation of Shata Dhauta Ghrita in 400 Century. Shata Dhauta Ghrita, is prepared using the principles of Dravya Karana or Dravya Samaskara which involve processing an SDG to impart specific properties as described in Charaka Samhita. Shata

Dhauta Ghrita is highly concentrated hand processed moisturizer that transforms ghee into a cooling nourishing and silky skin. Its prevent for damaged skin and it penetrates deep to provide long lasting hydration and nourishment. According to Acharya Charaka eight factors determine a SDG effects.[2]

1. Prakriti (nature)
2. Karana (processing)
3. Samyoga (combination)
4. Rashi (quantity)
5. Desha (habit)
6. Kala (time)
7. Upayogasamstha (consumption methods)
8. Upayoktr (consumer)

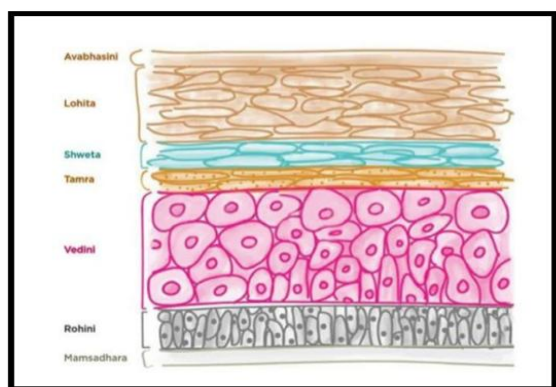


Image NO.1: Skin layers

Skin is the largest organ of the body making up to 16% of body weight with a surface area of 1.8 m sq. These are three layers to the skin epidermis, dermis, and hypodermis. Skin having various types normal, oily, dry, combination, and sensitive. Common skin condition is acne, eczema, skin Chicken pox, rosacea, psoriasis etc. Skin is protected against bacteria, thermal regulation, synthesis of vitamin D are the function of the skin. Skin should have hydrate, use sunscreen, maintain hygiene and balance diet. Skin is consisting of many layers made by protein, mineral, water and fats.

II. THE SKIN HAVING SEVEN LAYERS EACH WITH ITS OWN UNIQUE CHARACTERISTICS AS FOLLOWS

1. Avabhasini (Stratum Corneum) - It is Outermost layers of skin. This layer reflects an individuals

and aura. Maintain its health and appearance require both internal and external moisturization.

2. Lohita (Stratum Lucidum)- It is a second layer a bridge between blood and skin health. This layer supporting the outermost layer reflect the quality of Rakta Dhatu (blood) and influence the skin aura and sensitivity.
3. Shweta (Stratum Granulosum) - It is a white layer help to achieve a balance skin tone by lightening the darker colors of the inner layers promoting a more even complexion.
4. Tamra (Malpighian Layer)- This layer servers as a vital support system for the immune system and the upper skin layer facilitating the skin role as a protective barrier.
5. Vedini (Papillary Layer)- This layer function as a sensory interface linking the skin to the body sensory system and facilitating the perception of sensation.
6. Rohini (Reticular layer)- This layer promotes healing and recovery relying on a balance nutritional diet for support.
7. Mamsadhara (Hypodermic layer) – It is a deepest layer ensure the skin resilience and firmness, revealing a youthful appearance when balance.

III. MECHANISMS OF SHATA DHAUTA GHRITA

1. Lipid solubility: Ghee (clarified butter) in Shata Dhauta Ghrita dissolves lipophilic (fat-soluble) herbal components, allowing them to penetrate the skin's lipid bilayer.
2. Emulsification: The cream's emulsifying properties help mix oil and water-soluble herbal components, facilitating absorption into the skin.
3. Hydrophobic interactions: Lipophilic herbal components interact with the skin's natural lipids, enhancing penetration.
4. Trans cellular and intercellular routes: Herbal components may penetrate the skin through both trans cellular (through cells) and intercellular (between cells) routes.



