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# Pharmaceutical-Analytical Study and Therapeutic uses of *Ashtashatarishta* : A Scientific View

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## ABSTRACT

**Background:** *Ashtashatarishta* comes under the *Sandhan Kalpanas* quoted by *Charak Samhita*, *Chikitsa Sthan* for therapeutic use in *Shotha*. **Aim and Objectives:** Pharmaceutico-Analytical and clinical indications of *Ashtashatarishta* from a scientific view. **Material and Methods:** *Ashtashatarishta* was prepared in the Department of *Rasashastra* and *Bhaishajya Kalpana* of Pt. K. L. S. Govt. Ayurveda College & Institute Bhopal. As per the classical reference of *Charak Samhita*. **Pharmaceutical study:** A detailed description of the preparation of *Ashtashatarishta* by using yeast as a fermentation agent is discussed in this part. The sample was prepared in a Pharmacy of Dept. of *Rasa Shastra* & *Bhaishajya Kalpana*. **Analytical study:** In this phase of the study, all organoleptic parameters (appearance, color, odor, taste, and touch), and physicochemical parameters were analysed. **Result:** The above analysis showed the pH of the tested formulation range 3.47, total solid content 29.93%W/v, specific gravity 1.0595, refractive index 1.391, viscosity 2.20cP, total acidity 1.26%W/v, alcohol content 4.27%v/v, presence of methanol absent, reducing sugar 17.37%W/v, non-reducing sugar 8.675W/v. Organoleptic tests confirmed a characteristic odor of self-generated alcohol with an astringent test. **Discussion:** All the observations and results of the pharmaceutical and analytical study have been elaborated and discussed scientifically with the support of suitable references.

**Key words:** *Ashtashatarishta*, *Sandhana Kalpana*, *Shotha*.

## INTRODUCTION

There are many systems of medical science in the world. *Ayurveda* is one of the most Indian ancient systems of medicine which has been in practice from time immemorial. *Ayurveda* aims at a holistic approach to health. *Ayurveda* is a complete life science. It has all the knowledge about disease pathology, treatment

principles, and drug preparations. *Rasashastra* and *Bhaishajya Kalpana* is a branch of *Ayurveda* explaining pharmaceutical as well as dispensing of medicine. Every drug has some active principle and to get that the drug should be prepared accordingly. *Bhaishajya Kalpana* aims to eliminate unwanted characteristics, to incorporate expected attributes to make the medicine palatable, to increase the shelf life of medicine, and to minimize and customize the dose and the way of administration of medicine for the well-being of patients and society. *Panchvidha Kashaya Kalpana* are the basic drug dosage forms of *Bhaishajya Kalpana* which includes *Swaras*, *Kalka*, *Kwath*, *Hima*, and *Phanta*.<sup>[1]</sup> Even though *Panchvidha Kashaya Kalpana* was prevalent during the *Vedic* period the art of pharmacy was expanded gradually in later periods and several new drug dosage forms were introduced to provide additional advantages like increased shelf life, improved palatability, etc. There are many liquid formations mentioned in our *Samhitas* such as *Swaras*,

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*Kwath, Hima, Phanta, Asava, Arishta, etc. Sandhan Kalpana* includes *Asava* and *Arishta*, in the pharmaceutical process of Ayurveda there are many fermented preparations mentioned in *Ayurveda* since ancient times like - *Madhur* and *Chukra*. According to *Paribhasha Khanda*. *Sandhana* is that in which liquid preparations like juices/decoctions etc. Either along with medicines kept for a long duration for the onset of the fermentation process. *Asava-Arishta* comes under the *Sandhan Kalpanas*. *Arishta* is that in which fermentation is allowed to proceed for generating alcohol in the liquids and drugs kept after boiling.<sup>[3]</sup> *Ashtashatarishta* comes under the *Sandhan Kalpanas* quoted by *Charak Samhita, Chikitsa Sthana* for therapeutic use in *Shotha*.

## AIM AND OBJECTIVES

1. To prepare *Ashtashatarishta* as per the classical reference from *Charak Samhita Shotha Chikitsa Adhyaya 12/32-33*.
2. To conduct the analytical study of prepared *Ashtashatarishta*.
3. Clinical Indication of *Ashtashatarishta* an experimental and scientific view.

## MATERIALS AND METHODS

### Materials

- All the raw materials and essential instruments has been procured from the department of *Rasashastra & Bhaishajya Kalpana* Pt. K. L. S. Govt. Ayurveda College & Institute Bhopal (MP).
- *Ashtashatarishta* was prepared in the department of *Rasashastra* and *Bhaishajya Kalpana* of Pt. K.L.S. Govt. Ayurveda College & Institute Bhopal. As per the classical reference of *Charaka Samhita*.

### Methods

- Pharmaceutical study - To prepare the *Ashtashatarishta*.
- Analytical study - To analyze the Physical and Chemical properties.
- Clinical Indications.

## Ethical Approval

The study was started after the approval of the Institutional Ethical Committee of Pt. K. L. S. Govt. Ayurveda College & Institute Bhopal Wide letter number Klgaci/IEC/2021/RSBK-2 Bhopal, dated 31.07.2021.

