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## PHARMACEUTICAL ANALYSIS OF AN ANUBHUT YOGA- HVKIG SYRUP

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### ABSTRACT

One of the Indian Systems of Medicine (ISM) is Ayurveda, which uses the ideas of "holism" to explain both illness and wellness (Svasthya and Asvasthya) in living things in a rational and sensible manner. The process of creating new dosage forms and altering previous ones is a dynamic one that contributes significantly to the advancement of scientific knowledge in this era of changing lifestyles and heightened public interest. HVKIG Syrup is developed for its beneficial properties such as anthelmintic properties. Standardization is required to ensure consistency between batches of drugs produced and to facilitate large-scale, routine medication manufacture. The current study has provided HVKIG Syrup standardization, physico-chemical characteristics, qualitative analysis, and chromatography (HPTLC). This research will help standardize HVKIG Syrup before they are used in therapeutic settings.

**Keywords: HVKIG, Anubhut Yog, HPTLC, Organoleptic characters**

### 1. INTRODUCTION

Creating and settling on technical standards is the process of standardizing polyherbal medicine. Particular requirements are established to conduct the research that will

result in the creation of a collection of traits that the specific polyherbal medicine will display. Standardization is thus a tool used in the process of quality control.

Standardizing herbal formulations is a crucial step in ensuring the drug's purity, therapeutic efficacy, and consistency of active ingredients.

The components of HVKIG Syrup include *Haritaki* (*Terminalia chebula* Retz), *Vidanga* (*Embelicaribes Burum.f.*), *Kampilakka* (*Mallotus philippinesis* Muell, Arg), *Indrayava* (*Holorrhena Antidysentrica* (Linn) Wall), *Aragvadha* (*Cassia Fistula* Linn), *Sitakhanda* (Sugar candy), and Honey (**Table 1**). Due to the fact that palatability is a major concern for the pediatric age group, the syrup form was selected in the current study without affecting the amount of ingredients. The drug was then subjected to analytical analysis using organoleptic, physico-chemical, and HPTLC finger printing methods.

## 2. MATERIALS AND METHODS

### 2.1 Gathering, Identifying, and Verifying Unprocessed Substances

Every raw material utilized in this study was purchased from a local Vadodara, Gujarat market. The raw medicine was then identified and authenticated at the Parul Institute of Ayurvedic Medicine's pharmacy in Vadodara, Gujarat.

### 2.2 HVKIG Syrup Preparation Methodology

#### 2.2.1 HVKIG *kwath* (Decoction) preparation [1]

In a clean stainless steel decoction vessel with clean water, the necessary amount of

*Haritaki*, *Vidanga*, *Kampilakka*, *Indrayava*, *Aragvadha* are taken in *yavkuta* form. After that, all of the medications are thoroughly combined in a vessel and left alone for the duration of the night. The mixture was cooked in a stainless-steel jar over medium flames the following day until the liquid content dropped to one-fourth, at which point it was filtered.

#### 2.2.2 Preparation of Syrup

The recommended amount of powdered sugar was added to this filtered *kwath*, and then whole mixture until it achieves a thread-like consistency by heating and stirring. Honey and sodium benzoate, a preservative, were added to the syrup after it had cooled, and it was then sealed in a sterile, airtight container.

#### 2.2.2.1 Phytochemical and Analytical Study

Vasu Research Centre, GIDC, Makarpura, Vadodara conducted an HPTLC investigation (Sample ID - AD/21/087, Dated: 13/02/2021) while the Pharmacy of the Parul Institute of Ayurveda conducted the solubility test, organoleptic characteristics, and physicochemical parameters. An analysis of HVKIG Syrup was conducted using a range of analytical criteria. Organoleptic features such as hue, scent, uniformity was conveyed. A physicochemical analysis was conducted to determine the total solids content, pH,

specific gravity, acid insoluble ash, total ash value, and loss on drying at 110<sup>0</sup> C.