Image No.2: Chicken pox skin

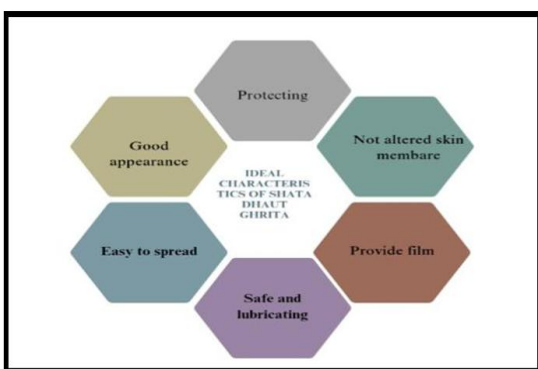


Image No.3: Ideal characteristics of SDG

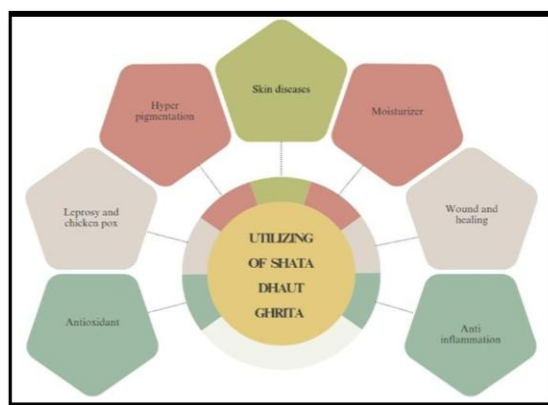


Image No.4: Utilization of SDG

• Cow Ghee

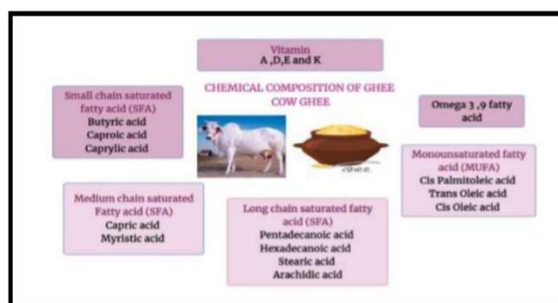


Image No.5: Chemical composition of ghee

Cow ghee having various therapeutic properties like antioxidant, antibacterial, anti-inflammation, antiseptic. Combining conventional ingredient with ghee create an effective topical treatment for burns, wounds, and skin injury. SDG shows alteration in physical properties with temperature. Trituration process successfully in corporate copper metal into the Shata Dhauta Ghrita mixture as evidence by significant increase in copper content. [11,12].

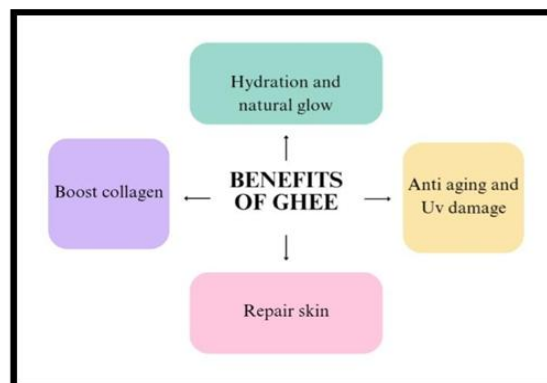


Image No.6: Benefits of ghee

• Copper Plate

Copper metal is traditionally used in various Ayurvedic preparation or it treats the various disease. Copper is an essential mineral that plays a vital role in skin health, supporting collagen production, wound healing, and potentially reducing wrinkles and improving skin elasticity. It also has antimicrobial properties and can help protect against free radical damage. Copper peptides are a popular ingredient in skincare products, known for their ability to promote collagen production and wound healing. Products containing copper oxide may reduce fine lines and wrinkles. Long tasting titration of cow ghee in copper

