

**PHARMACEUTICO – ANALYTICAL STUDY OF YASHTYADI
KASHAYA**

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ABSTRACT

Introduction- Yashtyadi Kashaya is mentioned in Brihat Nighantu Ratnakara, Jwara Chikitsa, indicated for Sannipathaja Jwara. Aim-To prepare Yashtyadi Kashaya and analyse it by using various physiochemical parameters. Materials and Methods- Yashtyadi Kashaya contains the drugs such as Yashtimadhu, Patola, Katuki, Mustha, Nimba, Devadaru and Kankari. All the drugs were taken in equal quantity then Kashaya is prepared as per standard operative procedure and pharmaceutico analytical parameters were tested and recorded. Results-The physico chemical parameters of Yashtyadi Kashaya were as follows pH-6.63, Refractive index-1.33967, Total solids 5.52, Specific gravity-0.9811 and TLC green band at 254 nm. Discussion-The pH of Yashtyadi Kashaya showed its slight acidic nature and total solid represents the concentration of active constituents and dissolved solids. The values of all other parameters also help in proving its effectiveness. Conclusion- Yashtyadi Kashaya was

standardised as per API Guidelines and result of this study can be taken as its preliminary standard profile.

KEYWORDS: Yashtyadi kashaya, Standardization, Sannipathaja Jwara.

INTRODUCTION

Standardizing the drugs and formulation establishes a framework for assessing their quality and safety. Formulation quality was evaluated using organoleptic and physical characteristics, as well as qualitative and quantitative analysis. Yashtyadi Kashaya is mentioned in Brihat Nighantu Rathnakara Jwara Chikitsa indicated in Sannipathaja Jwara.^[1]

The Efficacy of formulation depends on ingredients present in it. In this study we have standardized it based on API Guidelines.

AIM: To prepare Yashtyadi Kashaya as per Sharangadhara Samhita and analyse it using various physicochemical parameters.

MATERIALS AND METHODS

The raw drugs were obtained from the GMP Certified SDM Ayurvedic Pharmacy, Kuthpady, Udupi, Karnataka.

Ingredients of Yashtyadi Kashaya are tabulated in Table 1 and pictures are depicted in Figures 1-7.

Table 01: Ingredients of Yashtyadi Kashaya.

Drug Name	Botanical Name	Part used	Ratio
Yashtimadhu ^[2]	<i>Glycyrrhiza glabra</i>	Moola	1 part
Patola ^[3]	<i>Tricosanthes dioica Roxb</i>	Panchanga	1 part
Katuki ^[4]	<i>Picrorhiza kurroa</i>	Kanda	1 part
Mustha ^[5]	<i>Cyperus rotundus</i>	Kanda	1 part
Nimba ^[6]	<i>Azadirachta indica</i>	Twak	1 part
Devadharu ^[7]	<i>Cedrus deodara</i>	Saara	1 part
Kantakari ^[8]	<i>Solanum xanthocarpum</i>	Panchanga	1 part



Fig. 01: Yashtimadhu.



Fig. 02: Patola.



Fig. 03: Katuki.



Fig. 04: Nimbha.



Fig. 05: Mushtha.



Fig. 06: Devadaru.



Fig. 07: Kantakari.

Method of preparation of Yashtyadi Kashaya

The drugs were subjected to cleaning and drying process. All the drugs were separately made into course powder through pulverization and then sieved separately. The course powder of all the drugs were mixed homogenously. The course powder of drug is taken in stainless steel and added with 16 parts of water. The vessel was placed over mild fire, boiled and reduced to 1/8th of its original volume. Then Kashaya was filter through cloth and remaining residue was discarded.

Table 02: The Analytical parameters done for Yashtyadi Kashaya.

Organoleptic characters	Physico chemical analysis	Chromatography
Colour	pH	Hptlc
Odour	Refractive index	
Taste	Total solids	
Consistency	Specific gravity	

pH

pH value of an aqueous solution is defined as the common logarithm of reciprocal of the hydrogen ion concentration in grams per litre. This definition indicates acidity or alkalinity of a solution. pH can be measured potentiometrically using a glass electrode, reference electrode and pH meter.

