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ANALYTICAL STUDY OF GANDARVAHASTHADI KWATHA – AN AYURVEDIC FORMULATION

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ABSTRACT

A completely herbal remedy called Gandarvahasthadi Kwatha is frequently used to treat vataja rogas such as sciatica (grudhrasi), back pain (Kati graha), etc. The Gandarvahasthadi Kwatha is a pharmaceutical drug combination that can be taken orally. It contains eight ingredients: Pathya (Terminalia chebula Retz.), Punarnava (Boerhavia diffusa Linn.), Yavashaka (Tragia involucrata Linn.), Hutaswa (Plumbago zeylanica Linn.), Vishwam (Zingiber officinale Roxb.), Pathya (Terminalia chebula Retz.), Punarnava (Boerhavia diffusa Linn.), and Bhumithalam (Asparagus adscendens Roxb.). The inability to standardize polyherbal mixtures makes it challenging to verify their effectiveness and preserve product quality. Thus, an effort has been made to investigate Gandarvahasthadi Kwatha through the development of f qualitative and quantitative analysis of Physico-chemical parameters.

KEYWORDS: Ayurveda, Gandarvahasthadi Kwatha, Herbal Medicine.

INTRODUCTION

A drug is any substance or product that is meant to be used for the benefit of the user to alter, investigate, or modify physiological systems or pathological situations. The word "drug" originates from the French word "drouge," which refers to a dry herbal. Any substance used

to diagnose, prevent, treat, or completely cure an illness in humans or animals is considered a medication. Dravya is the medication that ranks second among the four main therapeutic components. The right choice of raw materials, appropriate manufacturing processes, and appropriate dosage delivery are essential to the treatment's success. The first class of medications in the series are those derived from herbs.

In traditional medical systems, herbal remedies have been effectively utilized to treat a wide range of illnesses, including sciatica, back pain, arthritis, bronchial asthma, colds, coughs, persistent fevers, dysentery, convulsions, diabetes, diarrhea, emetic syndrome, skin conditions, insect bites, and disorders of the stomach, liver, heart, and immune system. through Herbal remedies have been used by human culture for ages to treat a variety of illnesses. The primary benefits cited for the therapeutic application of medicinal plants in treating a range of illnesses are their safety in addition to their affordability, efficacy, and accessibility. Traditional medical practitioners have been using herbal medications extensively in their daily practices due to these benefits.

One prevalent issue that society faces is back pain. Humans suffer from back pain, which affects 60–80% of the world's population. Of all patients, 40% report having radicular pain, which is categorized as Grudhrasi and accounts for millions of lost workdays annually. Gandovasthadi Kwatha is a purely herbal remedy that is frequently used to treat vataja rogas like grudhrasi etc. Eight substances make up the oral pharmaceutical medication combination known as Gandarahastha, Punamava, Hutaswa, Viishwam, Pathya, Yavashaka, and Bhumithalam, or Gandarvahasthadi Kwatha.

This is a significant compound formulation that is referenced in the traditional Ayurvedic texts for treating vataja disorders, such as anorexia, constipation, and loss of appetite (mandagni). However, standardization in the Ayurvedic sector is still absent. In classics, emphasis has been placed on the standards of both the raw medicine and the final product. Our ancient seers said the medication should be safe, efficient, and able to soothe the illness at very small dosages. However, it shouldn't result in any difficulties of any type. Before being administered, the medication should be standardized to meet these ideal requirements. In order to maintain the quality of the products, the modern period requires the standardization of compound composition. Even if the Ayurvedic classics contain certain measures, it is still vital to assess their safety and effectiveness using contemporary metrics.

In light of this, the CCRAS committee established particular standards for particular dosage forms.

MATERIAL AND METHOD

Acquisition of raw pharmaceuticals

The raw pharmaceuticals were authenticated in the Department of Dravyaguna at Govt. Ayurveda College in Patna, Bihar. All of the individual drugs in the compound formulation Gandarvahasthadi Kwatha were bought from the local market in Bihar.

Study of Pharmaceuticals

At the Department of Rasashastra and Bhaishajya Kalpana, Govt. Ayurveda College, Patna, Bihar, Gandarvahasthadi Kwatha was made using the ratio is indicated.

