

Pharmaceutical and Analytical Study of Durvadi Ghrita and Its Antimicrobial Activity

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Abstract

Bhaishajya Kalpana includes complete knowledge of drugs including the basic principles of drug formulations. Durvadi ghrita comes under sneha Kalpana who ensures the absorption of therapeutically active constituents of the drugs used for the preparation. Durvadi ghrita has been mentioned in Bhaishajyaratnavali and its Antimicrobial properties have been described in the present article. Ghrita kalpana plays an important role in treatment both internally and externally. When used for topical application it has the potential to diffuse locally into the soft tissues and produce the desired therapeutic action. Ghrita is obtained through animal sources. Ayurved recommends the goghrita a best and ghrita is choice for food and medicinal purposes Durvadi ghrita is useful as wound healer as it processes Antimicrobial activity. It is also used in various skin afflictions. microorganisms are responsible for wound infection, widespread controversy still exists regarding the exact mechanism by which they cause infection and also their significance in no healing wound that do not exhibit clinical signs of infection. Durvadi ghrita is prepared with the help of three drugs having vranropan effects and was evaluated clinically for its healing property and microbial property in this study. It was used externally as well as internally.

Keywords: Ayurveda, Sneha Kalpana, Durvadi ghrita, Standardization, Antimicrobial activity.

Introduction

Ayurveda is an ancient system of medicine. Bhaishajya Kalpana deals with herbal and dietetic preparations and their method of uses. Ayurveda is one of the oldest scientific medical systems in the world. Its history of origin started almost from Vedic period. .five basic kalpanas are described for processing for the herbal dravya. These are Swarasa (juice), kalka (paste), kwatha (decoction), hima (cold infusion) & phanta (hot infusion). These preparation are collectively called as Panchvidhakashaya kalpana. Some new preparations were invented according to the applicability or suitability of patient with the advancement of human being. Vati, churna, putapaka, Asava, Arishta, Ghrita paka, Taila paka etc are some of these preparation. Sneha kalpana is widely described in Ayurvedic pharmaceuticals under which medicated Oil and Ghrita are prepared. Snehkalpana is a unique contribution to Ayurvedic science and it ensures the transformation of the active

therapeutic properties of the ingredients to the solvents. It is mainly of two types – Ghrita kalpana and Taila Kalpana is done in the three phases. The first phase consists of sneha murchana, followed by second phase of snehapaka and finally there is third phase called paka siddhi. This process ensures transformation of the active therapeutic properties of the ingredients to the solvents and hence to get fat soluble or even the chemical constituents which are soluble in various media. Here we provide a review of the snehalkalpana process and its property of absorbing the principles of drug and stores it for longer. Indian system of medicine i.e. Ayurveda is serving man kind since long back. A wide range of dosage form is available in Ayurveda that makes it more effective and popular. Medicated Ghrita in ayurvedic pharmaceuticals is described in detail under Sneha Kalpana section along with preparation of medicated Taila. Sneha kalpana is an exclusive contribution of Ayurvedic science. In this article an attempt has been made to review regarding meaning of Ghrita murchana, general method of preparations of drugs, Stages of Paka (preparation) and its various therapeutic indications. Here, Durvadi ghrita are selected for antimicrobial study. The exact reference of durvadighrita found in Bhaishajyaratnavali. Durvadi ghrita is prepared with the help of three drugs having vranropan effects and was evaluated clinically for its healing property and microbial property in this study. It can use both in internally and externally as durvadighrita is indicated in kushtharoga, Vranaropan, Raktpitta and various skin diseases so, in this reason in present research work has been selected for the antimicrobial activity against Gram Positive bacteria *Staphylococcus aureus*, *Bacillus Subtilis* and Gram negative bacteria *E.Coli* and *Salmonella Typhi*. Avanti microbial is an agent that kills micro organism or inhibits their growth. The use of anti microbial medicine durvadi ghrita to treat infection which kills a wide range of microbes on living surface to prevent the spread of illness. India is a blessed with a great heritage of traditional knowledge on medicine. Ayurveda being the most ancient and still successfully practiced science among all these system needs a special attention while searching for solution to the unresolved health problems. Durva is cheap and easily available in market. Ayurveda have mentioned many properties of it.

