

Pharmaceutical Standardization of Kutajarishta- An Ayurvedic Formulation

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Abstract

Ayurveda, the science of life has been evolving right since the Vedic period and various steps have been taken by researchers in this field even in the recent times, to standardize the pharmaceutical preparation mentioned in these ancient texts. There are different of categories and classes of these formulations and *Sandhan kalpana* i.e. fermented liquids is one of them. These fermented liquids are of two types, *asava* and *arishta*. *Kutajarishta* is an ayurvedic preparation which belongs to the class of *arishta kalpana*. It is recommended for *atisar* (Diarrhea), *grahani* (malabsorption syndrome) and *pravahika* (dysentery). In this study, *kutajarishta* has been prepared by traditional method as per the reference cited in *Bhaishajyaratnavali*. The observations and results of the study have been discussed in detail. An attempt is taken for development of a standard operating procedure (SOP) for the same.

Keywords: Ayurveda, Standardization, Kutajarishta, Sandhan Kalpana, Fermentation.

1. Introduction

Ayurvedic remedy considered as cheaper, inherently safe and with lesser side effects¹. Medicated spirituous liquors (*asava* and *arishta*) are commonly used in *ayurvedic* practice. These preparations occupy a prime position in Indian Pharmacopoeia on account of their superiority over other preparations. They have prolonged shelf life, quick absorbable nature and high therapeutic efficacy. The self-generated alcohol plays an important role in making these preparations the drugs of choice from pharmaceutical point of view². The use of fermented liquids can be found right since the *vedic* period, as references of *madya*, *sura* etc. are noticed in *Kautilya arthashastra*. But the references of '*asava*' and '*arishta*' can only be observed in the *Charak* and *Sushrut Samhita*. *Acharya charaka* has enumerated 10 *asavas* and 20 *arishtas*, whereas *Acharya Sushrut* has mentioned 07 *asavas* and 14 *arishtas*, in *Ashtang sangraha* 04 *asava* and 13 *arishtas* and in *Ashtang hridaya* 03 *asava* and 05 *arishtas* have been mentioned³. *Arishta* (fermented decoction) and *Asava* (fermented infusion) are considered as a unique and valuable therapeutic preparations in *ayurveda*, due to their medicinal value, palatable taste and easy availability. The manufacture and sell of *arishtas* and *asavas* occupy a vital place in the *ayurvedic* pharmaceutical industry⁴.

Kutajarishta is one such fermented formulation described by ancient *ayurvedic* text to be prescribed in *Atisar*. Antimotility, antisecretory, analgesic, anti-inflammatory, antibacterial and antiamebic activity of *kutajarishta* has been already proven⁵⁻⁸. This formulation has been described in *Bhaishjyaratnavali* as well as *Sharangdhar Samhita*. The reference of *Bhaishjyaratnavali*⁹ was selected for present study¹⁰, API: Part II-Vol. II. The parameters of in process standardization and characteristics of final product have been represented systematically.

2. Material & Methods

The present experiment was conducted in summer season.

Vessels, ladles, thermometer, pyrometer, cotton cloth, strainers, gas stove, water and porcelain pot from the institutional teaching pharmacy were utilized for the entire procedure.

2.1. Procurement of herbs: All ingredients were purchased from local market. *Kutaj twaka* (Dried stem bark of *Holarrhena antidysenterica*) was subjected for size reduction.

2.2. Preparation of Kutajarishta: *Kutajarishta* was prepared by classical reference of *Bhaishajyaratnavali*, the details of ingredients have been enlisted in Table 1.

3. Procedure

For *kwath* preparation, all the required ingredients (Image 1) and water was taken into an aluminum vessel and the mixture was kept overnight for soaking. After 12 hr of soaking, this vessel was kept on low flame (Image 3) and heat was given to reduce the mixture up to 1/4th. This prepared *kwath* was filtered using clean cotton cloth and used for further process. Observations during the preparation of *kwath* have been shown in Table no. 2.

The fermenting vessel i.e. porcelain jar was thoroughly washed with hot water. After cleaning, the vessel was completely dried in sunlight. *dhoopana* of porcelain jar was carried out.(Image 4) for 20 minutes. *Dhoopan dravya* like *karpoor*, *agaru*, *jatamansi*, *sarjarasa* and *guggulu* were used for *dhoopana*. (Image 2).

In the *dhoopit* porcelain jar, previously prepared *kwath*, *guda* (jaggery) and *dhataki pushpa* were added. The mixture was stirred well till it become homogenous.

This mixture was examined for 05 days to check the proper fermentation process in the porcelain jar. After 05 days, the mouth of the jar was tightly sealed with cotton cloth smeared in multani mitti (Image 5). This jar was kept in a clean, dry and closed chamber in order to avoid exposure to direct sunlight.

The jar was kept in this condition for one month as described in the reference as “*masamatram sthitam*”. The properly sealed jar was opened (Image 6) and the completion of fermentation process was confirmed. The mixture was then filtered with double folded cotton cloth and was filled in sterile plastic container. This filtered *kutajarishta* was kept 01 month as it is for further maturation. The details of preparation of *kutajarishta* have been shown in Table 3.

After maturation, it was again filtered with double folded cotton cloth to obtain clear fluid. Thus prepared *kuatajarishta* was filled and packed in sterile plastic bottles, appropriately labeled and kept in cool, dry and dark place.