## Pharmaceutical Study

### Contents of *Ashtashatarishta*

*Ashtashatarishta*<sup>[4]</sup> has the following ingredients with the proper ratio.

**Table 1: Ingredients of *Ashtashatarishta***

SN	Drug Name	Botanical Name	Family	Quantity
1.	<i>Kashmarya</i>	<i>Gmelina arborae roxb.</i>	<i>Verbenaceae</i>	1255gm
2.	<i>Amlaki</i>	<i>Embelia officinalis</i>	<i>Phyllantaceae</i>	1375gm
3.	<i>Haritaki</i>	<i>Terminalia chebula</i>	<i>Combretaceae</i>	2135gm
4.	<i>Vibhitaki</i>	<i>Terminalia bellirica</i>	<i>Combretaceae</i>	2080gm
5.	<i>Marich</i>	<i>Piper nigrum</i>	<i>Piperaceae</i>	35gm
6.	<i>Pippali</i>	<i>Piper longum</i>	<i>Piperaceae</i>	135gm
7.	<i>Draksha</i>	<i>Vitis vinifera</i>	<i>Vitaceae</i>	715gm
8.	<i>Purana Gud</i>	Jaggery		5.3kg

Fermentative Agents - *Purana Gud* (Jaggery).





Figure 1 and 2: Ingredients of Ashtashatarishta

### Preparations of Ashtashatarishta

Ashtashatarishta is a liquid dosage form like - Sandhana Kalpana (Alcoholic fermentation). This is mentioned in Charak Samhita, it includes the decoction (Kwath) of the drugs. Gud as a sweetening agent, due to bad weather conditions I have added yeast as a fermentative agent and other drugs as per Akshepadravyas. It includes the fundamental principles of Ayurvedic Pharmaceutics. During the preparations, each step of Sandhana Kalpana is followed with special attention.

#### 1. Practical No.1

- Name of practical: Ashtashatarishta Kwath Nirman for sample 01.
- Starting date: 13/03/2023
- Completion date: 6/05/2023
- Procedure commencement time: 10:30 am
- Procedure completion time: 7:00 pm
- Time duration: 9 hours 30 min.

#### Instruments and equipment

- Stainless steel tray and plate: For keeping the drugs
- Electrical weighing machine: For weighing the drugs

- Iron Pounding machine (Khalwa): For making Yavakuta Churna of the drugs
- Knife: For cutting
- Heating device: Gas burner with LPG cylinder for heating
- Stainless steel vessel: For preparing Kwath
- Thermometer: For recording the temperature
- Clean cotton cloth: For filtration

#### Procedure

The manufacturing procedure includes three steps

- A. Pre-procedure (Purvakarma)
- B. Main procedure (Pradhanakarma)
- C. Post procedure (Paschatakarma)

#### Pre-Procedure

It includes the collection and arrangement of the required materials for the procedure. 7.730 kg of Ashtashatarishta ingredients are Yavkuta (coarsely powdered) and soaked in 15 litres of drinking R.O. water overnight so soaking of drugs results in softening of the fruits and active ingredients will move easily in the water. The next day the procedure starts at 10:30 am.

#### Procedure

Here the Kwath (decoction) vaporizes the water and reduces it to the given ratio i.e.,  $1/4^{\text{th}}$  or  $1/8^{\text{th}}$  of the initial quantity. The intensity of Agni (fire) plays an important role in the preparation of the Kwath that's why Kwath is prepared in Madhyam Agni.

Here the overnight soaked Ashtashatarishta fruits were stirred with the help of a stainless steel ladle. Complete water was absorbed by the Yavkuta powder of Ashtashatarishta fruits and the mixture became thick paste-like, now acc. to textual references 61.84 litres of drinking (R.O.) water was added in the vessels, and the gas cylinder was turned on. Slowly the water started to evaporate and stirring was done regularly so that the bottom of the vessels didn't get stuck by the coarse powder of Ashtashatarishta. After 9 hours 30 mins. The Kwath was reduced to its desired ratio of  $1/4^{\text{th}}$  i.e.,

15.46 litres and the *Kwath* was filtered using double-stranded cotton cloth.

#### Post- Procedure

The *Ashtashatarishta Kwath* which was prepared is allowed to self-cooling and the *Kwath* was poured. now 5.3 kgs of *Purana Gud* was added to this poured *Kwath* and kept in an airtight plastic container, *Kwath* was kept for *Sandhana Kalpana* of manufacturing the *Ashtashatarishta*.

#### Observations

- *Kwath* preparation starts at 10.30 am and ends at 7:00 pm i.e., it takes 9 hours and 30 mins for the completion of the procedure.
- The starting temperature of the *Kwath* preparation was 32°C in the vessel at 10.45 a.m. and the temperature of the base of the vessel was 85°C.
- Tiny bubbles of boiling *Kwath* were seen after some time and it remained till the end of the procedure.
- When the process of *Kwath* preparation was started huge amount of froth was produced which decreased regularly after attaining the peak temperature and remained only on the edges of the vessel.
- The temperature of the *Kwath* after 2 hours of commencement is 90°C in the vessel and 230°C outside the vessels.
- The maximum temperature inside the vessel was 95°C and outside the vessel was 320°C After that the intensity of fire given was slightly lowered because high purity can demolish the active ingredients present in *Kwath*.
- Evaporation of the *Kwath* was visible to the naked eye at the temperature of 55°C.
- The vessel and outside the vessel temperature was 180°C at that time.
- The colour of *Kwath* prepared was dark brown and a typical smell was present.

