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Research Article

A COMPARATIVE PHARMACEUTICAL STUDY OF VASAKASAVA PREPARED WITH VASA KWATHA AND VASA SWARASA

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Abstract

Asavas and aristas come under Madya kalpana. Madya in general is exhilarating and nourishing. It relieves fear, grief and exhaustion. It promotes confidence, energy, intelligence, contentment, nourishment and strength. If taken by people observing all the rules, it works as nectar. The trial drug Vasakasava is taken from Gada Nigraha and Yoga Ratnakara which is particularly mentioned in Shotha Chikitsa (Inflammation). The formulation Vasakasava is named as Asava, but the method of preparation is similar to Arista. Here in the present study vasakasava was prepared with vasa kwatha and vasa swarasa as drava dravya and compared the values analytically. From the result of the pharmaceutical study, it could be concluded that temperature and quantity of drava dravya plays an important role in the sandhana prakriya. There was a difference found in pharmaceutical study in between two vasakasava i.e one prepared with vasa kwatha and one prepared with vasa swarasa. Preparing vasa kwatha was easy pharmaceutically rather than putapaka swarasa. From the observations of analytical study, there was no specific difference in the organoleptic characters. pH, ash value, solid content is more in Vasakasava prepared with vasa puta paka swarasa, still all are within normal range. Therefore pharmaceutically it is easy to prepare vasakasava with vasa kwatha as drava dravya. Yet further studies should be conducted pharmacologically.

Keywords: Asavas; Aristas; Kwatha; Swarasa; Vasakasava.

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INTRODUCTION

The formulation Vasakasava is named as Asava, but the method of preparation is similar to Arista. With the help of vasa kwatha (decoction of *Adhatoda vasica*), fermentation is carried out by adding the various other ingredients mentioned in the formulation. Screening the classics, a number of formulations with vasa (*Adhatoda vasica*) are available in different Rogadhikaras (chapter), mainly in Raktapitta (bleeding disorders), Swasa (dyspnoea) and Kasa (cough) etc. But the trial drug in the present study Vasakasava is taken from Gada Nigraha[1] and Yoga Ratnakara[2] which is particularly mentioned in Shotha Chikitsa Adhikara (Oedema treatment chapter). Vasa is the main drug in this preparation and the madhura dravyas (sweetening agent) used is guda (jaggery).

The Sandhaneeya dravya (fermenting agent) used is Dhatakai Pushpa (flower of *Woodfordia fruticose*). The Prakshepa dravyas (Synergizer) used are trikatu, chaturjata, kankola and toya. (Table 1) In Vasakasava, one of the prakshepa dravya is Toya. Due to the scarcity of the drug Toya (*Pavonia odorata*), Ushira (*Vetiveria zizanioides*) has been used, as both are having similar properties. Here an attempt was made to prepare vasakasava with vasa kwatha and vasa swarasa (decoction and fresh leaf juice of *Adhatoda vasica*) as drava dravya (liquid media) and compared the values analytically.

REVIEW OF LITERATURE

An attempt was made to point out critical literary difference between asava and arista pharmaceutically and analytically. The present study includes the pharmaceutical descriptions of Vasakasava and analytical study of both the formulations which is prepared with vasa kwatha and vasa swarasa.

Literature of Sandhana Kalpana (Fermented dosage forms)

Liquid in which drugs kept for long period, getting fermented are known as Sandhana kalpana.[3] Sandhana kalpanas can be divided into two according to the taste of the final product. They are madya sandhana (Alcoholic fermentation) and sukta sandhana (Acidic fermentation) and again each has been divided into five subgroups. i.e madya sandhana is classified pharmaceutically into five and they are Sura, Sidhu, Varuni, Asava, Arista. Similarly sukta Sandhana is classified pharmaceutically into five and they are Sukta, Tusambu, Sauviraka, Kanjika and Sandaki. Among the types of Sandhana kalpanas, asavas and aristas are very popular in the therapeutics.[4]

