CONCEPTUAL REVIEW OF SHATADHUTA GHrita- AN EXTERNAL APPLICATION

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ABSTRACT
In Bhaishajya kalpana many kalpana (dosage forms) are found to be described for external application like lepa, malahara, etc. Shatadhauta ghrita is one of them. Shatadhauta ghrita is the formulation prepared using cow ghee. It is commonly prescribed for the treatment of skin conditions like vrana ropan (wound healing), antiaging, etc. It is prepared by triturating and washing cow ghee one hundred times with water. This review article is a sincere attempt to summarize all classical references and research work done available about Shatadhauta ghrita.

KEYWORDS: External application, lepa, Shatadhauta Ghrita.

INTRODUCTION
Rasashastra and Bhaishajya kalpana is a special branch of Ayurveda where different traditional methods of preparation of various kalpas are found to be mentioned. Skin diseases and healthy skin have great cosmetic importance. In the present era, there is demand of ayurveda in the field of cosmetology due to adverse effects and limitations of modern topical applications. For external application, Abhyanga, Udvartan, malahara, Lepa kalpana are found to be described.

Shatadhauta ghrita is an Ayurvedic preparation which is 100 times washed Goghrita. Shatadhauta ghrita may be used as good topical media because it is readily absorbed by the skin. SDG can be used as oleaginous base for ointments which serves as a vehicle or transporter for medications. ‘Shata-Dhauta’ is a process which involves washing of Goghrita one hundred
times with water which increases stability of ghrita and makes it smooth and suitable for topical application. After Dhawan of Goghrita for hundred times, its mrudutva is enhanced and ghritamalinya gets removed. Shatadhauta ghrita is mentioned in traditional texts for the management of conditions like Dagdha (burn), Vrana (wounds), Visarpa(herpes), Kustha (leprosy), and other skin diseases.

MATERIAL AND METHODS
The aim of this study is to summarize the classical references of SDG from different texts and research studies conducted on SDG in different forms like preclinical and clinical. For that purpose, the study was done from internet by search engine google, google scholar and classical text books. The articles found in different sites are mentioned below. Some of articles or post graduate studies were made available by hand search as possible.

Classical references
1. Method of preparation of SDG (Vaidyka shabda sindhu)[1]
   Goghrita is heated repeatedly and poured in cold water and also Goghrita washed by cold water for one hundred times is known as Shatadhouta Ghrita.

2. Method of preparation of SDG (Bha. Bhai. Ra)[2]
   Cold water is added to Goghrita and is vigorously triturated manually. After this, the water is changed and same procedure is repeated. In this manner, after washing it for 100, 500, 1000 times, Goghrita becomes cold. It is used for local application in Visarpa and daha.

The clinical research studies carried out on SDG are presented here. It includes methodology of preparation, result and conclusion of the respective studies.
1. Burn wound healing potential of SDG[3]
   This ghrita was very effective in first phase of burn wound healing. At the same time, it delayed the wound healing in later phase.
   The moisture value of used SDG was 49%. So, changes in wound closure happened after the application of SDG can be considered as kind of moist wound healing.

2. SDG- A case study[4]
   A comparison of physicochemical parameters of cow ghee & SDG has been done. Fatty acid composition of cow ghee & SDG was done.
   Gas chromatography- Mass spectrometry (GC/MS spectrum) of Fatty acid methyl ester
(FAME) of cow ghee & SDG was done.

Moisture content increase, PH changes from acidic to neutral, reduction in particle size, viscosity was found to be increased, copper content increase, Iodine value decrease, RM & P value decrease, unsaponifiable matter decrease, in GC/MS spectrum of SDG percentage of almost all fatty acids was found to be decrease.

3. **Local application on Yonigat sadhya Vran w.s.r. to episiotomy wound**[5]

The episiotomy wound site caused pain, edema & minor discharge in the patient. After treatment (SDG for application with appropriate hygiene standards, up 5 times each day) the patient felt relieved from symptoms. The episiotomy wound was healthy. No suture site gapping, redness & edema.