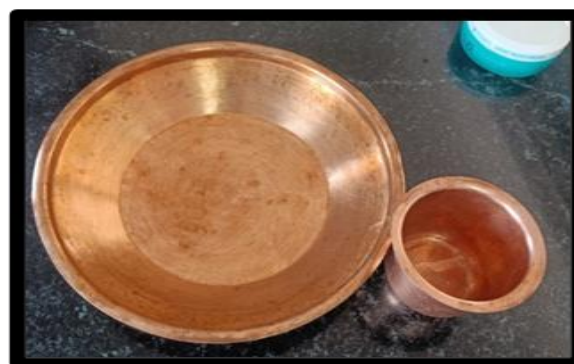


Image No.7

Image No.7: Copper plate gives copper content to the preparation. It makes preparation more conventional and effective. Copper plays a crucial role in skin health and regeneration by stimulating collagen and elastin production, promoting angiogenesis (new blood vessel formation), and aiding in wound healing through its antimicrobial properties and stabilization of extracellular matrix proteins. [13,14]

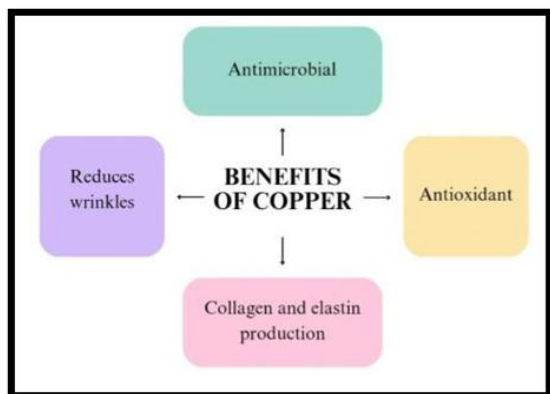


Image No.8: Benefits of copper

- Plant Profile



Image No.9: Neem

Synonyms: Neem, Azadirachta Indica
 Biological Source: Azadirachta Indica
 Family: Meliaceae
 Used part: Dried leaves
 Chemical Constituent: Azadirachtin, Quercetin, Nimbidin etc.
 Uses: Neem are used for antibacterial property, reduce Wrinkle, treat fungal infection, scabies, eczema, chickenpox, leprosy etc. [24,25 26]



Image No.10: Turmeric

Synonyms: Turmeric, Haldi
 Biological Source: Curcuma longa
 Family: Zingiberene
 Used part: Rhizomes powder
 Chemical Constituent: Curcumin, Zingiberene, Atlantone, etc
 Uses: Turmeric are used for antiseptic properties, reduce hyperpigmentation and wrinkles, treatment of healing, wound and inflammation. [27 28]



Image No.11: Chandan

Synonym: Chandan, Sandal, Santalum Album
 Biological Source: Santalum Album
 Family: Santalaceae
 Used part: Wood paste
 Chemical Constituent: Santalol, Santalene, Bergamotene, etc.
 Uses: Sandalwood od are use for calm and fragrance, minimize inflammation, aromatherapy, etc. [29, 30]



Image No.12: Rose oil

Synonyms: Rosa Damascena, Damask Rose

Biological Source: Rosa Damascena

Family: Rosaceae

Used part: Flower oil

Chemical Constituent: Geraniol, Linalool, Eugenol, Citronella, etc.

Uses: Rose oil is use for reduce anxiety, aroma, anti-wrinkle, etc. [31,32]



Image No.13: Ghee

Synonyms: Clarified butter, Anhydrous milk butter, Ayurvedic ghee

Biological Source: Cow milk

Chemical constituents: stearic acid, Carotenoids, Linoleic, Triglycerides

Uses: Ghee use for moisturize, anti-aging, chicken pox, leprosy, protect against UV lights, burns, etc. [33]