#### Precautions

- The vessels were properly sterilized during the process.
- Raw drugs should be properly dried and cleaned before the size reduction (*Yavkuta*) procedure.
- The vessel in which overnight soaking of the drug was done should be properly covered to prevent it from external dust, contamination, and insects.
- The maximum temperature of the *Kwath* should not exceed 105°C because high temperature may cause degradation of some of the active constituents of the drug which may decompose due to Hydrolysis.
- Double folded cotton cloth was used for the filtration of *Kwath*.
- Squeezing was properly done with the help of cotton cloth to prevent loss.
- Proper handling was done during the filtration process to avoid burning with hot decoction and no loss of *Kwath* due to Spillage.
- Each step of the practical should be done carefully.

**Table 2: Showing results of *Kwath* preparation**

Before boiling water	61.84 litre
After boiling water	15.46 litre
Loss	46.38 litre
Duration	9 hours min.
Reason of loss	Evaporation of water

#### 2. Practical 2

- Name of practical: *Ashtashatarishta Nirman*.
- Starting date: 13/03/2023
- Completion date: 6/05/2023
- Procedure commencement time: 5:30 pm, 13/03/23
- Procedure completion time: 02:30 pm, 06/05/23
- Time duration: 1 month 24 days.

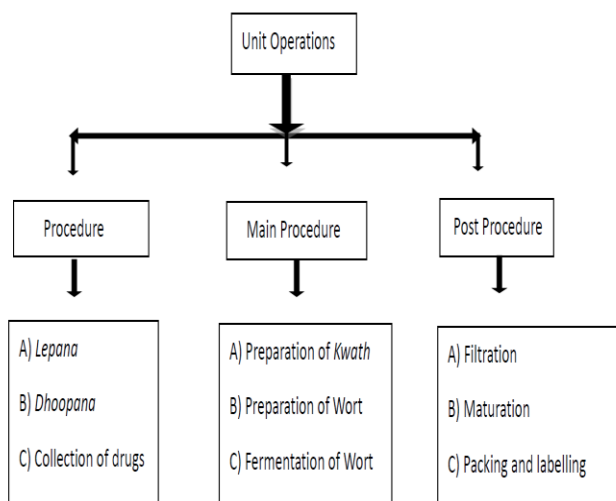
**Instruments and equipment**

- Stainless steel tray and plate: For keeping the drugs
- Electrical weighing machine: For weighing the drugs
- Iron Pounding machine (*Khalwa*): For making *Yavakuta Churna* of the drugs
- Knife: For cutting
- Heating device: Gas burner with LPG cylinder for heating
- Stainless steel vessel: For preparing *Kwath*
- Thermometer: For recording the temperature
- Clean cotton cloth: For filtration
- For storing *Asava* vessels used.
- PVC container: capacity 25 liters.

**Fermentative agents (*Madhur Dravya*)**

- *Purana Guda* (Jaggery)
- Dry Yeast

**Reference:**<sup>[5]</sup> *Ashtashatarishta Kwath* was made according to textual references *Gada Nigraha* 6/100.



**Illustration 1: Shows the procedures of Practical No. 2 Purva Karma (Pre-Procedure)**

**Preparations of Vessels**

The plastic container was washed through warm water and then wiped out with clean cloth and kept in sunlight for drying.

**1. Lepana**

It is performed after the vessels it was smeared with 50gm of *Goghrita* and 50gm of *Madhu*.

**2. Dhoopana**

It is done with *Guggulu (Commifera mukul)*, *Vacha (Acorus calamus)*, and *Raal (Canarium strictum)* in equal quantity. *Dhoopana* of the container was done for 30 mins. The place of fermentation was also fumigated for 30 mins. With the same drugs.

**3. Collection of drugs**

All the raw drugs were provided by the pharmacy of the department of *Rasa Shastra* and *Bhaisajya Kalpana* and were examined by the experts of the *Dravyaguna* department of the institutes. All the raw drugs were properly cleaned to remove physical impurities or adulterations present in them. All the drugs were kept in sunlight for some time to remove moisture from them and then dried in the shade. Drugs were dried in shades because the active contents of Aromatic drugs may get lost in direct sunlight.

