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ANALYTICAL STUDY ON "DRAKSHADI GHRITA – A POLY HERBAL AYURVEDIC FORMULATION

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ABSTRACT

Ayurvedic literature has lots of unexplored or least tested medicines. Drakshadi ghrita is mentioned in Ashtang Hridaya uttara tantra, fourth, fifth shloka of chapter 13. It is indicated in Kach, Timira, Raktaraji and Shiroruja.[1] Till date no work has been done on pharmaceutico analytical study of Drakshadi Ghrita. A clinical study was conducted on Myopia with Drakshadi Ghrita. It was inferred from the results that it has encouraging effects in the treatment of Myopia. Preparation of oleaginous dosage form is described as Sneha kalpana done by subjecting Ghrita or oil to a particular pattern of heat treated with Kalka (paste) of raw drugs.[2] Pharmaceutical analysis of Drakshadi Ghrita showed that Viscosity at 40℃ (cps) is 420, Acid value 0.33, Refractive Index at 25℃ is 1.4609, weight/ml (g) at 25℃ is 0.9067, Iodine value is 34.95 and Saponification Value is 219.01, Peroxide value is 2.25.

KEYWORDS: Drakshadi Ghrita, Pharmaceutical – Analytical, Kalka.

INTRODUCTION

Sneha kalpana is a considerate pharmaceutical procedure in Ayurvedic pharmacies to obtain semi solid oleaginous dosage form used in different diseases for systemic or topical application. By subjecting Sneha (cow's ghee/ various oils) to a particular heat pattern with Kalka (paste) and Drava (any liquid medium, whether it could be juice, decoction, cold or hot infusion, milk etc.) in prescribed formula.[3]

Drakshadi Ghrita is one such formulation explained in Ayurvedic classics in the treatment of Timira. It is a polyherbal formulation indicated especially in eye disorders. Based on the pharmacological properties, it is evident to know its action on myopia.

Myopia or shortsightedness is a type of refractive error in which parallel rays of light coming from infinity are focused in front of retina when accommodation is at rest.[4] Myopia is a major public health problem pertaining to eye that entails substantial societal, personal, educational, and economical impacts.[5] The clinical correlates of myopia include blurred distance of vision, eye rubbing, and squinting. Myopia is highly prevalent in our society, affecting at least 25% of the adult population in the United States.[6] Estimate number of people suffering from refractive error in the world are in the range of 8 million to 2.5 billion.[7] According to WHO, 4.3% of the vision impairment is due to refractive errors.[8] In India prevalence of myopia is reported to be 6.9%. Stress and nutritive factors also play a vital role in manifestation of myopia. Akshi tarpana is mentioned in the treatment of Timira. Tarpana is a special method of drug administration, applied locally into eyes in various ocular diseases, it provides Vata Pitta shamaka effect, nourishment to eyes and improves visual acuity.

MATERIAL AND METHODS

Collection of Raw Drug

Raw drugs were collected from the Hans Pharmacy, Prem Nagar Ashran, Sidcul, Haridwar, Uttarakhand.

Identification and Authentification

Raw drugs of Drakshadi Ghrita were identified and authentified by PG Department of Dravya Guna, Rishikul Campus, Haridwar, Uttarakhand.

Prepration of Drakshadi Ghrita

Drakshadi ghrita was prepared in Hans Pharmacy, Sidcul, Haridwar. After collecting all the ingredients of Drakshadi Ghrita, in a large vessel Go-Ghrita was poured, when it liquefied under moderate flame, Kalka of Draksha, Chandana, Manjishtha, Ashwagandha, Vidari, Sita (Sharkara), Shatavari, Pundrahva, Madhuka, Utpala was added, followed by addition of cow milk. To get final product, the contents were subjected to

moderate heat till up to when Sneha Siddhi features were observed.[9]

Table 1: Ingredients of Drakshadi Ghrita.

