

**ANALYTICAL STUDY OF *JIVANIYA GHRITA* (AN AYURVEDIC FORMULATION)**

¹*Dr. Gunjan Sharma, ²Dr. Kalpana Khanduri, ³Dr. Renu Rao, ⁴Dr. Priyanka Rani,
⁵Dr. Ram Agochar Bhatt

¹Professor and Head, P.G Dept. of *Shalaky Tantra*, Rishikul Campus, Uttarakhand Ayurved University, Dehradun.

²P.G Scholar Final year, P.G Dept. of *Shalaky Tantra*, Rishikul Campus, Uttarakhand Ayurved University, Dehradun.

³Associate Professor, P.G Dept. of *Shalaky Tantra*, Rishikul Campus, Uttarakhand Ayurved University, Dehradun.

⁴Assistant Professor, P.G Dept. of *Shalaky Tantra*, Rishikul Campus, Uttarakhand Ayurved University, Dehradun.

⁵P.G Scholar Final Year, P.G Dept. Of *Shalya Tantra*, Rishikul Campus, Uttarakhand Ayurved University, Dehradun.

Article Received on
27 Jan. 2019,

Revised on 17 Feb. 2019,
Accepted on 10 March 2019

DOI: 10.20959/wjpps20194-13392

***Corresponding Author**

Dr. Gunjan Sharma

Professor and Head, P.G
Dept. of *Shalaky Tantra*,
Rishikul Campus,
Uttarakhand Ayurved
University, Dehradun.

ABSTRACT

Jivaniya Ghrita is an *Ayurvedic* formulation describe in *Ayurvedic* classics in the management of *Shuskakshipaka*. The main ingredients of *Jivaniya ghrita* are *Jivaniya aushadhi*, *Moorchita ghrita* and *dugdha* which is prepared by classical method of *Sneha kalpana*. *Jivaniya aushadhi* include *Vidarikanda* (Substitute of *Jeevaka*, *Rishbhaka*), *Shatavari* (substitute of *Meda*, *Mahameda*), *Ashwagandha* (substitute of *Kakoli*, *Ksheerkakoli*), *Mudgaparni*, *Mashaparni*, *Jeevanti*, *Mulethi*. **Aim:** To prepare and do the Physico-chemical evaluation of finished product. To evaluate the quality of life. **Materials and Methods:** *Jivaniya ghrita* is a unique formulation which is prepared by classical method of *Ghratapaka*. It contains predominantly *chakshushya* and

rasayana properties and pacifies *Vata-Pitta doshas*. **Results:** Standardization of *Jivaniya ghrita* remarkable results regarding Refractive Index, Saponification Value, Iodine Value, Peroxide Value, etc were observed. **Conclusion:** The prepared *Jivaniya Ghrita* matches the physicochemical parameters and can impart good therapeutic property.

KEYWORDS: *Jivaniya Ghrita*, *Jivaniya Aushadhi*, Standardization, Pharmacodynamic, Physiochemical profile.

INTRODUCTION

“A drug is defined as a substance or product that is used or intended to be used to modify or explore physiological system or pathological status for the benefit of the recipient. (WHO) Drug is the part of “*Chikitsa chatuspada*” upon which the success of treatment depends in Ayurveda. ***Ghrita*** is one among the best ***Rasayana drug***. It improves *dhatu*s and is overall booster for improving *Ojas*. It has the property of *Madhur*, *Snehana*, *Rasayana*, and is good for eyes.^[1]

“सर्पिवातपित्तप्रशमनानां” (च.सू. २५/४०)

Ayurvedic text has mentioned *Ghrita* under *Ajasrik rasayan* to be used in daily routine diet^[2]. According to *Acharya Charaka*, *Ghrita* has a unique property of pacifying the vitiated *Vata* and *Pitta doshas*. On the other hand, it causes *Agnideepana* means, it stimulates the digestive enzyme to increase appetite, digestion and absorption.^[3] Our *Acharya* has given equal importance to systemic and local administration of the drug indicating that the *Acharya* of that time were very well aware of the importance of the topical route and oral route in treating the ocular ailments.

