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SHORT COMMUNICATION

Analytical Study of Kushmanda Ghrita, A Polyherbal Formulation, For Pharmaceutical Standardization

Trupti Gamit*, Swapnil Raskar and Kavya Mohan
Department of Kaumarbhritya, Parul Institute of Ayurveda, Vadodara, Gujarat
Corresponding author: Email: truptigamit3293@gmail.com

ABSTRACT

Kushmanda Ghrita is mentioned in Ayurveda classical textbook and Nighantus with properties, actions, therapeutic uses and synonyms of the herb. Kushmanda Ghrita is a unique polyherbal Ayurvedic formulation recommended in the management of various psychological disorders mentioned in Astanga Hridaya and in Bhaishajya Ratnavali and the formula given is the same, selected for present study. Aim of the study was to develop the physico-chemical profile of Kushmanda Ghrita. Kushmanda Ghrita was prepared as per classical methods in the Ayurvedic Pharmacy, Parul institute of Ayurveda, Parul University, Vadodara and analytical findings were systematically recorded. The samples were subjected to organoleptic, and physico-chemical analysis. Physicochemical analysis of the finished product were carried out, to evaluate the quality of the formulation. Specific gravity of the formulation was 0.9020 w/w, loss on drying at 110 c temperature was 0.24%w/w, refractive index at 400 c was 1.4450, HPTLC was carried out after organizing appropriate solvent system in which maximum 3 spots at 254 nm and 1 spot at 366 nm were distinguished. Results are of further used for any other research works.

Keywords: *Kushmanda Ghrita, HPTLC, Physico-chemical analysis.*

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INTRODUCTION

In the present study, the *Kushmanda Ghrita* is subjected to pharmaceutical analysis. *Kushmanda Ghrita* has been described in *Astanga Hridaya*, in the context of '*Apasmara Pratishedha*' i.e. *Dhi-vak-Swara pradam*.[1] *Kushmanda Ghrita* mainly contains *Kushmanda* (*Benincasa Hispida*) family Cucurbitaceae (Lat. Cucurbita=gourd, large fleshy fruit). Commonly it is called as Ash gourd or Wax gourd. *Yashtimadhu* (*Glycyrrhiza Glabra*) family Fabaceae. *Kushmanda Ghrita [2*] is a classically prescribed for *Apasmara* in the text of *Chakradatta.*[3] Lipid-based medications, due to their lipophilic nature, which has an improved ability to cross the blood-brain barrier, facilitating their use in treating neurological disorders by reaching the brain effectively. *Kushmanda Ghrita* has showed significant results in the management of *Chittodvega.* [4] *Kushmanda* is mentioned as a potent *Medhya Rasayana* by *Acharya Bhava Misra* [5], *Yastimadhu Churna* given internally has a therapeutic purpose of *Medhya* [6] having multi-dimensional activities because of the contents like glycyrrhizine and flavonones. It acts as a brain tonic, increases the circulation into the central nervous system [CNS] hence has a significantly improved learning and memory [4]. Ghrita is considered to be the best in promoting comprehension, memory power, and intellectual ability, also provides strength, increases life span and is also good for eyes. *Ghrita* has a property of *Samskarasyanuvartanum;* it means there is no other such material, which imbibes the quality to the extent that *Ghrita* does.

MATERIAL AND METHODS

Collection, Identification and Authentication of raw drugs

Ripened fresh *Kushmanda* ([*Benincasa Hispida* (fig. I)] was collected during middle of April 2024, from APMC a local market yard, Vadodara, Gujarat. Other ingredients of *Kushmanda Ghrita* (Table 1: Ingredients of *Kushmanda Ghrita*) were procured from Parul Ayurveda pharmacy. All the raw drugs were

identified and authenticated in the Pharmacognosy laboratory of Parul institute of Ayurveda, parul university, Vadodara and *Kushmanda Ghrita* was prepared in pharmacy of Parul Ayurveda, Parul university, Vadodara, Gujarat, As per SOP (Standard operative procedure) procured by pharmacy.