Dravya	Latin name	Family	Part used	Dose	Dosha-shamakata	Karma
Draksha[10]	*Vitis vinifera*	Vitaceae	Fruit	12gm	Vata-pitta Shamaka	Jivanya, Balya, Brihangna
Chandana[11]	*Santalum album*	Santalaceae	Heart wood	12gm	Kapha-pitta Shamaka	Medhya, Balya
Manjishtha[12]	*Rubia cordifolia*	Rubiaceae	Stem	12gm	Kapha-pitta Shamaka	Balya, Agnideepana,
Ashwagandha[13]	*Withania somnifera*	Solanaceae	Root	24gm	Kapha-vata Shamaka	Balya, Rasayana, Brihngana
Vidari[14]	*Pueraria tuberose*	Leguminosae	Tuber	12gm	Vata-pitta Shamaka	Vrishya, Anulomana
Sita(Sharkara)[15]	*Saccharum officinarum*	Poaceae	Stem	12gm	Vata-pitta Shamaka	Balya, Vrishya
Shatavari [16]	*Asparagus racemosus*	Liliaceae	Root	24gm	Vata-pitta Shamaka	Balya, Rasayana
Pundrahva[17]	*Saccharum officinarum*	Poaceae	Root	12gm	Vata-pitta Shamaka	Vrishya. Balya, Brihangna
Madhuka[18]	*Glycyrrhiza glabra*	Papilionaceae	Stem and Root	12gm	Vata-pitta Shamaka	Rasayan, Vatanulomana
Utpala[91]	*Nymphoea stellata*	Nymphoeaceae	Flower	12gm	Vata-pitta Shamaka	Medhya, Balya
Goghrita(Cow Ghee[20])				768gm	Vata-pitta Shamaka	Chakshushya, Rasayana, Dhatu Vardhaka,
Godugdha(Cow milk[21])				768gm	Vata-pitta Shamaka	Rasyana, Dhatuvardhana, Chakshushya

Table 2: Organoleptic Characters of Drakshadi Ghrita.[22]

Sr. No.	Various Parameters	Drakshadi Ghrita
1.	Colour	Orange
2.	Odour	Aromatic
3.	Taste	Madhura
4.	Touch	Smooth
5.	Texture	Soft

Table 3: Organoleptic Characters of Ingredients of Drakshadi Ghrita.

Dravya	Colour	Odour	Taste
Draksha	Brown to black	Sweetish and pleasant	Sweet
Chandana	Yellowish brow	Persistently aromatic	Slightly bitter
Manjishtha	Brown to purple	Characteristic	Slightly astringent
Ashwagandha	Brownish white	Characteristic	Bitter and acrid
Vidari	Light cream	No specific odour	Sweet
Shatavari	Cream	No specific odour	Sweetish
Pundrahva	Whitish yellow	Characteristic	Juicy and sweet
Madhuka	Yellowish cream	Faint and characteristic	Sweet
Utpala	Dark brown	No specific odour	Sweet

Table 4: Physicochemical Parameters.

Parameter studied	Result
Acid value	0.33
Refractive Index at 25c	1.4609
Iodine value	34.95
Saponification Value	219.09
Viscosity at 40c (cps)	420
Peroxide value	2.25
Identification (by TLC)	Picture attached
Weight/ml(g) at 25c	0.9067

Table 5: Heavy Metals Test.

Parameter studied	Result
Lead (pb) ppm	1.95
Arsenic (As) ppm	<0.50
Cadmium (cd) ppm	0.04
Mercury (Hg) ppm	0.33