Asavas and aristas come under Madya kalpana. Madya in general is exhilarating and nourishing. It relieves fear, grief and exhaustion. It promotes confidence, energy, intelligence, contentment, nourishment and strength. If taken by people observing all the rules, it works as nectar. The Rasa (taste) of madya is Pancha rasa except Lavana (five taste without salty taste); Guna (properties) of madya is Tikshna (penetration nature), Sara (mobility), Vyavayi (pervading), Vikashi (getting dispersed and distructing ojas); Veerya (potency) of madya (alcohol) is Ushna (hot); Vipaka (post digestion) of madya is Amla (sour); the action of madya on doshas are Vatasleshma hara (reduces Vata and Kapha), Pittarakta kara (aggravates Pitha); the Karma (action) of madya are Balya (strengthening), Bhedana (splitting), Brmhana (stoutening), Hridya (good for heart), Pachana (digestive), Rochana (increases the taste), Swapana (good sleep), Basti Sodhana (purifies urinary bladder), Deepana (carminative), Indriya Bodhana (good for sense organs), etc.

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Table 1: Ingredients of vasakasavam

Dravyas	Ingredients	Botanical name/ common name	Quantity
Kwatha dravya	vasa panchanga	*Adhatoda vasica*	9.6kg
Madhura dravya	Guda	Jaggery	4.8kg
Sandhaneeya dravya	Dhatakai Pushpa	*Woodfordia fruticosa*	384 g
Prakshepa dravyas	Twak	*Cinnamomum zeylanicum*	48 g
	Ela	*Elateria cardamom*	48 g
	Patra	*Cinnamomum tamala*	48 g
	Kesara	*Mesua ferrea*	48 g
	Kankola	*Piper cubeba*	48 g
	Shunti	*Zingiber officinale*	48 g
	Marica	*Piper nigrum*	48 g
	Pippali	*Piper longum*	48 g
	Toya (Hribera)	*Pavonia odorata*	48 g

The Dasa Gunas (ten qualities) of Madya are Laghu (light), Suksma (penetrating), Amla (sour), Asukari (quich spreading), Vikasi, Tiksna, Ushna, Vyavayi, Ruksa (dry) and Vishada (clear). Fresh madya is hard to digest and increases all the doshas. Whereas old one is opposite i.e. vrshya (aphrodisiac), hridya etc.

Literary review on VASAKASAVA

The main ingredient is vasa. The Madura dravya used is guda (jaggery). The sandhana dravya used is dhataki pushpa. The prakshepa dravyas are Twak, Ela, Patra, Kesara, Kankola, Shunti, Marica, Pippali, Toya (Hribera) as per reference. But in the present study instead of Toya ushira was taken. (Table 1)

Method of preparation

Freshly collected Vasa panchanga (all parts of the plant) was made into pieces and added with required amount of water, subjected to mild heat in order to reduce to one fourth. After filtering vasa kwatha was collected. Then guda was mixed in this kwatha. Then the mixture was filtered to remove any physical impurities. After cooling, the mixture was shifted into Sandhana Patra. Sandhana dravyas and Prakshepa dravyas are added to this Sandhana patra (vessel for fermentation). After this, the mouth of the vessel was closed and kept it without any disturbance for 15 days. This preparation was filtered after observing the sidha lakshanas of sandhana Kalpana (signs of fermentation). This preparation is specially mentioned for Svayathu (Oedema).

METHODOLOGY

PHARMACEUTICAL STUDY

Collection of drugs used in the preparation of Vasakasava

Vasa is the main drug for this preparation. The quantity of Vasa required for the study has been collected from the surroundings of Koppa.
The Prakshepa dravyas and madhura dravyas were obtained from the college pharmacy. Every drug was identified botanically by the botanist. In Vasakasava, one of the Prekshepa dravya is Toya. Instead of Toya Ushira has been used, as both are having similar properties.