IV. OBJECTIVE AND ADVANTAGES

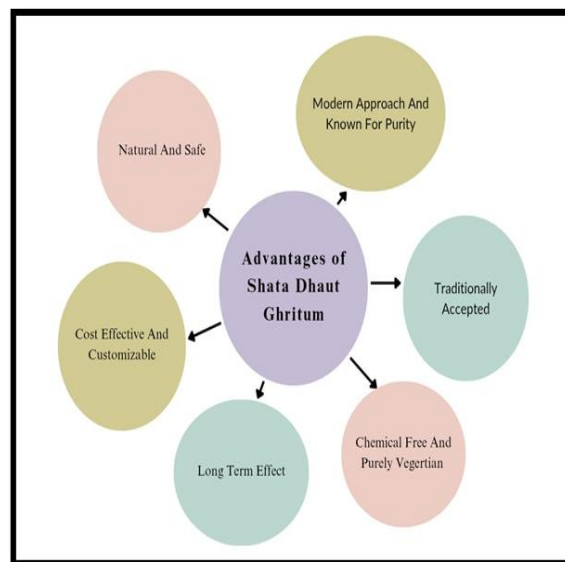


Image No.14: Advantages

1. Goal to reduce the chicken pox skin condition with natural remedy
2. To identify suitable preparation to manage skin disease
3. To give value to natural methods compared to chemicals methods
4. To assess the therapeutic efficiency and safety of formulation.
5. To improve holistic approach to daily life
6. Ultimate goal to advanced natural therapist in skin treatment and of ecofriendly product

V. MATERIALS AND METHODS

1. Cow ghee: Purchase from market.
 2. Neem: Collection of neem dry leaves from garden and prepare powder or buy neem powder directly from market.
 3. Turmeric: Fresh turmeric rhizome buys and make fine dry powder or powder of turmeric buy from market.
 4. Sandalwood: Preparation of sandalwood powder by traditional method with sandalwood stick.
 5. Rose oil: It directly buy from market
- Method



Image No.15: Process of SDG

Firstly, make SDG base. Weight proper amount of cow ghee (100gm) and add into copper plate. Ghee wash with filter water with trituration of copper glass at room temperature. Gives 100 cycle of wash to ghee it gives 10,000 rotations. This procedure carries with continuous trituration with constant speed. After 100 cycles remove water and take new water for further trituration. This longer rotation removes ghee smell. SDG consistency increases as well as rotation increases. This gives final proper base of SDG. Add all herbal extracts.



Image No.16: Extraction of neem & Turmeric

VI. FORMULA

Sr. No.	Material	Role	Quantity given(g m)	Quantity Taken(g m)
1	SDG Base	Cooling, soothing, hydration, glowing, anti-inflammatory	10	50
2	Neem	Treat skin disease	0.2	1
3	Turmeric	Antioxidant, bright skin, bacteriostatic	0.2	1
4	Sandalwood	Cooling	0.2	1
5	Rose oil	Hydration, soothing, fragrance, protects from radiation	q.s	q.s

Table No.1: Formula

VII. EVALUATION TABLE

Test	Batch 1	Batch 2	Batch 3	Batch 4
Color	Dark Green	Dark Yellow	Green	Light green
Oduor	Bitter, Buttery	Strong(turmeric) Spicy	Bitter aroma	Sweet buttery
Texture	Slightly rough	Smooth	Smooth	Smooth
PH	3-4	4.5-6	6-7	5-7
Viscosity	8000 - 9770	27150 - 26985	27300 - 26935	28001 - 27025
Homogeneity	Good	Good	Good	Better
Washable	Easily remove	Easily remove	Easily remove	Easily remove
Irritancy	No	No	No	No
Stability	Ok	Ok	Ok	Ok
Separability	Good	Good	Good	Good
Sensitivity	Nil	Nil	Nil	Nil
Bleeding out	5 min	10 min	Nil	Nil

Table No.2: Evaluation



Image No. 17: Batches & final product

VIII. CONCLUSION

The present study includes formulation of SDG herbal roll on for chicken pox as topical treatment beneficial towards the itchy skin, blister, rashes etc. It contains natural composition provides the numerous advantages towards the skin and various skin diseases. It is ancient preparation to provide dual effects cosmetics and therapeutic. Product evaluates to ensure the quality and safety of the formulation .it concluded that the SDG role towards topical treatment for chicken pox is economic, effective, & safe.

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