**Pradhana Karma (Main Procedure)**

**A) Preparation of Kwath**

- Principal: *Kwathana* (Boiling)
- Date of commencement: 13 March 2023
- Date of completion: 13 March 2023
- Duration: 9hours 30min.
- Surrounding temperature: 35°C - 38°C
- Temperature of *Kwath*: 90°C - 95°C
- Ingredients: Drugs - 7.730 KG
- Water: 61.84 Liter

**B) Preparation of Wort**

- Principal: *Sammishrana* (Mixing)
- Date of commencement: 13 March 2023
- Date of completion: 13 March 2023
- Duration: 20 Min.
- Surrounding temperature: 32°C - 34°C

- Temperature of *Kwath*: Before addition of *Guda* 65°C, After addition of *Guda* 58°C.
- Ingredients:
- *Kwath*: 15.46 LTR
- *Guda*: 5.3 KG
- *Prakshepa Dravya* (dry yeast): 20 gm

#### Procedure

- After straining of *Kwath* with double-layered cotton cloth, it was taken into two stainless-steel vessels. To facilitate the mixing of Jaggery in it.
- Now 5.3 Kg of jaggery was added in *Kwath* and thoroughly mixed with a stainless ladle.
- When jaggery was properly dissolved the wort was strained with double-layered cotton cloth.
- The mixture was poured into a PVC container.
- Finally, dark brown colored wort was obtained with a more sweet and peculiar smell than *Kwath*.

#### Observations

- The color of the wort was dark brown.
- The smell of wort was peculiar to sweet and peculiar.
- A small amount of froth was present.

#### Precautions

- Homogenous mixture was done by proper mixing.
- When the temperature of the mixture becomes 40°C after 25 minutes *Dhataki Pushpa* and *Prakshepa Dravya* are added in the mixture.

**Table 3: Showing results of wort Preparation**

<i>Kwath</i>	15.46 litre
Wort (After the addition of <i>Guda</i> )	20.76 litre
Vol. gain	5.3 litre
Reason of gain	Addition of <i>Guda</i>

#### Removal of seal

- The seal of vessels i.e., PVC container was removed after every 7th day to check the Fermentation process and resealed.
- On 3rd day, it was opened to check whether the process of fermentation was started or not on 7th day, the lid was again re-opened to check the process of fermentation.
- On the 14th day, the lid was again re-opened to ensure the process of fermentation stopped or still preceding.
- Again, it was opened on the 21st day to ensure fermentation.
- Again, it was opened on the 28th day to ensure fermentation.
- The whole process has been repeated till the date of completion.
- The last opening of the sample was completed on the 54th day. On that day candle was not extinguished, no sound of the fermentation process was coming from the container, no effervescence also by getting all these positive results it was ready for filtration.
- After completion of the fermentation process, the filtration of wort was done, dated 06/05/2023.

#### Observations

- On the 7th day, fermentation has been started.
- Burning match stick test: Burning match stick was extinguished in this sample.
- Lime water test: When CO<sub>2</sub> gas was passed through Lime water, the sample of Lime water got turbid due to the presence of CO<sub>2</sub> gas ensuring ongoing fermentation reaction.
- Bubbling sound: A bubbling sound was obtained during these days which ensured the process of fermentation, the peculiar alcoholic smell was felt during fermentation.
- Slight fungal growth was observed on the surface of the wort as a coated layer.

- Taste was getting changed from the initial sample.
- Consistency was also altered after fermentation.
- After completion of fermentation: On the 54th day mixture was clear and dry yeast completely sank to the bottom, no bubbling or effervescence was found. Deep sedimentation has occurred. The finished product on filtration was observed more stringent and less sweet and sour in taste.

### Precautions

- The Plastic container used in the procedure was properly washed, and dried in sunlight, and *Lepana* and *Dhoopana* treatment was done for proper sterilization.
- The container was cleaned with a spirit swab after pouring of wort to prevent pathogenic fungal growth.
- All the vessels used in the procedure were sterilized by proper washing and heat treatment.
- Proper space was left in a Plastic container for the circulation of liberated gas i.e. CO<sub>2</sub> during the process of fermentation. So, 1/3 space of the container was kept empty.
- The fermenting vessel was avoided from direct sunlight, air, and temperature variations.
- Completion tests were performed carefully.
- During filtration cotton cloth was 4 folded to prevent sedimentation in vessels.
- The mouth of the container was not opened frequently to avoid infestation of microorganisms because if it occurred then the chance of spoiling of product was higher.

### 3) Paschat Karma

- A. Filtration:** After the completion of the fermentation process, the filtration of wort was done with the help of four folded clean and dry cotton cloth to check if the sediments came from decoction. The marc that remained in the bottom of the vessel was weighed and discarded.

- B. Maturation:** The filtrate was transferred to another clean and dry container and kept undisturbed for 7 days more.

- To overcome the sedimentation Re-filtration was done after 7th days.
- On the 14th day, once again decanting and filtering were done to get clear fluid (*Arishta*). Slight sedimentation was observed on the earlier container, hence filtration on maturation will avoid further fermentation.
- During filtration cotton cloth was 4 folded to prevent sedimentation in vessels.