4. **Shatadhauta ghrita as formulation base for the topical delivery of Curcuma Amada**[6]

In this study cream is made up of extraction of curcuma Amada and Shatadhauta ghrita. SDG is incorporated with extract of curcuma Amada 0.2% i.e., 2mg of drug is mixed with 10gm of SDG and trituration in mortar and pestle until homogenous mass was formed. with the objective of exploring utility of SDG in topical drug delivery as base, this study was carried out. SDG can be used as a topical base that has better elegance and more acceptability. To give scientific claim to anti-inflammatory effect of curcuma Amada, the prepared formulation showed better anti-inflammatory activity compared to marketed formulation containing synthetic drug (diclofenac). Curcuma Amada and shatadhauta ghrita probably shown synergistic activity in controlling inflammation due to its active constituents and cooling sensation effect. Prepared formulation is a promising therapy to treat inflammation effectively.

5. **SDG prepared by two different methods**[7]

This study shows that two methods of preparation mentioned for shatadhauta preparation, one is heating Ghrita and pouring in cold water, then recollecting it from that cold water, again heat it and pour in water. In second method water is added to ghrita and rubbed with pressure till some time and change that water and again water pour in the same. Both the process is repeated for hundred times.

Both the methods are easy for the preparation of SDG. But from pharmaceutical point of view the yield is less in heating method; time consumption is more and requires heating process is
6. Investigation of effects of shatadhauta ghrita on the skin permeation of fluconazole loaded topical antifungal nanolipogel.\[^{[8]}\]

The purpose of this study was to develop a nanolipogel formulation of fluconazole using shatadhauta ghrita for antifungal drug delivery. This study shows that SDG may be used as a permeation enhancer in a topical drug delivery system for a poorly permeable drug like fluconazole to increase the permeation rate. The optimized batch showed higher drug release and antifungal activity compared with the commercial formulation. From this study it can be concluded that the use of a nanolipogel is a better approach for increasing the release, permeation rate and antifungal activity of topical application.

7. Shatadhauta Ghrita- A Evaluation study in Pediatrics.\[^{[9]}\]

8. Shelf life study on Shatadhauta Ghrita and Panchavalkala siddha Shatadhauta Ghrita WSR to its wound healing activity.

- Analytical tests perform for Shatadhauta Ghrita:\[^{[10]}\]
  1. Moisture content
  2. Viscosity
  3. Acid value
  4. Saponification value
  5. Iodine value
  6. Unsaponifiable matter
  7. Rechert Meissl value
  8. Polenske value

9. Particle sizeDiscussion

There are two references available in classical texts about the method of preparation of Shatadhauta Ghrita. First is According to Vaidyak shabda sindhu in which it has been described that Goghrita is heated repeatedly and poured in cold water and also Goghrita washed by cold water for one hundred times is known as Shatadhauta Ghrita. Second is According to Bharat Bhaishajya Ratnakar, it has been stated that cold water is added to Goghrita and is vigorously triturated manually. After this, the water is changed and same procedure is repeated. In this manner, washing it for 100, 500, 1000 times the Goghrita becomes cold. SDG is multipurpose preparation used in case of Daha, Kshata, Vrana, Visarpa, as mentioned in ayurvedic classics. According to Yogratinakar and Acharya Vagbhat, SDG has been described to be useful in Visarpa. According to Sushrut it has been used after Jalukaawcharan, for Pittapradhan Vatarakta and in Bhagna for Abhyanga. The research studies shows that it is useful in Burn, Episiotomy wound, and can be used as base for other drugs which are applied externally.
Goghrita, a pure lipid phase, first comes in contact with the aqueous phase. Trituration produces a W/O type of emulsion because the lipid phase is a significant phase. Due to the pressure used during trituration, the size of the fat granules decreases as the washing procedure done. After many washings, the aqueous phase suppresses the lipid phase. O/W type of emulsion results from the phase inversion phenomenon caused by this. There is a possibility that it may produce a complex system like a W/O/W emulsion.

CONCLUSION
SDG is found to be routinely used in Ayurvedic medicines for local application. The review shows that SDG has vrana ropan activity, burn wound healing potential, SDG may be used as a permeation enhancer in a topical drug delivery system for a poorly permeable drugs to increase the permeation rate.

REFERENCES