PRACTICAL STUDY

A detailed description of the steps taken to prepare the trial drugs are being explained under this heading. The trial drug, Vasakasava was prepared according to the reference of Yoga Ratnakara Shotha Chikitsa Prakarana,[5] and Gada Nigraha Asavarishta adhikara.[1]

The below mentioned steps were followed for the preparation of Vasakasava. They are first Vasa Kwatha preparation, second Vasa Puta

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paka Swarasa preparation, then Dhupana (fumigation) and Lepana (coating) of sandhana patra (vessel for fermentation)

Practical 1: Vasa kwatha Nirmana

Method of preparation

Freshly collected Vasa Panchanga about 24kg was cleaned, made it into small pieces by cutter, pounded and then taken in a wide mouthed vessel. 61.5 litres of water was added and boiled for 2 days till it was reduced to 1/4th part (15.3 litres). This prepared Kwatha was filtered through a clean cloth.

Dhupana of Sandhana Patra

A mud pot, having the capacity of 20 litres was selected, cleaned well and dried it under sun light. Then it was subjected to dhupana with Jatamamsi (*Nardostachys jatamansi*), Maricha (Pepper), Guggulu (*Commiphora mukul*) and Loban (*Commiphora wightii*).

Lepana of Sandhana Patra

After dhupana the mud pot was subjected to lepana with Pippali churna, Marica churna and Honey.

Practical 2: Vasakasava Nirmana

Method of preparation

Weighed quantity of Guda was added and mixed completely in Vasa Kwatha. Then this solution was filtered and measured. After addition of guda the solution was 22.4 litres. This mixture was poured into mud pot which was already subjected to Dhupana and Lepana. Then dhatakai pushpa 960 g and all the powdered praksepa dravyas 120 g each were added to this solution, whole mixture was stirred carefully. This pot was kept undisturbed for 4 days and after confirming the sandhana process has started the mud pot was closed and sealed. After one month, pot was opened and the contents filtered. The yield was 22 litres. (Table 2)

Practical 3: Vasa Puta paka Swarasa nirmana[6]

Method of preparation

Freshly collected Vasa Patra about 9 kg was cleaned and made into paste. Then it was covered with Banana leaves and tied with thread. This bolus was covered with thick paste of wheat flour. The thickness was around 1 angula. It was subjected to dry in the sunlight. After drying it was kept in fire till it became red colour. Immediately removed from the Agni (fire), slowly the outer covering and banana leaves were removed and the kalka (paste) was put in swarasa nishkasa yantra (juice extractor) and juice was extracted. Total of 3.5 litres of puta paka swarasa (a method of juicing) was collected.

Practical 4: Vasakasava Nirmana with vasa putapaka swarasa

Method of preparation

Guda was added and mixed completely with vasa puta paka swarasa. Then this mixture was filtered and measured. After addition of guda it was 4.5 litre. (Table 3) Then this mixture was poured into a porcelain vessel. Then dhataki pushpa 222 g and all the powdered praksepa dravyas 27 g each were added to this solution. Then this vessel was kept undisturbed for the fermentation to start. Then the vessel was closed and sealed. After two months vessel was opened and the contents filtered. The yield was 4.3 litres.

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Table 2: Ingredients and its quantity

Sl. No.	Ingredients	Quantity
1	Vasa Kwatha	15.3 litres
2	Guda	12 kg
3	Dhataki Pushpa	960 g
4	Praksepa dravyas	
	Twak	120 g
	Ela	120 g
	Patra	120 g
	Nagakesara	120 g
	Shunti	120 g
	Marica	120 g
	Pippali	120 g
	Kankola	120 g
	Ushira	120 g

Table 3: Ingredients and its quantity

Sl. No.	Ingredients	Quantity
1	Vasa Putapaka Swarasa	3.5 lt
2	Guda	2.73 kg
3	Dhataki Pushpa	222 g
4	Praksepa dravyas	
	Twak	27 g
	Ela	27 g
	Patra	27 g
	Nagakesara	27 g
	Marica	27 g
	Shunti	27 g
	Pippali	27 g
	Kankola	27 g
	Ushira	27 g