Preparation of buffer solutions

Standard buffer solution- Dissolve one tablet of pH 4, 7, and 9.2 in 100 ml of distilled water. Determination of pH-1 ml of sample was taken and make up to 10 ml with distilled water, stirred well and filtered. The filtrate was used for the experiment. Instrument was switched on. 30 minutes time was given for warming pH meter. The pH 4 solution was first introduced and the pH adjusted by using the knob of 4.02 for room temperature 30°C. The pH 7 solution was introduced and pH meter adjusted to 7 by using knob. Then sample solution was introduced and reading was noted. Repeat test four times and the average reading were taken as result.^[9]

Refractive Index

The refractive index (n) of a substance with reference to air is the ratio of the sine of the angle of incidence to the sine of the angle of refraction of beam of light passing from air into the substance. It varies with the wavelength of the light used in its measurement. The Abbes

refractometer is convenient for the most measurement of refractive index but other refractometer of equal or greater accuracy may be used.

Method-Placed a drop of water on the prism and adjusted the drive knob in such a way that the boundary line intersects the separatrix exactly at the centre. Noted the reading. Distilled water has a refractive index of 1.3325 at 25°C. The difference between the reading and 1.3325 gives the error of the instrument. If the reading is less than 1.3325, the error is minus, then the correction is plus. If the reading is more, the error is plus and the correction is minus. Refractive index of oil is determined using 1 drop of the sample. The correction if any should be applied to the measured reading to get the accurate refractive index. Refractive index of the test samples was measured at 28°C.^[10]

Specific gravity

Specific gravity is also known as relative density, that compares the density of the substances to the density of reference substance, usually water.

Method- Cleaned a specific gravity bottle by shaking with acetone and then with ether. Dried the bottle and noted the weight. Cooled the sample solution to room temperature. Carefully filled the specific gravity bottle with the test liquid, inserted the stopper and removed the surplus liquid. Noted the weight. Repeated the procedure using distilled water in place of sample solution.^[11]

Total Solid

Total solids are done to determine the solid particle present in the Kashaya. It provides active pharmaceutical ingredient present in the product.

Method-Transfer accurately weighed 50 g of the sample to an evaporating china dish, which have been dried to a constant weight and evaporate to dryness on a water bath, then dry at 105°C. for 3 hours. After cooling the dish containing the residue in a desiccator for 30 min, weigh it immediately. The weigh of residue should comply with the requirements stated under individual monograph.^[12]

HPTLC

Method-10 ml of Kashaya sample was portioned with 20 ml butanol in a separating funnel and kept for 24hr. The butanol fraction was collected and filtered. The butanol was then made to evaporate on a water bath and it is dissolved in 10.0 ml of methanol. 4 and 8 µl of the

above samples were applied on a pre-coated silica gel F254 on aluminium in chloroform: Methanol (8:2:1.8). The developed plate was visualized under short UV, long UV and scanned under UV 290 nm. Rf, colour of the spots and densitometric scan were recorded.^[13]

OBSERVATION AND RESULT

Pharmaceutical study Observation during Kwatha preparation

Characteristic odour of its ingredients was observed during and after the Kashaya preparation. The colour of Kashaya was dark brown after the preparation.

Table 1: Results of Pharmaceutical study of Yashtyadi Kashaya.

Drug taken	20 grms each
Total quantity of water	1.6L
Temperature	80 ⁰ C to 90 ⁰ C
Time taken for reduction	2 hour
Total quantity of Kwatha obtained	200ml

Table 2: Organoleptic Characters.

Organoleptic Characteristics	Result
Colour	Brown
Odour	Kashaya
Taste	Tiktha, Kashaya
Consistency	Thick liquid

Table 3: Analytical study results

Parameter	Results n=3%w/w
pH	6.63
Total solids	5.52
Specific gravity	0.9811
Refractive index	1.33967

Table 4: Rf value of Yashtyadi Kashaya.