#### 2.2.2.2 Finger printing using HPTLC 2-4]

10ml of distilled water were used to dilute a 5-gram sample of syrup. After moving the mixture to a different funnel, 20 ml of ethyl acetate were used for partitioning. After gathering the layer of ethyl acetate, the process was repeated using 15 ml of ethyl acetate. In an evaporating dish, the two ethyl acetate layers pooled and evaporated until they were entirely dry. The sample was reconstituted using 2ml of ethyl acetate, and the resulting solution was then applied using a CAMAG Linomat 5 applicator to a pre-coated MERCKTLC/PHTLC silica gel 60 F254 on aluminum sheets, creating a band width of 10 ml. In Toluene, the HVKIG syrup plate was created: The ratios of ethyl acetate, formic acid, and methanol are 6:3:0.1:1, respectively. Short and long UV images were produced following derivatization in a CAMAG-dip tank for one minute using the vanillin-sulphuric acid reagent. The plate was scanned at three different wavelengths: 254 nm, 366 nm, and 540 nm. Rf, color spots, and densitometric scan were noted.

### 3. RESULTS

The HVKIG syrup's organoleptic characteristics are shown in (Table 2). After adding sugar syrup, the dark brown color of the *kwath* changed to a Dark brown color. Data related to physio-chemistry (Table 3)

Any liquid's pH, which was 4, or acidic, gives a quantitative indication of how acidic or alkaline a solution is. HVKIG syrup's specific gravity of 1.2794 indicates that the prepared syrup's quality is within standard bounds. Refractive index was 1.4670, total ash value was 6.873% w/w, acid insoluble ash was 0.5250% w/w, and total solids were 95.65. The loss on drying at 110C was 14.08 (%w/w). According to (Table 4) solubility test results, HVKIG syrup is soluble in methanol, diethyl ether, 0.5 N HCL, water, and partially soluble in chloroform. HVKIG syrup's final product underwent chromatographic analysis (HPTLC) to create a fingerprinting profile. Colour and Rf values of the spots in the chromatogram created in toluene: Ethyl acetate: Formic recorded. Numerous phyto components with varying Rf values were detected by TLC photo documentation, and an HPTLC densitometric scan of the plates revealed the presence of many bands. Ten spots were obtained at 254 nm, and a densitometric scan at the same wavelength showed ten peaks. These peaks corresponded to ten distinct compounds in the syrup, with Rf values of 0.10, 0.17, 0.31, 0.44, 0.52, 0.55, 0.66, 0.79, and 0.91 (Figure 1).

Only eight spots were found at 366 nm; a densitometric scan at this wavelength revealed eight peaks, each of which corresponded to one of eight different compounds with Rf- 0.17, 0.23, 0.35, 0.44,

0.55, 0.66, 0.72, 0.91) in the syrup (**Figure 2**). At 540 nm, nine spots were found; a densitometric scan at this wavelength revealed nine peaks, each of which

corresponded to nine different compounds in the syrup (compounds with Rf -0.05, 0.27, 0.52, 0.59, 0.79, 0.86, 0.91, 0.93); the maximum Rf value was 0.93 (**Figure 3**).

**Table 1: Composition, part used of HVKIG Syrup**

S. No.	SANSKRIT NAME	SCIENTIFIC NAME	PART USED	RATIO
1	<i>Haritaki</i>	<i>Terminalia chebula Retz</i>	Phala	1 Part
2	<i>Vidanga</i>	<i>Embelicaribes Burum. f.</i>	Beeja	1Part
3	<i>Kampilakka</i>	<i>Mallotus philippinesis Muell, Arg</i>	Phala Raja	1Part
4	<i>Indrayava</i>	<i>Holorrhena Antidysentrica (Linn) Wall</i>	Beeja	1Part
5	<i>Aragvadha</i>	<i>Cassia Fistula Linn</i>	Phala Majja	1Part
6	<i>Sitopala</i>	Sugar	-	20w/v%
7	<i>Madhu</i>	Honey	-	60w/v%
8	Sodium benzoate	Preservative	-	1% in 1 liter

**Table 2. Organoleptic Characteristics of HVKIG Syrup**

S. No.	PARAMETERS	HVKIG Syrup
1.	Color	Dark Brown
2.	Odor	Sweet
3.	Taste	Sweet
4.	Consistency	Liquid

**Table 3: Physico- Chemical Analysis of HVKIG Syrup**

S. No.	PARAMETERS	VALUE
1.	Loss on Drying at 110c(%w/w)	14.08
2.	Total Ash Value (%w/w)	6.873
3.	Acid Insoluble Ash (%w/w)	0.5250
4.	p <sup>H</sup> Value	4
5.	Specific gravity (cc)	1.2794
6.	Refractive index	1.4670
7.	Total solid content (%w/w)	95.65