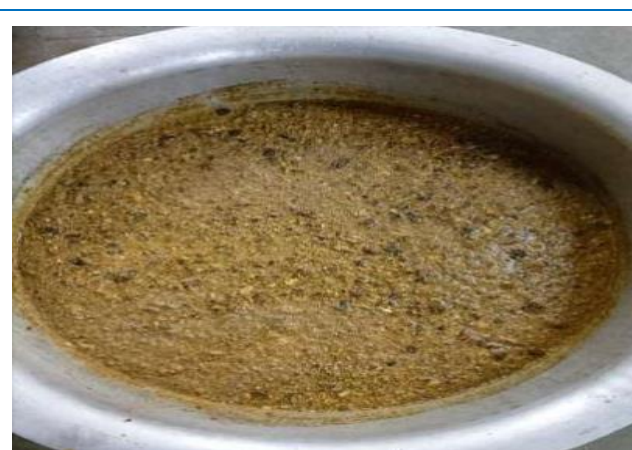
### C. Packing and labeling

*Ashtashatarishta* was filled and labelled properly in coloured glass bottles indicating the full information about formulation. Then, it was kept in a dark place to avoid exposure to direct sunlight.

**Results:** The Fermentation was completed in 54 days.

**Table 4: Showing results of final product *Ashtashatarishta*.**

<i>Kwath</i> (Total quantity before the addition of <i>Guda</i> )	15.46 litre
Wort (Total quantity before fermentation)	20.76 litre
Yield	17.40 litre
Loss	3.36 litre
Reason of loss	Sediments were discarded



**Fig. 3: Yavkuta Dravya overnight soaked**





Fig. 4: Kwath Preparation



Fig. 5: Kwath Filter



Fig. 6: Dhoopana Karma



Fig. 7: During Fermentation



Fig. 8: Final product of Ashtashatarishta

### Analytical Study of Ashtashatarishta

The analytical study of the sources and places from where the drugs have been collected, and cultivated should be done because herbs are collected from different habitats and climates. So, it is essential to conduct the analytical study.

### Place of Study

All the Sophisticated Analytical test was conducted at S.R. Labs, Jaipur (Rajasthan)

### Analytical Study<sup>[14]</sup>

The prepared sample of Ashtashatarishta was analysed by the following parameters.

Table 5: Showing different types of tests.

Organoleptic test	Physico-Chemical test	Chemical test
Appearance	pH	Alcohol content
Taste	Total solid content	Presence of methanol
Touch	Specific gravity at 25°C	Total acidity
Color	Viscosity	Sugar estimation -
Odor	Refractive index	Reducing Non-reducing Sugar

Advanced analytical tests - HPTLC (High-performance thin-layer chromatography)

## A. Organoleptic Tests

**Table 6: Showing the organoleptic characters of Ashtashatarishta**

Organoleptic test	Sample result
Appearance	Liquid
Taste	Astringent
Touch	Watery
Color	Brown
Odor	Aromatic

## B. Physico-Chemical Parameters

### ▪ pH

The pH value indicates the relative concentration of hydrogen ions in the solution compared with that of the standard solution. A scale representing the acidity or the alkalinity of a solution, wherein the value 7.0 is neutral. A value below 7.0 indicates acidic and the above 7 indicates alkalinity. *Arishta* formulations are acidic in nature as their normal value ranges between 3-5.

### ▪ Specific gravity

The specific gravity of a liquid is the weight of a given volume of the liquid at 25°C (unless otherwise specified) compared with the weight of an equal volume of water at the same temperature, all weighing being taken in air.

### ▪ Total Solids

Determination of total solids in *Asava-Arishta* is generally required. Transfer accurately 50 ml of the clear *Asava/Arishta* to an evaporable dish, which has been dried to a constant weight and evaporated to dryness on a water bath, and then dry at 105° for 3 hours. After cooling the dish containing the residue in a desiccator for 30 min weigh it immediately. The weight of residue should comply with the requirement stated under the individual monograph.

### ▪ Viscosity

The viscosity of the prepared formulation was determined using a Brookfield digital viscometer. The viscosity was measured using spindle no. 67 at 10 rpm at ambient room temperature 25-30°C. A sufficient quantity of gel was filled in an appropriate wide-mouth container. The viscosity value was noted down after a stable reading. Samples of the gel were allowed to settle over 30 min. at the constant room temperature before the measurements.

### ▪ Refractive index

The Abbe's refractometer is convenient for most measurements of refractive index but other refractometers of equal or greater accuracy may be used. The Abbe's refractometer is convenient for most measurements of refractive index but another refractometer of equal or greater accuracy may be used.

## C. Chemical Test

### ▪ Determination of alcohol content

The ethanol content of a liquid is expressed as the number of vol. of ethanol contained in 100 vol. of the liquid, the vol. being measured at 24.90 to 25.10. This is known as the "percentage of ethanol by volume".

### ▪ Determination of alcohol content

The use of industrial methylated spirit is permitted in the monograph, determining the content of ethanol preparation being examined diluted with water to contain between 4.0 and 6.0 percent v/v of total ethanol and methanol.

### ▪ Total acidity in terms of Acetic acid (Acid-base neutralization titration)

Acidity as formic acid (%) by weight =  $\frac{0.23 \times V}{M}$  Where V = corrected volume of 0.05 N Sodium Hydroxide used M-weight in gm of the sample taken for the test.