Jivaniya ghrita which has been taken for the study contains *Jivaniya aushadhi*^[4] taking into consideration the use of substitutes^[5] of some of the drugs as per availability. These drugs are

1. *Vidarikand* (Substitute of *Jivaka*, *Rishbhaka*)^[6]
2. *Shatavari* (Substitute of *Meda*, *Mahameda*)^[7]
3. *Ashwagandha* (Substitute of *Kakoli*, *Ksheerkakoli*)^[8]
4. *Mudgaparni*
5. *Mashaparni*
6. *Jeevanti*
7. *Mulethi*

These drugs contains predominantly ***Chakshushya*** and ***Rasayana*** properties, working synergistically in this formulation as *Vata-Pitta shamaka*. So this yoga pacifies ***Vata-Pitta doshas***, helps to counteract the symptoms of ***Shushkakshipaka***^[9]

In present era, *Shushkakshipaka* has similarities with Dry Eye Syndrome. With the objective to access safety and efficacy of the formulation Pharmacodynamics, Physioanalytical and Microbial studies were done and results were discussed.

MATERIAL AND METHODS

Collection of Raw Materials: The raw drugs for the study were procured from the hans pharmacy, Premnagar Ashram, Haridwar, Uttarakhand. The final product that is *Jivaniya Ghrita* was prepared in Hansa Pharmacy, Sidcul. haridwar, Uttarakhand.

The ingredients were identified by PG Department of *Dravyaguna*, Rishikul campus haridwar.

Method of Preparation of *Jivaniya Ghrita*

The *Jivaniya Ghrita* was prepared by classical method of *Ghrita paka*. For *Ghrita paka* 14kg *ghrita* was taken, *drav dravya: godugdha. Kalka dravya: vidarikanda, shatavari, ashwagandha, mudgaparni, mashaparni, jeevanti, mulethi*. In a large vessel *go-ghrita* was poured, when it gets melted under moderate flame *Murchhan dravya: haritaki, amalaki, vibheetaki, nagarmotha, haridra, nimbu swaras* were added for fifteen minutes. After *Ghrita murchhan* was done, *kalka dravya* in particular ratio were added followed by addition of *drava dravya, Godugdha*. To get final product, the contents were subjected to heat till up to *sneha siddhi lakshana* were observed. Heating was stopped when *Varti* was formed and froth subsided. *Varti* was tested for absence of crackling sound. *Ghrita* was filtered while still hot (approx. 80°) through a muslin cloth and allowed to cool. After that, the *Ghrita* was packed tightly in glass containers to protect from light and moisture. The contents of *Jivaniya Ghrita* and there proportion is mentioned in [Table no.1]

Pharmacodynamics of *Jivaniya ghrita*

The mode of action of a drug and its physiological effect can be best understood by the properties of its basic physiochemical factors i.e. *Rasa, Guna, Veerya, Vipaka, Karma* and *Prabhava* of the drugs. These properties affect the *Doshas* and determine their *Doshkarma* activity which in turn corrects the vitiated *Doshas* and maintain the *Doshika* equilibrium of the body. The pharmacodynamics of the selected drug (*Jivaniya Ghrita*) is explained in [Table no. 2]

Analytical Study

Prepared final product (*Jivaniya Ghrita*) were analysed by employing various analytical parameters.

Organoleptic study

Organoleptic characteristics for various sensory characters like colour, taste, odour etc and was carefully noted down^[10] [Table no.3]

Physiochemical analysis

Physiochemical analysis such as loss on drying at 110° C, Water soluble extractive, Total Ash, Acid insoluble Ash, Alcohol soluble extract, Acid value, Peroxide value, Saponification value, Iodine value [Table No. 4]. Specific gravity at 25°C, Viscosity, Refractive index, tests were carried out.^[11]

Jivaniya Ghrita was further subjected to thin layer chromatography (TLC) study.

TLC Profile

Instrument used was Silica plate. The stationary phase used was TLC plates silica gel F254 and mobile phase was Toluene: Ethyl acetate (90:10). The plate was sprayed with vanillin-sulphuric acid reagent and the spots were detected after heating at 105°C for 10 min. Rf value of each spot was recorded.^[12]

Heavy Metal Analysis

Heavy metal analysis reveals Lead, Cadmium, Arsenic, Mercury mentioned^[13] in [Table no.5]

Microbiological limit test

Microbial load estimation^[14] shows total bacterial count and total Yeast and mould count. Test for other specific pathogen is negative defined in [Table no.6]

RESULTS

Table No. 1: Contents used in *Jivaniya Ghrita*.