Procedure for Preparation

The medications were correctly cleaned and dried after being identified. After that, the medications were ground into a coarse powder known as yavakuta churna. One pala (48 gram) of the medications was combined with sixteen parts water and heated over a low flame in an earthen pot until the liquid component was reduced to one-eighth of the original quantity.

Table 1: Ingredients of Gandarvahasthadi Kwatha.

Sl. No.	Ingredients	Botanical Name	Parts Used	Ratio
1.	Eranda	Ricinus communis Linn.	Roots	1 part
2.	Chirubilwa	Holoptelea integrifolia Planch.	Bark	1 part
3.	Chitraka	Plumbago zeylanica Linn.	Roots	1 part
4.	Haritaki	Terminalia chebula Retz.	Fruit rind	1part
5.	Shunti	Zingiber officinale Roxb.	Rhizome	1 part
6.	Punarnava	Boerhavia diffusa Linn.	Whole plant	1 part
7.	Yavashaka	Tragia involucrata Linn.	Whole plant	1 part
8.	Bhumithala (Musali)	Asparagus adscendens Roxb.	Tuber	1 part

Analytical study

The physical and chemical assessment of the formulation is the focus of the current study's analytical investigation. The tests were conducted at the Drug Standardization Unit of the Govt. Ayurveda College in Patna and at Cognosmed Laboratories Private Limited in Patna, Bihar.

Organoleptic parameters and physico-chemical analysis were performed in accordance with the standard protocol outlined in the Indian Ayurvedic Pharmacopeia. The formulation's several organoleptical characteristics, including the kwatha's color, flavor, and odor, were noted.

Physical evaluation measurements included pH, specific gravity at 27°C, ash value, acid soluble ash, loss on drying at 105°C, and total dissolved solids and suspended solids. The extracts that are produced after the medications are used up are a good way to estimate how much of specific chemical compounds they contain.

Analysis of heavy metals

In order to acid-digest the sample, place the 0.5 g sample, 5 ml of Hcl, 5 ml of HNO3, and 1 ml of H2 O2 in a closed vessel device and heat it using a temperature-controlled microwave for 15 minutes at 200°C. Once the vessel device has cooled, the solution is filtered and rinsed with deionized water to make up to 25 ml of solution. The instrument was calibrated using the standard of reference.

RESULTS

The characteristics of Gandovashthadi Kwatha's organoleptic properties were as follows: the color was brown, the scent was like that of usual decoctions, the taste was bitter, and the consistency was liquid.

Analytical study

A 95% confidence limit was established by utilizing the best sample as the baseline and a range of standard errors.

Analysis of heavy metals

The results of the heavy metal analysis done on the medication Gandarvahasthadi Kwatha fall within allowable bounds.

DISCUSSION

Standardization of herbal products is crucial in the modern period for a number of reasons. A 1993 World Health Organization (WHO) report states that approximately 80% of patients in India, 85% in Burma, and 90% in Bangladesh are treated by traditional medical practitioners. Around the world, a herbal renaissance is "the happening" as herbs stage a comeback. The Ayurvedic medical system is still battling to overcome many obstacles in its path, which is an

ironic fact. The debate about the botanical identification of medications is one such obstacle. Evaluating the quality of herbal formulations is crucial to proving their suitability in the modern world. It becomes imperative that everyone working in the pharmaceutical industry serve the general population with high-quality, standard medications. The World Health Organization (WHO) sets a few standards-related metrics. These characteristics can also identify any combination (if any) with real medications. The Gandarvahasthadi kwatha's pH indicates that it is naturally acidic. At 27˚C, the specific gravity is 1.0017. The value of ash is 0.38%. This demonstrates that the product contains very little inorganic salts. The analysis demonstrated that the formulation is devoid of heavy metals, guaranteeing the safety and proper preparation of the finished product. There was no evidence of acid-insoluble ash.

CONCLUSION

The information gathered during this study will be highly helpful in controlling batch-to-batch variance as well as regular quality control of Gandarvahasthadi kwatha. To standardize the formulation, larger samples from various batches should be used in future research. It is necessary to do pharmacological and clinical research in order to reestablish the ancient knowledge using contemporary scientific standards.