### ▪ Sugar estimation

**Reducing sugar:** For reducing sugars, weigh accurately 500 mg of the sample, dissolve it in 100 ml of Reducing sugars in double distilled water, and make up the volume to 100 ml in a volumetric flask. Then

follow the method mentioned for the preparation of the calibration curve.

#### Non-reducing sugar

Subtract the percentage of the reducing sugars from the Total sugars to obtain non-reducing sugars. Non-reducing Sugar: Total Sugar- Reducing Sugar.

#### D. Advanced Analytical Test

High-performance Thin Layer Chromatography (HPTLC)

It is an enhanced form of thin-layer Chromatography (TLC). A number of enhancements can be made to the basic method of thin-layer chromatography to automate the different steps, to increase the resolution achieved, and to allow more accurate quantitative measurements.

#### High Profile Thin Layer Chromatography of Ashtashatarishta Sample

Extract 25g of formulation with 50 ml Ethyl acetate under reflux on a water bath, filter and concentrate the extract up to dry, and then reconstitute in 5 ml of methanol and carryout the thin layer chromatography. Apply 10 µl of the extract on a TLC plate and develop the plate to a distance of 8 cm wing Toluene. Ethyl acetate: Formic acid (5:5:0.5) as mobile phase with 20 min pre-saturation time. Take snaps on 254nm, 366nm, and light and scan plate for developing a fingerprint profile of same. After development, allow the plate to dry in the air.

#### Visualization

The phrases ultra-violet light (254 nm) and ultra-violet light (366nm) indicate that the plate should be examined under an ultra-violet light having a maximum output at about 254 or at about 366 nm, as the case may be. The term secondary spot means any other than the principal spot. Similarly, a secondary band is any band other than the principal band.

#### R<sub>f</sub> Value

Measure the distance travelled by solute and solvent then calculate the R<sub>f</sub> value for each lute spot identified by the below formula,

$$R_f \text{ value} = \frac{\text{Distance travel by solute}}{\text{Distance travel by solvent}}$$

#### Result of HPTLC

Table 7: Showing the result of HPTLC

Solvent system used	Detection reagent	R <sub>f</sub> value at 254nm	R <sub>f</sub> Value at 366nm
Toluene: Ethyle Acitrate: Formic Acid (5:5:0.5)	Methanolic ferric chloride	-0.00	-0.01
		0.04	0.04
		0.39	0.25
		0.65	0.35
		0.69	0.41
		0.94	0.65
		0.73	
		0.84	

#### Therapeutic Uses

*Ashtashatoarishta* is described in *Ch. Chi. 13 (Vatakaphaj Shotha Chikitsa)*, it cures different types of edemas and constipation caused by *Kapha* and *Vaayu* and stimulates digestion and metabolism (*Agni*). The contents of *Ashtashatoarishta* are *Gambhari*, *Haritaki*, *Vibhitaki*, *Amalaki*, *Marich*, *Pippali*, *Draksha*, and *Puran Gud*. *Ashtashatarishta* removes *Vata- Kaphajanya* inflammation, *Vibandha* and it improves the status of *Agni*.

- On analyzing the *Rasa Panchak* as of *Ashtashatoarishta*, it can be observed that most of the drugs have *Katu*, *Tikta Kashaya Rasa*, *Laghu*, *Ruksha Guna*, and *Ushna Veerya*, few have *Madhura Rasa*, *Snigdha Guna*, *Sheet Veerya* and *Madhur Vipaka*.
- Most of the drugs have *Tridoshaghna* property and dominantly *Vatakaphahara* qualities.
- The vitiation of *Vata* is due to *Margavarodha* with *Kapha Dosha*. *Ashtashatoarishta* contains *Tikta*, *Kashaya*, *Katu Rasa*; *Laghu*, *Ruksha Guna*; *Ushna Veerya Yukata Dravyas* which help in removing the *Avarana* and *Madhur Rasa*, *Snigdha Guna*, *Madhur Vipaka Yukta Dravyas* which helps in *Vata Anulomana*.
- Arishtas* have some characteristic properties like *Sukshma*, *Ushna*, *Tikshna*, and *Vyavayi Gunas*, they

easily assimilate in the body have immediate action, and are effective in nature.

- *Arishtas* have *Agni deepana* property and are popularly used in different conditions successfully.