Name of Drug	Latin Name	Part used	Ratio	Form
<i>Vidarikanda</i>	<i>Puraria tuberosa</i>	Fruit	0.50	<i>Kalka</i>
<i>Shatavari</i>	<i>Asparagus racemosus</i>	Fruit	0.50	<i>Kalka</i>
<i>Ashwagandha</i>	<i>Withania somnifera</i>	Root	0.50	<i>Kalka</i>
<i>Mudgaparni</i>	<i>Phaseolus trilobus</i>	<i>Panchang</i>	0.25	<i>Kalka</i>
<i>Mashaparni</i>	<i>Phaseolus radiates</i>	<i>Panchang</i>	0.25	<i>Kalka</i>
<i>Jivanti</i>	<i>Leptadenia reticulate</i>	Root	0.25	<i>Kalka</i>
<i>Mulethi</i>	<i>Glycyrrhiza glabra</i>	Root	0.25	<i>Kalka</i>
<i>Godugdha</i>	<i>Lactus</i>	-	4	<i>Drava</i>
<i>Go-Ghrita</i>	<i>Butyrum depuratum</i>	-	1	<i>Dravya</i>

Table No. 2: Pharmacodynamics of *Jivaniya Ghrita*.

<i>Dravya</i>	<i>Rasa</i>	<i>Guna</i>	<i>Virya</i>	<i>Vipaka</i>	<i>Dosha Shamkta</i>
1. <i>Vidarikanda</i>	<i>Madhur</i>	<i>Guru, Snigdha</i>	<i>Sheeta</i>	<i>Madhura</i>	<i>Vata- Pitta shamaka</i>
2. <i>Shatavari</i>	<i>Madhura, Tikta</i>	<i>Guru, Snigdha,</i>	<i>Sheeta</i>	<i>Madhura</i>	<i>Vata-Pitta shamaka</i>
3. <i>Ashwagandha</i>	<i>Tikta, Katu, Madhura</i>	<i>Laghu, Snigdha,</i>	<i>Ushna</i>	<i>Madhura</i>	<i>Vata-Kapha shamaka</i>
4. <i>Mudgaparni</i>	<i>Madhura</i>	<i>Laghu, Ruksha</i>	<i>Sheeta</i>	<i>Madhura</i>	<i>Tridosha-shamaka</i>
5. <i>Mashaparni</i>	<i>Madhura, Tikta</i>	<i>Laghu, Snigdha</i>	<i>Sheeta</i>	<i>Madhura</i>	<i>Vata-Pitta shamaka</i>
6. <i>Jivanti</i>	<i>Madhura</i>	<i>Laghu, Snigdha</i>	<i>Sheeta</i>	<i>Madhura</i>	<i>Tridosha shamaka</i>
7. <i>Mulethi</i>	<i>Madhura</i>	<i>Guru, Snigdha</i>	<i>Sheeta</i>	<i>Madhura</i>	<i>Vata-Pitta shamaka</i>
8. <i>Godugdha</i>	<i>Madhura</i>	<i>Guru, Snigdha</i>	<i>Sheeta</i>	<i>Madhura</i>	<i>Vata-Pitta shamaka</i>
9. <i>Go-Ghrita</i>	<i>Madhura</i>	<i>Guru, Snigdha</i>	<i>Sheeta</i>	<i>Madhura</i>	<i>Vata-Pitta Shamaka</i>