Materials And Methods

Practical study comprised in three following steps:

- a. Raw material identification
- b. Pharmaceutical processing
- c. Final product standardization

a. Raw material identification

Authentication of Raw Material of Durva, daruharidra and Kampillaka was purchased from local market. Standardization of Durva, Kampillak and Daruharidra was done by following method:

1. Correct taxonomical identification and authentication

1. Taxonomical identification and authentication of Durva, Kampillak and Daruharidra was done by Dravyagun department.

b. Pharmaceutical processing

Durvadi ghrita was prepared using the standardization procedure in the department of Rasashastra & Bhaishajyakalpana. The three samples of Durvadighrita have been prepared.

Reference: - Bhaishajya Ratnawali 47/79-80

Ingredients-

DG: - Durvadi Ghrita

Dravya	DG Batch 1	DG Batch 1	DG Batch 1
Durva Swaras	1600 ml	1600 ml	1600ml
Kampillak	25 gm	25 gm	25 gm
Daruharidra	25 gm	25 gm	25 gm
Ghrita	400 ml	400 ml	400 ml

Method of Preparation

The fine powders of medicinal drugs kampillak (25gm) Daruharidra (25gm) are taken together and added with Durva swaras (1600ml) to prepare Kalka. This Kalka is added to the mixture of ghrita (400ml) in vessel over fire. The mixture is boiled until all snehasiddha lakshanas appear and only the ghee part remains.

Completion test:

Ghrita - Put in fire, burns without any cracking sound

Kalka- Fire test – No sound

Consistence – Soft in nature

Made in to varti form

Finger print seen.

Observation and Result

Showing Table no.1 organoleptic characters of Durvadi Ghrita.

Organoleptic characters	Durvadi ghrita Batch 1	Durvadi ghrita Batch 2	Durvadi ghrita Batch 3
Color	Red	Red	Red
Odor	Characteristic	Characteristic	Characteristic
Taste	Kashay	Kashay	Kashay
Appearance	Sticky	Sticky	Sticky

Table No.2 showing Duration and yield during the process of preparation of Durvadi Ghrita

DRUG	Durvadi Ghrita Batch 1	Durvadi Ghrita Batch 2	Durvadi Ghrita Batch 3
Duration	1 day	1 day	1 day
Weight before Processing	400 gm	400 gm	400 gm
Weight after	360 gm	340 gm	380 gm

Processing			
Weight Loss	40 gm	60 gm	20 gm
Percentage of Loss	10 %	15 %	5 %

Table no.3 showing Result for Physico-chemical Evaluation for Durvadi Ghrita

No.	Test Name	Result Obtained
1.	Refractive Index at 40 C	1.463
2.	Weight per ml at 40 C	0.911
3.	Saponification Value	173
4.	Iodine Value	39
5.	Acid Value	1.67
6.	Ph	6.3