**Table 8: Showing the Karma and Rogaghnata of Ashtashatarishta.**

Drug Name	Karma	Rogaghnata
<b>Kashmarya</b> <sup>[6]</sup>	Deepan, Paachan, Bhedana, Medhya, Shothahara, Balya, Shosha, Vedanasthapana, Anulomana, Snehana. Phala: Balya, Mutrajanana, Vrishya, Keshya, Rasayan, Medhya, Hridhya, Raktapittashamak, Sandhaniya.	Shohta, Agnimandhya, Vibandha, Daurbalya, Shirahshoola, Brama, Mastishkadourbalya, Palitya, Vatarakta, Vatavikara, Hridroga, Kshaya,, Mutrakrichra, Jwara Jwarottaradourbalya.
<b>Haritaki</b> <sup>[7]</sup>	Shothahara, Deepan, Paachan, Anuloman, Mridu Rechan, Mutral, Sroto Shodhan, Yakrut Uttejak, Rasayan, Balya, Medhya, Prajasthapan.	Agnimandya, Vibandha, Aruchi, Udararoga, Shohta, Pandu, Prameha, Ajirna, Amlapitta
<b>Vibhitaki</b> <sup>[8]</sup>	Shleshmahara, Keshya, Sothahara, Vedanasthapana, Raktastam-bhana, Krishnakarana, Deepana, Anulomana, Krimighna, Rechana, Bhedana, Trishnanigraha, Chhardinigraha, Kaphaghna, Vajikarana, Jwaraghna, Chakshushya.	Kaphapradhan vikara, Swarabheda, Vibandha, Charmoroga, Granthi-Visarpa, Agnimandhya, Palitya, Pratishtaya, Kasa, Shwasa, Vrana, Netraabhishtyanda, Vatavyadhi, Anidra
<b>Amalaki</b> <sup>[9]</sup>	Vrishya, Rasayan, Keshya, Medhya, Balya, Deepan, Anuloman, Daha Prashamana, Rochana, Amlata	Prameha, Aruchi, Vibandha, Amla Pitta, Parinama Shoola. Udavarta, Udara Roga, Arsha, Vibandha, Agnimandya,

	Nashaka, Yakrut Uttejaka, Stambhana.	Trushna, Yakrut Vikara, Khalitya-Palitya, Pradara, Daurbalya
<b>Marich</b> <sup>[10]</sup>	Chedhan, Deepan, Ruchya, Medohara, Chedana, Hridaroga, Pachana, Yakrututtejaka, Vatanulomana, Krimighna, Sroto Shodhana.	Sthoulya, Agnimandya, Shoola, Krimiroga, Twakroga, Ajirna, Yakrut Vikara, Adhmana, Grahani, Hrid Daurbalya, Kasa, Shwasa, Hikka.
<b>Pippali</b> <sup>[11]</sup>	Deepan, Kaphahara, Rucya, Vrsaya, Rasayana, Vatanulomana, Jantughna, Shoola Prashamana, Mrudu Rechana, Krimighna, Yakrut Uttejaka, Medhya, Shiro Virechana.	Agnimandya, Aruchi, Ajirna, Udara Shoola, Vibandha, Arsha, Yakrut Vikara, Krimiroga, Pandu, Shoola, Gulma, Hikka, Kasa, Kustha, Pliharoga.
<b>Draksha</b> <sup>[12]</sup>	Swarya, Vrishya, Medhya, Balya	Vibandha, Agnimandhya, Pandu
<b>Purana Guda</b> <sup>[13]</sup>	Swadukara, Rakta Shodhak, Balya, Vrishya.	Vataroga, Daurbalya, Dhatukshaya