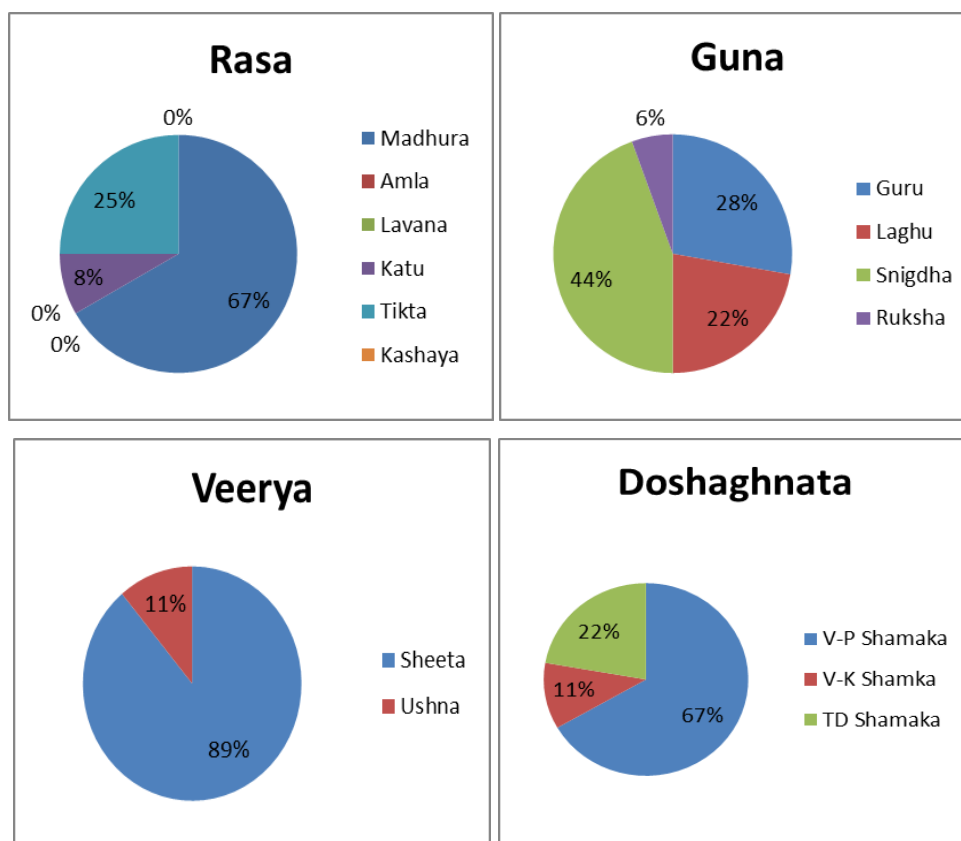


Table no. 3: Organoleptic Parameters of *Jivaniya Ghrita*.

Properties	<i>Jivaniya ghrita</i>
Colour	Light green
Odour	Pleasant
Touch	Unctuous
Taste	Bitter
Appearance	Light

Table No. 4: Physio-chemical parameters of *Jivaniya Ghrita* Analysis.

Parameters	<i>Jivaniya Ghrita</i>
Loss On Drying	0.14%
Water Soluble Extractive	0.08%
Total Ash	0.01%
Acid Insoluble Ash	0.006%
Alcohol Soluble Extractive	9.42%
pH	3.24
Acid Value	1.51
Peroxide Value	Nil
Saponification Value	197
Iodine Value	9.99
Refractive Index	1.461
Viscosity	640.8

Thin Layer Chromatography (TLC)

Thin layer chromatography study (TLC) was carried out under 254 and 366 nm UV to established finger printing profile. It showed R_f values 0.17, 0.37, 0.46, 0.56, 0.62, 0.70, 0.77, 0.81, 0.86 which may be responsible for expression of its pharmacological and clinical actions.

Table No. 5: Heavy Metal Analysis.

Heavy metal	Result
Lead	2.49 ppm
Cadmium	0.04 ppm
Arsenic	<0.50 ppm
Mercury	<0.13 ppm

Table No. 6: Microbial load estimation of formulated ghrita.

Total bacterial count(cfu/g)	40
Yeast and mould count (cfu/g)	<10
E.coli	Absent
Staphylococcus aureus	Absent
Pseudomonas aeruginosa	Absent
Salmonella sp.	Absent