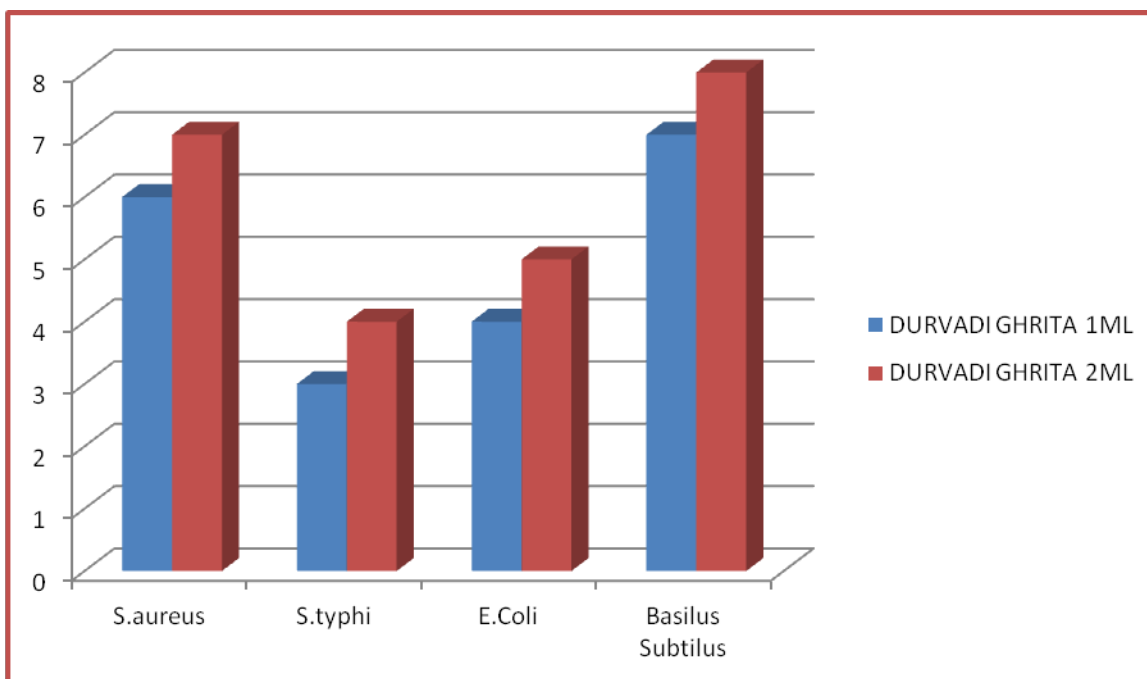
Table no.4 showing Results of Antimicrobial Activity

Zone Inhibition of Durvadi Ghrita

Sr.no	Name of the organism	Durvadi ghrita 1 ml	Durvadi ghrita 2ml
1.	<i>S.aureus</i>	6 mm	7 mm
2.	<i>S.typhi</i>	3 mm	4 mm
3.	<i>E-coli</i>	4 mm	5 mm
4.	<i>Basilus Subtilus</i>	7 mm	8 mm

1. Durvadi ghrita 1ml and 2ml shows zone of inhibition for S.aureus at 6mm and 7mm respectively.
2. Durvadi Ghrita 1 ml and 2 ml shows Zone of Inhibition for Salmonella typhi at 3mm and 4mm respectively.
3. Durvadi Ghrita 1ml and 2ml shows Zone of Inhibition for E.Coli at 4mm and 5mm respectively.
4. Durvadi Ghrita 1ml and 2ml shows Zone of Inhibition for Bacilus Subtilis at 7mm and 8mm respectively.

Graph: Zone of Inhibition for Durvadi Ghrita



Conclusion

The aim of present work is to standardize Durvadi Ghrita and to study its Antimicrobial Activity.

For standardization of Durvadi ghrita raw drug Authentication of Durva, Kampillaka and Daruharidra was done.

3 batches of Durvadi Ghrita were prepared, there was near about 10% Loss of weight of Durvadi Ghrita during preparation. 3 samples were subjected to the analytical test mean of 3 samples was considered the final result of the analytical tests of Durvadi Ghrita.

PH is 6.3 i.e. Durvadi Ghrita is acidic in nature.

On the basis of analytical and antimicrobial observation

1. The physic-chemical results i.e. Refractive index, Saponication value, Iodine value; Acid value and pH are within limits of Ayurvedic pharmacopoeia.
2. Antimicrobial activity of durvadi ghrita shows more zone of inhibition against B.Subtilis, S.Aureus, E.coli and S.typhi as 7,6,4,3 (in mm) respectively. And in 2ml concentration shows zone of inhibition 8,7,5,4 respectively.
3. B.Subtilis and S.Aureus gave good zone of inhibition i.e. they are potent sensitive against test bacteria.
4. Antimicrobial activity of Durvadi ghrita is observed more (i.e. 8 mm) against B.Subtilis at higher concentration.

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