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TC-13826

(AYUSH Research and Testing Lab ,NABL Accredited, ISO 9001:2015 Certified)

TEST CERTIFICATE

Issued To	Dr. Suman Lata Dept. of Panchkarma Gov. Ayurvedic College & Hospital Kadamkua, Patna	ULR No.	TC138362400000024F
		Test Certificate No.	CML/TCN/23-24/0049
		Date of Report	11.06.2024
Sample Name	**Gandharvahastadi Kwath**	Test Started on	05.06.2024
Brand Name	NA	Test Completed date	11.06.2024
Sample ID	S-0049	Group	AYUSH Products
Date of Sampling	05.06.2024	Discipline	Chemical
Sample Packing	Packed with HDPE poly bag	Mfg. Licence No.	NA
Batch No./Lot No.	NA	Quantity Received	100 gm X 2 Pack
Mfg. Date	May -2024	Sampling By	Client
Exp. Date	April - 2026	Sampling Location	Patna, Bihar

	QUALITY TEST				
Sr. No.	Test Parameters	Units	Limit	Test Result	Test Method
A	**Physicochemical (Raw herbs)**				
1	Description	------		Brownish powder	By Visual inspection
2	Moisture	%w/w	--------	6.81	API Part-I, Vol.- IX
3	Total Ash	%w/w	NMT 6 % w/w	8.01	API Part-I, Vol.- IX
4	Acid Insoluble Ash	%w/w	NMT 1.5 % w/w	0.92	API Part-I, Vol.- IX
5	Water Soluble Extractive	%w/w	NLT 10 % w/w	17.03	API Part-I, Vol.- IX
6	Alcohol Soluble Extractive	%w/w	NLT 3 % w/w	12.84	API Part-I, Vol.- IX
7	pH (1% w/v solution)	------	Between 4.00 to 6.00	4.46	API Part-I, Vol.- IX

NLT: Not less than, NMT: Not more than, UOM: Unit of measurement, N.S: Not specific, # : Information provided by customer , CFU- Colony forming unit, PPM- Part per million , ND- Not detected

----------End of Report.....

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Authorized Signatory

Dr. Ajay Kumar

(Technical Manager)

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Batch No./Lot No.	NA	Quantity Received	100 gm X 2 Pack
Mfg. Date	May -2024	Sampling By	Client
Exp. Date	April - 2026	Sampling Location	Patna, Bihar

A	Identification by HPTLC	------	-------	Data attached	
B	**Physicochemical (Kwath)**				
1	Description			Brownish Liquid	By Visual inspection
2	Viscosity	gm/ml	-------	1.267	
3	Water Soluble Extractive	%w/w	NLT 90 % w/w	97.42	
4	Total Ash	%w/w	-------	5.26	
5	Total Solid Substance	%w/w	-------	96.26	
6	pH value			6.28	
C	**Qualitative study**				
1	Starch	------	------	Present	CML/STP/031
2	Protein	------	------	Present	
3	Steroid	------	------	Absent	
4	Tannins	------	------	Present	
5	Saponin	------	------	Present	
6	Flavonoid	------	------	Present	
7	Phenol	------	------	Absent	
8	Alkaloids	------	------	Present	

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Exp. Date	April - 2026	Sampling Location	Patna, Bihar

D	**Heavy Metals**				CML/STP/033
1	Arsenic	PPM	NMT 3 PPM	ND	
2	Lead	PPM	NMT 10 PPM	ND	
3	Cadmium	PPM	NMT 0.3 PPM	ND	
4	Mercury	PPM	NMT 1.0 PPM	ND	
D	**Microbiological Limit Test**				CML/STP/034
1	Total Bacterial Count	CFU/gm	NMT 1,00,000 CFU/gm	500	
2	Total yeast & mould count	CFU/gm	NMT 1,000 CFU/gm	Nil	

NLT: Not less than, NMT: Not more than, UOM: Unit of measurement, N.S: Not specific, # : Information provided by customer , CFU- Colony forming unit, PPM- Part per million , ND- Not detected

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