DISCUSSION

Ayurvedic formulations have been used traditionally since very long time. Increasing environmental pollution, soil pollution, use of artificial fertilizers and industrial affluent have serious impact to quality and safety of herbal drugs. Therefore, highest level of hygiene should be maintained from the beginning of the process till the manufacturing and packaging of finished product, to maintain lowest possible level of pathogenic organism as per WHO guideline for safe internal use of herbal preparations. *Jivaniya ghrita* has predominance of *Madhura rasa* (67%), *Snigdha guna* (44%), *Guru guna* (28%), *Sheeta veerya* (89%), *Madura vipaka* (100%), *Vata-Pittashamaka*(67%) and *Tridosha shamaka* (22%) by virtue of its *Rasa, Guna, Veerya, Vipaka* and *Doshaghnata*. Thus, overall effect of compound is *Vata-Pittashamaka* and hence it disintegrates the pathology of eye disease, which is *Vata-Pittaja* in its manifestation. Loss on drying, Specific gravity, Viscosity and refractive index, are in normal range. If Saponification value is more than normal range it indicates lower molecular saturated fatty acids. Higher the iodine value, the less stable will be the *Ghrita* and the more vulnerable it is to oxidation and free radical production. High iodine value *Ghrita* are prone to oxidation and polymerization and the sample becomes rancid thus decreasing the shelf life of product. If acid value is more, than chances of photo-oxidation and rancidity are more. The obtained value of these tests are found within normal limits in *Jivaniya ghrita*, which indicates good quality of product.

CONCLUSION

The formulated *Ghrita* mentioned in *Ayurveda* for the management of *Shushkakshipaka* (**Dry Eye Syndrome**). Physiochemical profile, TLC fingerprint, Heavy Metal Analysis, Microbials limit tests are essential parameter for the quality of formulation. All parameters in this preparation were found within normal limits. On that basis we may conclude that the formulated *Jivaniya ghrita* is palatable to the patients and have stable shelf life at room temperature. For the prospective research, study will be helpful for the establishment of safety profile, efficacy and acceptance of classical *Ayurvedic ghrita* formulation.

REFERENCES

1. *Charaka samhita* of *Acharya Charaka* by satyanarayana shashtri vidhyotani vyakhya part 1 *Sutrasthan* (27/232) P.N. reprint edition 2009 published by chaukhambha bharti academy varanashi.

2. *Sushruta samhita of Sushruta with Nibandha Sangrah Commentary of Sri Dalhanacharya and Nyaychandrika Panjika of Sri Gayadasacharya. Reprint. Varanasi: Chaukhamba Sanskrit Sansthan;2009.p.498.*
3. *Charaka samhita of Acharya Charaka by satyanarayana shashtri vidhyotani vyakhya part 1 Sutrasthan (25/40) P.N. reprint edition 2009 published by chaukhambha bharti academy varanashi.*
4. *Charaka. CharakaSamhita Vidyotini Hindi Vyakhya Part-1 Sutrasthana 1/1 by SatyanarayanaShastri reprint edition 2009 Published by ChaukhambaBharti Academy Varanasi.*
5. *Bhavaprakasa Nighantu of Shri BhavaMisra Prof. K.C. Chunekar Shloka (1/153),P.No.60 Reprint edition 2013, Chaukhamba Bharti Academy.*
6. 6,7,8. *Bhavaprakasa nighantu yukta of Shri BhavMisra Vidyotini Hindi Vyakhya Part-1, Shlok, 156, 182 Reprint edition 2013, Chaukhamba Sanskrit Sansthan .*
8. *Sushruta samhita of Mahrishi Sushruta by Kaviraj Ambikadatta Shashtri part 2 (uttarkhand) Shloka (9/20-23), Reprint edition 2010, chaukhambha sanskrit sansthan varanashi.*
9. Wallis TE, Text book of Pharmacognosy, 5th Ed., New Delhi: CBS Publishers & Distributors, 2002; 123-132, 210-215.
10. Ayurvedic Pharmacopodia of India Part 1. 1st ed., published by Govt of India, The controller of publications civil lines, Delhi – 110054, 2011; 8: 190-222. 2009.
11. Egon Stahl, 1969 reprint, Thin Layer Chromatography, Springer publication, 2005124-241.
12. AOAC- official methods of analysis of AOAC international, 18th edition 2005 edited by Dr. William Horwitz, chapter 9, 35-6 and chapter 9.1.09: 19-22
13. Anonymous. The Ayurvedic pharmacopoeia of India, Government of India, Ministry of health and family welfare, Department AYUSH, New Delhi: The controller of publications civil lines., 2004; 1(2): 163.