Table 1: Ingredients of Kushmanda Ghrita [3]

NAME	BOTANICAL NAME	FAMILY	PART USED	FORM	PART	RAW DRUG PROPORTION
Kushmanda	*Benincasa Hispida*	Cucurbitaceae	PULP	*Swarasa*	18 PARTS	180 litre
Yashtimadhu	*Glycyrrhiza Glabra*	Fabaceae	ROOT	POWDER	1/4TH PART	250 gm
Go-ghrita (Cow Ghee)	--	--	--	--	1 PART	10 lit

Figure 1: Fresh fruit of *Benincasa Hispida*

Method of preparation of *kushmanda Ghrita*

1. Kushmanda Swarasa was extracted from pulp by grinding machine from ripen kushmanda.
2. In a large vessel Go-Ghrita was poured, when it was liquefied under moderate flame.
3. Kalka of Yashtimadhu was added in kushmand Swarasa.
4. To get the final product, the content was subjected to heat till " Sneha Siddhi Lakshanas" was obtained. [7]

Organoleptic study

Table 2: Kushmanda Ghrita was evaluated for organoleptic characters like color, odour, taste, consistency.

Color	Golden yellow
Odour	Characteristic
Taste	Sweet
Consistency	Liquid (Ghee)

Table 3: Physico-Chemical Characteristics

Sr.NO	PARAMETER	VALUE
1	Loss on drying at 110 c(%w/w)	0.24
2	Total Ash value (%w/w)	0
3	Refractive index	1.4450
4	Specific gravity	0.9020
5	PH Value	4.5
6	Acid Value	0.5
7	Iodine Value	55
8	Saponification Value	235
9	Rancidity Tate	Not Rancid

HTPLC of Kushmanda Ghrita

Methanol extract of *Kushmanda Ghrita* was used for High performance thin layer chromatography (HTPLC) study. Methanol extract of was spotted on *kushmanda Ghrita* precoated silica gel 60 F254

On Aluminium Sheets as 8 mm bands by means of CAMAG Linomat (S/N:280008) Applicator fitted with 15.0 µL Hamilton Syringe. Toluene: ethyl acetate formic acid (4:3:0:5 v/v/v) was used for *kushmanda Ghrita* as a mobile phase (MP). The development time was 20 minutes. After Densitometry scanning was performed with a CAMAG TLC Twin Trough Chamber, visualization at 254 nm and 366nm under the control of Win Cats software.

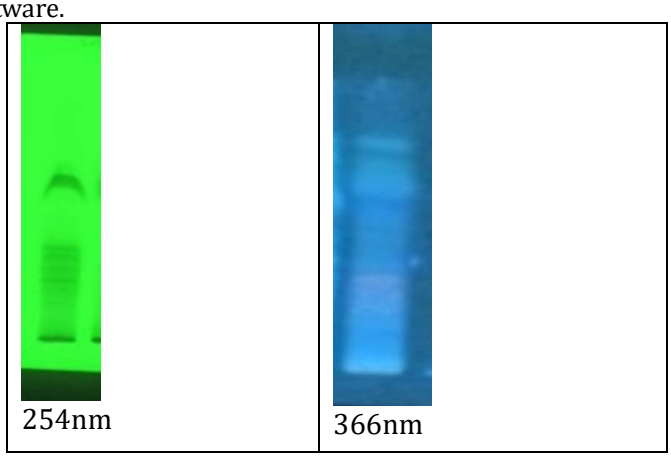


Fig 2:HTPLC fingure print of Kushmanda Ghrita a) at 254nm b) 366nm

High performance thin layer chromatopraphy (HTPLC)

Preparation of sample solution

The *kushmanda Ghrita* sample was absorbed on silica gel. The mixture was extracted with hexane. Hexane fraction was discarded.