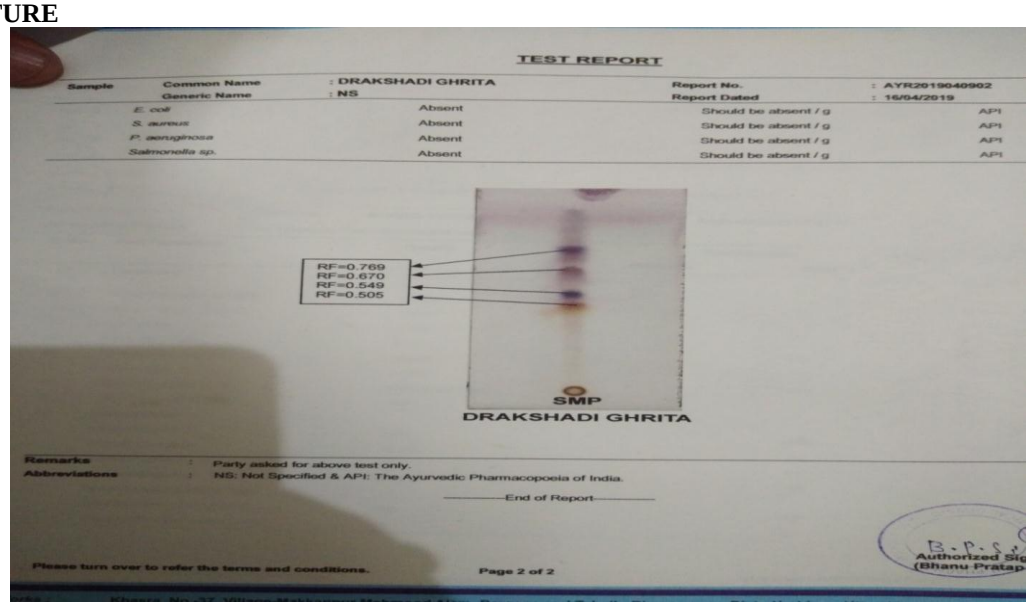
Table 6: Microbiological Limit Test.

Parameter studied	Result
Total bacterial count (cfu/g)	120
Yeast and mould count (cfu/g)	10
E. coli	Absent
S. aureus	Absent
P. aeruginosa	Absent
Salmonella sp.	Absent

Table 7: High Performance Thin Layer Chromatography (HPTLC).

SAMPLE	NO.SPOT		RF VALUE
Drakshadi Ghrita	4	Observed under short UV Light (254 nm)	0.769, 0.670, 0.549, 0.505

TLC PICTURE



RESULTS AND DISCUSSION

Physico-Chemical Analysis

Drakshadi Ghrita was analyzed using various standard physico-chemical parameters such as acid value, saponification value, refractive index, iodine value, Viscosity at 40c (cps), Peroxide value, Identification (by TLC), Weight/ml(g) at 25c. (Table 4).

Pharmacognostical Analysis

Organoleptic characters were noted down and are depicted in Table 2. Drakshadi Ghrita was characterized as fine homogenous thick liquid which was sticky and slow falling as drop, Orange in colour, sweet smelling aromatic in odour, sweet, astringent in taste and immiscible in water.

DISCUSSION

Pharmacognostical study reveals authentification of individual raw drugs of Drakshadi Ghrita. Quality control parameters like saponification value are standard for any fat or oil. Similarly, when oil-fats become rancid, triglycerides are converted into fatty acids and glycerol, causing an increase in acid value, iodine value and refractive index are suggestive of oxidation. The oxidation levels of vegetable oils are important quality criteria in food chemistry because oxidation increases their toxicity by the formation of products such as hydroperoxides, aldehydes, ketones, etc. All the physico-chemical parameters, acid value, saponification value, Identification (by TLC), Refractive index, iodine value, Viscosity and Wight/ml(g) analyzed were almost near to the reference range as specified for cow's ghee (no previous research work is available as standard reference for Drakshadi Ghrit).

CONCLUSION

Pharmacognosy and physiochemical evaluation of Drakshadi Ghrita, a potent medicine in the management of Myopia, were performed. All the ingredients were proved to be authentic and compared with the parameters mentioned in API (Ayurvedic Pharmacopeia of India). It is inferred that the formulation meets maximum qualitative standards based on physicochemical parameters.

Though the groundwork requisites for the standardization of Drakshadi Ghrita are covered in the current study, additional important analysis investigations are required for the identification of all the active chemical constituents of the test drug to substantiate the clinical efficacy.

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