4. Observations and Results

While preparing *kwath*, the colour of mixture became light brown after ½ hr and later turned dark brown after 2hrs. The prepared *kwath* was filtered by double folded cotton cloth. China clay jar was also cleaned and washed thoroughly then dried in sunlight to rule out any contamination. Before onset of fermentation, the colour of *kwath* was unchanged and the *dhataki*

Table 1: Ingredients of Kutajarishta

Sr. No.	Ingredients	Latin Names	Part used	Quantity by reference	Quantity used
1.	Kutaja	<i>Holarrhena antidysenterica</i>	Stem bark	1 tula	2.4 kg
2.	Draksa	<i>Vitis Vinifera</i>	Dry fruits	½ tula	1.2 kg
3.	Madhuka	<i>Madhuka indica</i>	Dry flowers	10 pala	240 gm
4.	Gambhari	<i>Gmelina arborea</i>	Stem bark	10 pala	240 gm
5.	Water	-	Tap water	4 drona	24.576 ltr
6.	Guda	<i>Saccharum officinarum</i>	Jaggery	1 tula	2.4 kg
7.	Dhataki	<i>Woodfordia fruticosa</i>	Dry flowers	20 pala	480 gm

pushpa were floating on the surface. In china clay jar, fermentation process commenced after 05 days and effervescence along with the hissing and bubbling sound was noticed. Lid of the jar was tightly closed and jar was kept in clean dry place for one month till the fermentation process is complete. The detailed observations during manufacturing are shown in Table 4. After completion of fermentation process, ready *kutajarishta* was kept for a period of one month for

maturation. No frothing upon the surface of liquid was observed during this period. The organoleptic characters of Kutajarishta have been presented in Table 5.

Table 2: Details of preparation of kwath

Sr. No.	Parameters	Result
1.	Quantity of bharad taken	4.08 kg
2.	Quantity of water taken	24.576 ltr
3.	Total time for soaking	12hr
4.	Temperature maintained after ½ hr of heating	90-95 ⁰ C
5.	Kwath obtained	6.2 L
6.	Weight of residue after filtration	4.80 kg
7.	Total time taken for preparation	6.4 hr

Table 3: Details of preparation of Kutajarishta

Sr. No.	Parameter/ Stage	Result
1.	Kwath used	6.144 ltr
2.	Guda added	2.4kg
3.	Dhataki pushpa added	480gm
4.	Initiation of fermentation	On 5 th day
5.	Completion of fermentation	In 30 days
6.	Quantity of Kutajarishta obtained	7.240 ltr
7.	Time taken for maturation	30 days

Table 4: Observation during preparation of kutajarishta

Sr. No.	Stages	On	Off
1.	Effervescence	4 th day	30 th day
2.	Bubbling sound	5 th day	30 th day
3.	Hissing sound	4 th day	30 th day
4.	Burning match test	5 th day	30 th day

Table 5: Organoleptic evaluation of Kutajarishta –

Sr. No.	Parameter	Result
1.	Taste	Bitter
2.	Colour	Dark brown
3.	Consistency	Watery
4.	Odour	Sweet alcohol smell

5. Discussion

Sharangadhar samhita dictates the shelf life for various ayurvedic preparations. *Panchavidha kashay kalpana* and its derivatives have shelf life of only 12 hrs which very less. This led to innovation of a new drug delivery system named as 'asava' and 'arishta' containing self-generated alcohol. These formulations became more popular from the *samhita* period onwards.

For *kwath* preparation, 24.576 ltr water was added with ingredients and this mixture was kept soaking for 12 hrs. This mixture was heated at 90-95⁰C and reduced to 1/4th to get 6.2 ltr of *kwath*. Now, the porcelain clay jar was coated with cowghee followed by *dhoopan* process with *karpoor*, *agaru*, *jatamansi*, *sarjarasa* and *guggulu*. Antibacterial and

antimicrobial activities of this *dhoopan dravyas* (herbs) had been already proven¹²⁻¹⁶. Since the new and unused porcelain pots were used, *amalata virodhi sanskar* was not required.

To the prepared *kwath*, *guda* and *dhataki pushpa* were added in the porcelain jar and mixed well. Precaution was taken to fill the jar 3/4th only, keeping 1/4th portion of jar vacant. This empty space provides room for fermenting liquid when it rises up due to frothing and large amount of gases released during the process of fermentation. The mixture may otherwise damage the container and flow out¹⁷. The added sugar source (jaggery) and *dhataki pushpa* assist and hasten the fermentation process. Nectariferous region of *dhataki* (*Woodfordia fruticosa*) flowers contain wild variety of yeast, which can tolerate high sugar concentration and are able to bring about fermentation in *asava* and *arishta*. It is also evident that the ancient wisdom to start fermentation with higher sugar concentration and use of osmophilic yeast prove to be an excellent way to prepare *asava* & *arishta*¹⁸.

Only after confirming the initiation of fermentation process, the lid of the pot was tightly closed and kept for complete fermentation. After 01 month, the pot was opened and completion of fermentation process was confirmed by burning match test and absence of sounds from pot. This liquid was filtered by cotton cloth and kept in a plastic container for maturation. After 01 month of maturation, on observing absence of frothing upon the surface of liquid; it was again filtered. Thus prepared *kutajarishta* was filled in sterile plastic bottles, packed and after labeling kept in cool, dry and dark place.

6. Conclusion

Sandhan kalpana like *arishta* and *asava* are best formulation in Ayurveda because of the higher shelf life owing to the fermentation process which acts as an effective preservation technique. By following the classical method of preparation, *arishta* of good quality can be obtained. All the organoleptic characters of the final product are in accordance with the directives of the classical reference.

Image 1



Image 2



Image 3



Image 4



Image 5



Image 6



7. References

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