Short UV	Long UV
-	-
-	0.34 (F. blue)
0.37(Green)	0.37 (F. blue)
0.42(Green)	-
-	0.50 (F. Blue)
-	-
0.56(Green)	-
-	-
0.72(Green)	-
0.87(Green)	0.87 (F.blue)

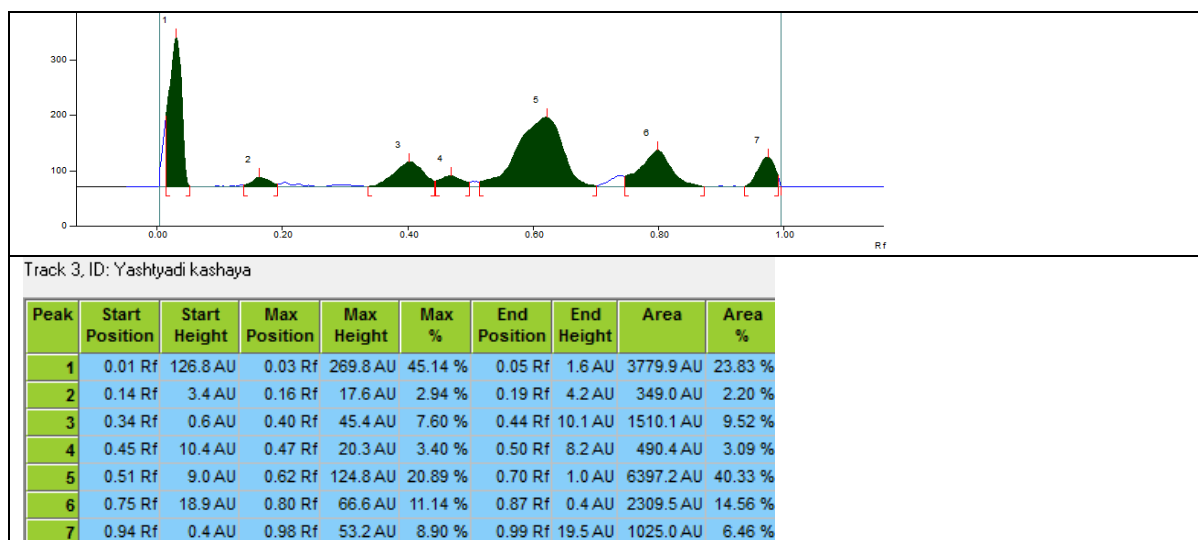


Fig. 08: Yashtyadi Kashaya, Rf - Rf 0.60±0.01(38.47%, Picroside I), 0.43±0.01 (27.43%, Picroside II).

DISCUSSION

The important five key processes that make up Bhaishajya Kalpana are Swarasa, Kalka, Kwatha, Hima and Phanta. Kwatha kalpana is also called as Kashaya kalpana and the term Kwatha is derived from the word Kwathana which means the process of boiling. Kwatha is the liquid dosage form obtained by boiling specific ration of water and then reduced to specific proportion. The drug should be made into Yavakuta churna. As per the general method of preparation of Kwatha Kalpana 16 parts of water is added and reduced to 1/8th proportion. The main purpose of preparing Kwatha is to extract the water-soluble constituents of herbs.

To prepare Yashtyadi Kashaya, the ingredients are made into course powder to increase the surface area to facilitate the extraction of active components easily into the water. All the powders are mixed homogenously and added with 16 parts of water boiled in mild fire. During boiling agitation should be done to remove the froth formation above the upper layer of Kwatha and to prevent the settling of Kwatha Dravya at the bottom of the vessel. After attaining proper reduction Kwatha should be filtered through clean cloth to separate solid particle from the preparation. It took approximately 2 hours. During the process of preparation of Yashtyadi Kashaya, the aroma of the ingredients was elicited and colour changes to brown. The Kashaya became thick due to release of starchy compounds from Mustha and Yashtimadhu.

The pH 6.63 of Yashtyadi Kashaya showed its slight acidic nature and total solid 5.52 represents the concentration of active constituents and dissolved solids. Refractive index-1.33967 represents the amount of dissolved solid. Specific gravity-0.9811 and densitometric scan at 254 nm of Yashtyadi Kashaya shows maximum area at Rf value 0.70, that is 40.33%.

CONCLUSION

In pharmaceutical study, Yashtyadi Kashaya was prepared according to the general method of preparation of Kwatha Kalpana mentioned by Acharya Sharangadhara and subjected to specified analytical tests and the values were within the permissible limit and it is standardized as per the standard protocol. Hence it can be concluded that this study can be taken as a preliminary standard profile of this formulations.

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