**Doses and Anupana:** 20 ml with an equal amount of water after the meal.

**Illustration 2: Showing Probable Mode of Action of Ashtashatarish**

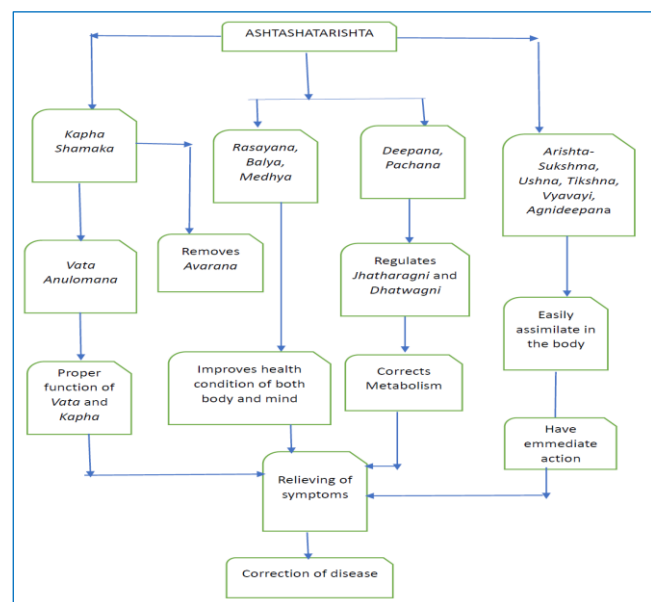


Table 9: Showing *Doshagnata* and Pharmacological actions of *Ashtashatarishta*

SN	Drug Name	<i>Doshagnata</i>	Pharmacological Action
1.	<b>Kashmarya</b>	<i>Tridosha Shamaka</i>	Anti-diuretic activity, Anti-diarrhoeal, Anti-pyretic, Analgesic activity, Anti-oxidant activity, Anti-diabetic activity, Anti-helminthic activity, Anti-bacterial activity. Anti-fungal activity, Cardio-protective activity, Anti-ulcer activity, Gastroprotective effect, Anti-cancer activity, anti-hypolipidemic effect, and Immunomodulatory activity.
2.	<b>Haritaki</b>	<i>Tridosha Shamak specially Vatashamak</i>	Antimicrobial, antifungal, antispasmodic, hypotensive, anti-hepatitis B virus activity, hypolipidaemic, inhibitory activity, anthelmintic, purgative.
3.	<b>Vibhitaki</b>	<i>Tridoshanashaka especially Kaphanashaka</i>	Bronchodilatory, antispasmodic, antiasthmatic, antifertility. antibacterial, antifungal, antioxidant, anti-convulsant. sedative, analgesic, CNS depressant, muscle relaxant, antipyretic, anti-inflammatory, antifungal, and taeniocidal. hepato-protective, antiulcer, cyclooxygenase inhibitory activity. lipolytic and has Cyclooxygenase inhibitory activity
4.	<b>Amalaki</b>	<i>Tridosha Shamaka</i>	Antidiabetic, hypoglycemic, anti-peptic ulcer. hypolipidemic, anti-atherosclerotic, antimicrobial, anti-emetic, anti-inflammatory, anti-oxidant, hepatoprotective, <i>Rasayana</i> , Spasmolytic,

			mild CNS depressant. antimutagenic, immunomodulatory, antifungal, anti-tumor. antibacterial, antiulcer, adrenergic potentiating, HIV-1 reverse transcriptase inhibitory action.
5.	<b>Marich</b>	<i>Kapha-Vata Shamaka</i>	Antihypertensive, antiplatelets, antioxidant, antitumor, antipyretic, analgesic, anti-inflammatory, anti-diarrheal, antibacterial, antifungal, insecticidal, anti-convulsant, sedative, CNS depressant, muscle relaxant, taeniocidal, hepato-protective, antimicrobial, antiulcer, lipolytic.
6.	<b>Pippali</b>	<i>Vata-Kapha Shamaka</i>	Antipyretic, analgesic, anti-inflammatory, antioxidant, hepatoprotective activities, Antibacterial, anti-malarial. CNS stimulant, antitubercular, anthelmintic, hypoglycemic, antispasmodic, cough suppressor, antidrug giardial, immunostimulatory, analeptic.
7.	<b>Draksha</b>	<i>Vatapittahara</i>	Antioxidant activity, Anti-inflammatory activity, Antifungal activity, Antibacterial activity, Antidiabetic activity, Antihypertension activity, Anti-obesity and fatty liver activity, Antiviral activity, and Prevent bone loss activity. Anticancer activity, Anti-hyperpigmentation, and skin-lightening activity.
8.	<b>Purana Guda</b>	<i>Vataghna, Kaphavridhikara, Natipittajit</i>	-

## RESULTS

Table 10: Showing the results of Physico-chemical parameters of Ashtashatarishta

Appearance	Liquid
Odour	Aromatic
Color	Brown
Taste	Astringent

SN	Test Parameters	Test method	Unit	Results
1.	pH Value	API Part I, Vol.-VI, 2009	-	3.47
2.	Total Solid Content	API Part I, Vol.-VI, 2009	%w/v	29.93
3.	Specific Gravity	API Part I, Vol.-VI, 2009	-	1.0595
4.	Refractive Index	API Part I, Vol.-VI, 2009	-	1.391
5.	Viscosity	API Part I, Vol.-VI, 2009	cP	2.20
6.	Total Acidity	API Part I, Vol.-VI, 2009	%w/v	1.26
7.	Alcohol content	API Part I, Vol.-VI, 2009	%v/v	4.27
8.	Presence of methanol	API Part I, Vol.-VI, 2009	mg/l	Absent
9.	Reducing Sugar	API Part I, Vol.-VI, 2009	%w/v	17.37
10	Non-reducing Sugar	API Part I, Vol.-VI, 2009	%w/v	8.67

API - Ayurvedic Pharmacopoeia of India, NS – Not Specified

The above analysis showed the pH of the tested formulation range 3.47, total solid content 29.93%W/v, specific gravity 1.0595, refractive index 1.391, viscosity 2.20cP, total acidity 1.26%W/v, alcohol content

4.27%v/v, presence of methanol absent, reducing sugar 17.37%W/v, non-reducing sugar 8.675W/v. Organoleptic tests confirmed the characteristic odor of self-generated alcohol with an astringent test.

## DISCUSSION

All the observations and results of the pharmaceutical-analytical study and therapeutic uses have been elaborated and discussed scientifically with the support of suitable references. With the increasing use of *Ayurvedic* medicines, there is certainly a need for more advanced techniques that will help drug manufacturers follow specifications and justify the therapeutic efficacy, safety, and stability of products. Besides this, quality assessment of *Ayurvedic* medicines has to be done in an integrated manner, including both traditional and modern analytical techniques. This will help in validating the ancient wisdom of *Ayurveda*, which has been in practice for many centuries.

## CONCLUSION

In this study, the formulation *Ashtashatarishta* was analyzed according to the standard pharmacopoeia procedures for its physico-chemical screening. This study will help to develop a quality control profile for future reference and can be used for qualitative evaluation of *Ashtashatarishta* in terms of modern parameters, which may help in the authenticity of the drug and to compile suitable information for the better utility and safe use of this formulation in therapeutics.

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