Chromatographic conditions

A High-Performance Thin Layer Chromatography (HPTLC) analysis was conducted on a drug sample's methanolic extract, following API guidelines. The extract was applied to a MERCK silica gel 60 F254 aluminum HPTLC plate using a CAMAG Linomate 5 applicator. The application consisted of 8mm bands, spaced 8mm apart, with a volume of 15µL per band. A mobile phase of toluene:ethyl acetate (4:3 v/v) was used, with a development distance of 80mm. After development, the separated components were visualized and quantified using a CAMAG TLC Scanner 5 in reflectance absorbance mode at 254nm and 366nm. The scanner's slit dimensions were 6mm x 0.45mm. The colors and refractive index of the resolved spots were recorded.

Sample preparation

0.1 ml of sample was taken and diluted with 1 ml of hexane and then subjected to chromatography. There after prechromatographic derivatisation was done with alcoholic KOH.

RESULT

Organoleptic characters of kushmanda Ghrita:

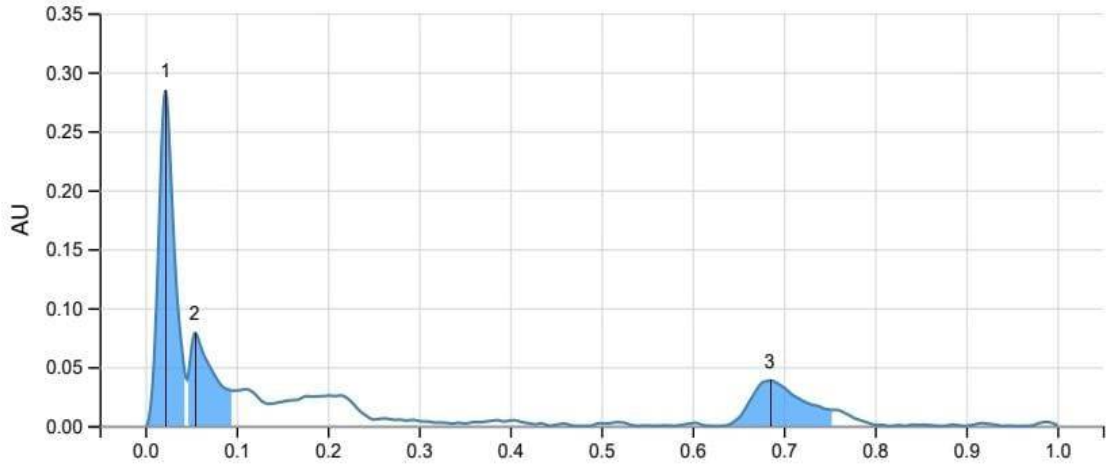
Organoleptic characters contents of *Kushmanda Ghrita* like colour, taste, touch, and odour were recorded and showed in (Table 4)

Table 4: Organoleptic characters of Kushmanda Ghrita

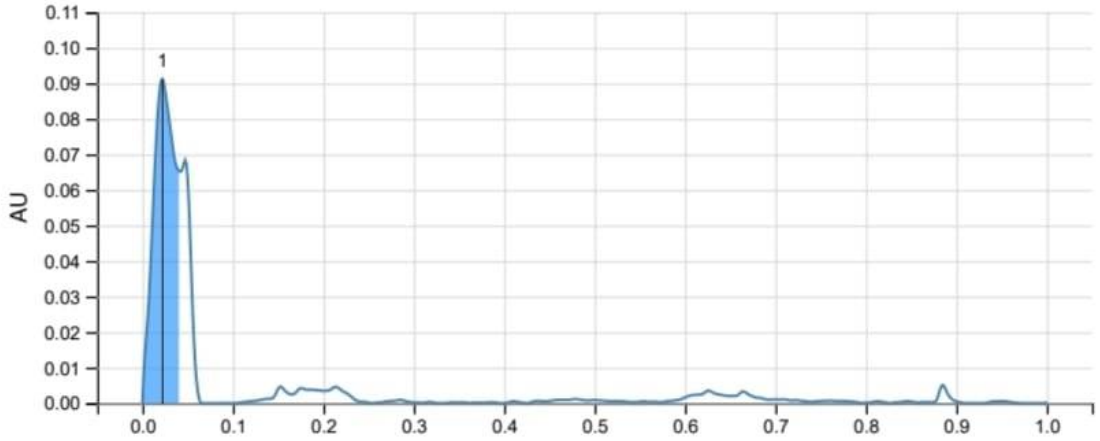
SR.NO	CHARACTER	OBSERVATION
1	Color	Golden brown
2	Touch	Smooth
3	Taste	Sweet
4	Odor	Characteristic