**Table 4: Solubility Analysis of HVKIG Syrup**

S. No.	SOLVENT	RESULT
1.	Methanol	Soluble
2.	Chloroform	Partially Soluble
3.	Diethyl ether	Soluble
4.	0.5N HCL	Soluble
5.	Water	Soluble

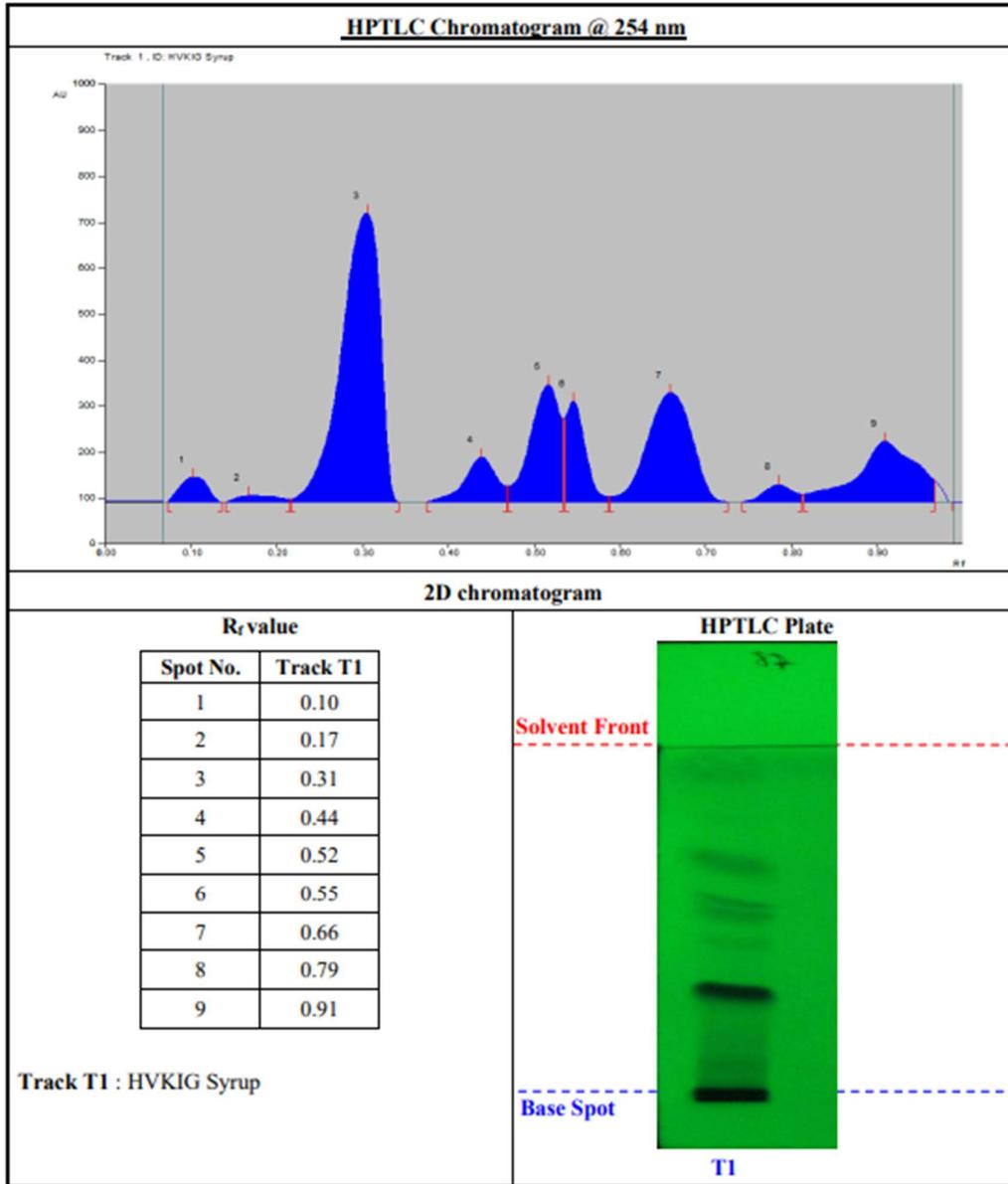


Figure 1: HPTLC plate showing banding pattern and R<sub>f</sub> Values at 254nm

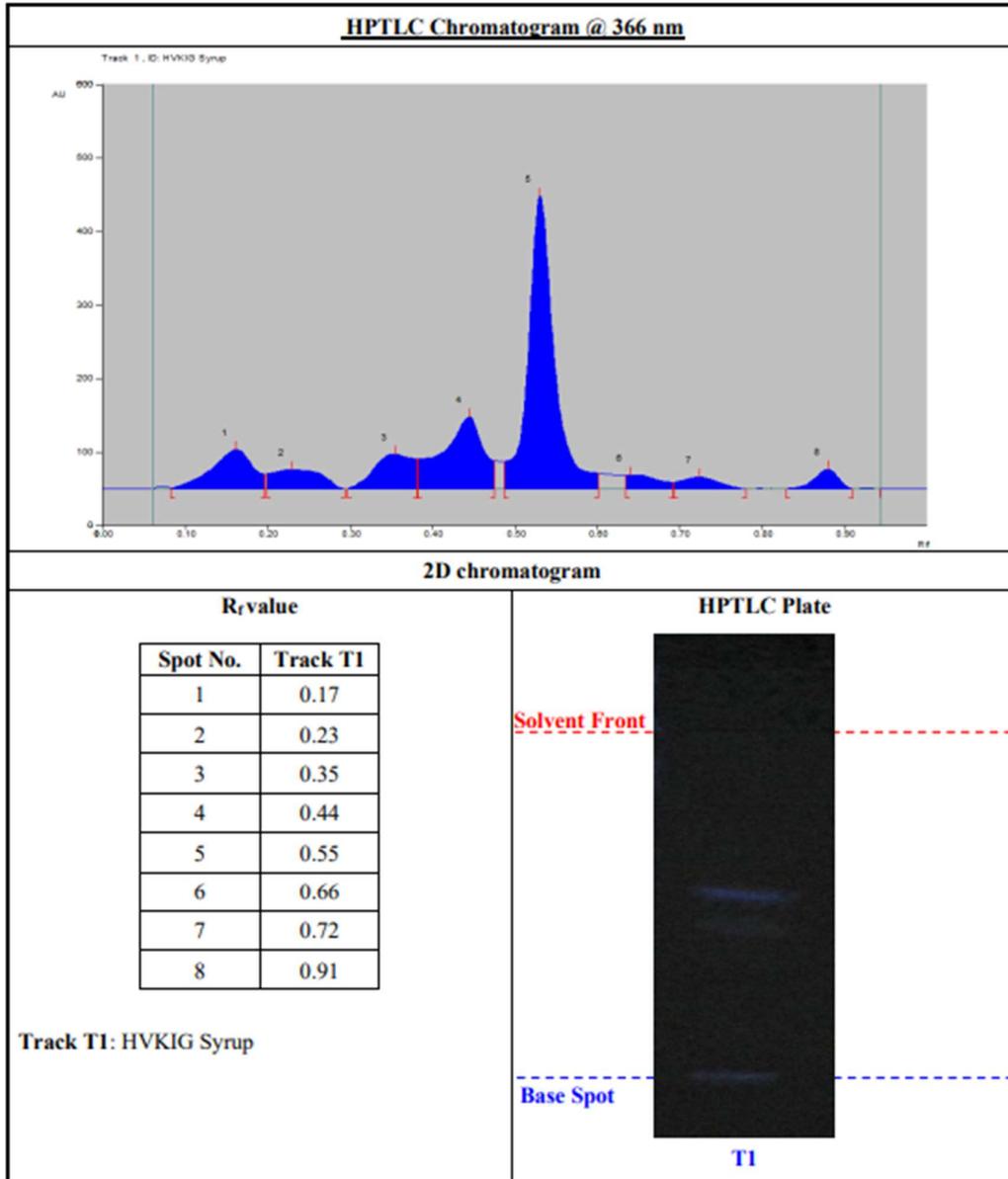


Figure 2: HPTLC plate showing banding pattern and R<sub>f</sub> Values at 366 nm

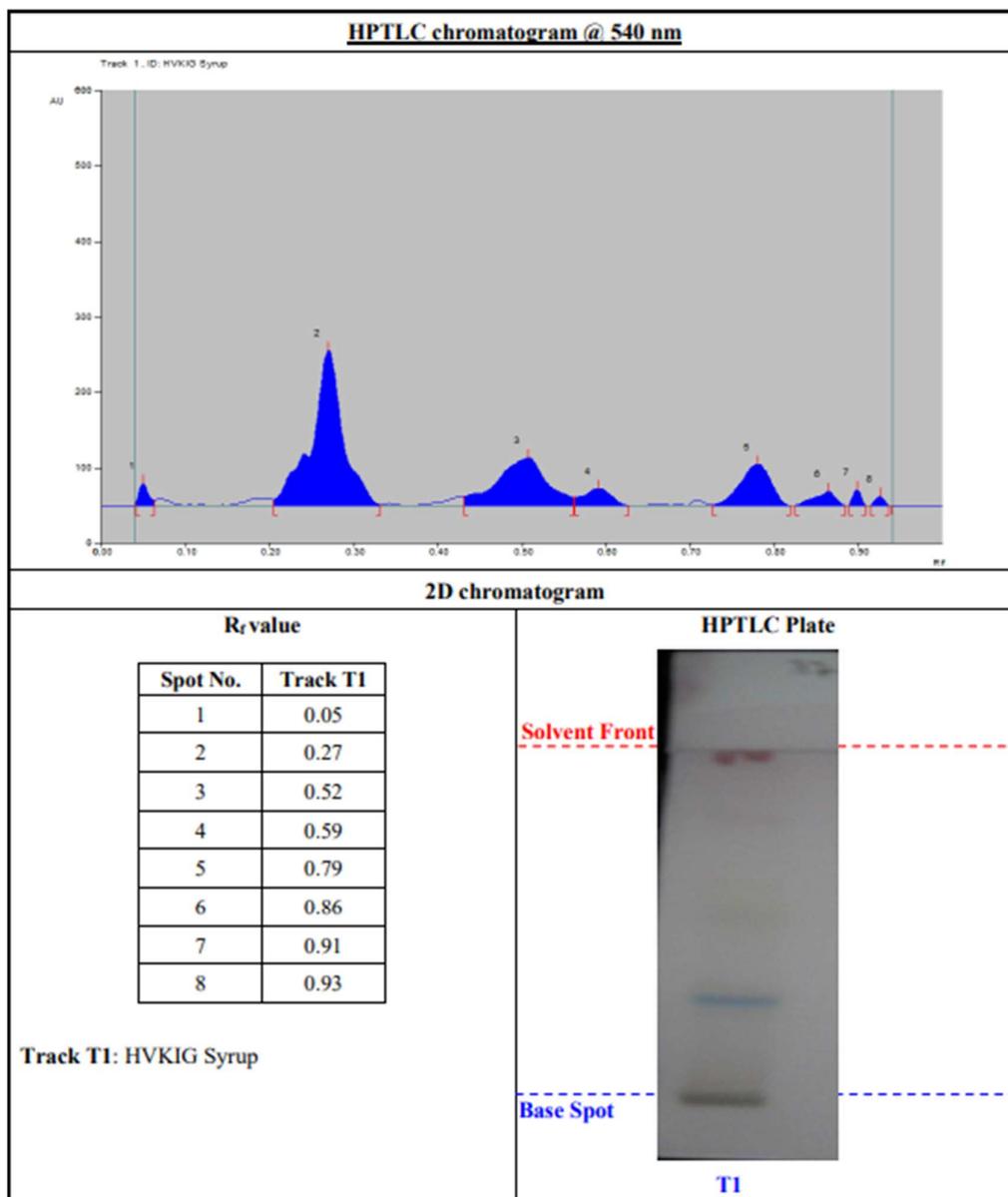


Figure 3: HPTLC plate showing banding pattern and R<sub>f</sub> Values at 540 nm

## DISCUSSION

The Ayurvedic medical system is being used more and more to treat a wide range of illnesses, most notably lifestyle issues. Prior to being employed in the formulation, the substances were found and pharmacognostically confirmed [5]. The uniformity of the substances used in the

production of the medicinal product determines the therapeutic efficacy of any plant or formulation used for medicinal reasons. HVKIG Syrup, the drug that was manufactured, were examined physicochemically and qualitatively as well as HPTLC. These measurements can all be

utilized as analytical criteria for quality control in the formulation process.

## CONCLUSION

The inquiry revealed that sufficient quality control standards were upheld during the manufacturing of HVKIG Syrup. Organoleptic characteristics, physicochemical parameters, phytochemical analysis, and chromatographic analysis were utilized to compare the created samples. The sample's parameters all produced remarkably similar outcomes. A chromatogram derived from the methanol extract showed similar findings. The initial requirements for HVKIG Syrup standardization have been attempted in this study. The goal of this project is to standardize HVKIG Syrup in preparation for clinical use.

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