PHARMACEUTICAL EVALUATION

Physico-chemical analysis of *Kushmanda Ghrita* showed on Table 5 maximum Rr of *kushmanda Ghrita* in HTPLC showed in Table 6 fig 3 (a) 254nm 3 D (b) 366 nm 3D



(a)



(b)

Fig 3: Rr of *kushmanda Ghrita* in HTPLC showed (a) 254nm 3 D (b) 366 nm 3D

Table 5: Physico-Chemical Analysis of Kushmanda Ghrita

Sr.NO	PARAMETER	VALUE
1	Loss on drying at 110 c(%w/w)	0.24
2	Total Ash value (%w/w)	0
3	Refractive index	1.4450
4	Specific gravity	0.9020
5	P^H Value	4.5
6	Acid Value	0.5
7	Iodine Value	55
8	Saponification Value	235
9	Rancidity Tate	Not Rancid

Table 6 : Maximum Rr of Kushmanda Ghrita in HPTLC Showed

Sample name	254 nm		366nm	
	No. of spots	R_f Values	No. of spots	R_f Values
Kushmanda Ghrita	3	0.022 0.054 0.685	1	0.022

DISCUSSION

The physicochemical analysis confirmed in ensuring the quality, purity, and consistency of *kushmanda Ghrita* with cross verification revealing the presence of stone cells, silica deposits, fragments of spiral and border pitted vessels, simple starch granules and group of lignified stone cells in ingredients. All analysed

physicochemical parameters, including acid value, saponification value, refractive index (RF) value, iodine value, and specific gravity, fell within normal referential ranges. HPTLC analysis, revealing distinct spots at various Rf values, confirmed the absence of adulterants and *rancidity* in the prepared *Kushmanda Ghrita*, demonstrating successful standardization of its quality.

REFERENCES

1. Acharya Vaghbhat, Astanga Hridaya, edited by Yadavji Trikmaji, Choukhamba Surabharati Prakashana. 2011; 7:28:803.
2. Vagbhata. Ashtanga hridayam. With the commentaries Sarvangasundara of Arunadatta and Ayurvedarasayana of Hemadri. In: pt Paradkar HS. Uttara tantra–Apasmara pratishedha adhyaya. 7/28. 2nd ed. Varanasi: Chaukhamba Sanskrit Series Office; 1982. p. 803.
3. Chakrapanidatta, Chakradatta (Chikitsa Sangraha of Chakrapanidatta), Dr G. Prabhakara Rao, Apasmarachikitsa Chapter 21 (shlok no. 29-30), P. 371, ChaukhambhaOrientalia, Varanasi, 1994.
4. Gupta K, Mamidi P. (2013), A comparative study on Naladadi Ghrita in attention–deficit/hyperactivity disorder with Kushmanda Ghrita. International Journal of Green Pharmacy (IJGP). 7(4).89-96
5. Mishra B, Vaishya R. (2005). Bhavaprakasha. Chaukhamba Publication, Varanasi. 1:85.
6. Charaka Samhita, Acharya Vidyadhara Shukla and Ravidatta Tripati R. Chaukambha Sanskrit Pratishthan, Delhi, 2007; 3.
7. Sarangadhara Samhita. edited and translated by Professor K.R. Srikamtha Murthy, Chowkamba Orientalia. Madhyama khanda, 9:12-14:116