ANALYTICAL STUDY

The two samples of vasakasava were analyzed by employing various analytical methods (Table 4) (Table 5) like PHYSICAL ANALYSIS i.e. Colour, Odour, Taste, Consistency and CHEMICAL ANALYSIS i.e. pH, Alcohol content, Specific gravity, Ash value, Acid insoluble ash, Solid content

DISCUSSION

The formulation selected for the study is Vasakasava which is specially indicated in Svayathu. Here the formulation is named as asava but the method of preparation is similar to arista. But in classics like Bhaishajya Ratnavali and Gada Nigraha there is another formulation Vasarista. In Samhitas, references regarding vasa are available but there is no clear-cut description or mentioning of the varieties of vasa. But in Bhavaprakasha there is description regarding two varieties and three varieties of vasa according to the colour of flowers. Only swetha (white) variety is commonly available. Botanically four species are mentioned. Most commonly used variety is *Adhatoda vasica.*

Different varieties of guda on the basis of quality are available in the market. Quality of guda is very important because it plays the major role in fermentation process. The market samples of dhataki pushpa contains a lot of organic matters such as leaves, mud, stones etc., storage of dhataki pushpa in cold climate condition i.e. where moisture content is more is quite difficult because of the fungal growth.

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Table 4: Physical characters of Vasakasava

Characters	Vasakasava with kwatha	Vasakasava with swarasa
Colour	Brown	Dark brown
Odour	Aromatic\Alcoholic	Aromatic\Alcoholic
Taste	Sweet	Sweet
Consistency	Liquid	Liquid

Table 5: Chemical parameters of Vasakasava

Parameters	Vasakasava with kwatha	Vasakasava with swarasa
PH	3.89	5.33
Alcohol content	8.31% w/v	8.31 % w/v
Solid content	30.08 % w/w	33.89 % w/w
Specific gravity at 25° c	1.1264	1.1247
Ash value	1.78 % w/w	2.29 % w/w
Acid insoluble ash	0.13 % w/w	Nil

So when we put dhataki pushpa directly it leads to fungal growth in sandhana kalpana, but when we use phanta (hot infusion) of dhataki pushpa there is no chance for fungal growth and moreover the quality of the final product is maintained.

Nine prakshepa dravyas are mentioned in this formulation. They are chaturjata, trikatu, kankola and toya. (Table 1) Toya is nothing but hribhera. But in the present study ushira was used instead of hribhera because both have similar qualities.

Duration of sandhana prakriya has been mentioned from 3 days to 180 days for different asavas and aristas according to the type of dravyas used in the particular preparation. Anyhow after the completion of the sandhana prakriya only, it is filtered and bottled. Only then it is ready for therapeutic uses.

The aim of dhupana in Sandhana Kalpana is not mentioned by any Acharyas. In some Asavas, Aristas it is mentioned that dhupana with drugs like marica (*Piper nigrum*), mamsi (*Nardostachys jatamansi*), sarkara (Sugar) etc., has to be done before filling the patra (vessel) with the ingredients. But we can imagine it may be to prevent contamination or to give fragrance or to increase the medicinal value of the final product. But at present in pharmacies after washing, the selected vessels are subjected to steam treatment continuously for 5-10 minutes and ultraviolet lamp is kept inside the vessel for another 10 minutes to avoid the contamination.

Adopting modern techniques in the field of Ayurvedic pharmaceutics is good to fasten the method of preparation. The care should be taken that the therapeutic values of the formulation is not changed when the analysis of particular product is done and also no side effects occur due to the modernized techniques.

We could get references regarding Lepanas from Ayurvedic classics that almost all the lepana procedures are mentioned for mud pots. This may be to prevent any leakage when the fermentation process takes place or may be to improve the efficacy of the particular arista or asava. Researches should be carried out to know the importance of Lepanas.

Madhura dravyas like guda (jaggery), sitopala (sugar candy), sarkara (sugar), madhu (honey), matsyantika (Sugarcane juice concentrate) and phanita (inspissated juice of sugarcane) are found in different asavas and aristas, and having important role in the fermentation. The molecules of madhura dravyas forms a room for fermentation with the help of fermenting

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agents thereby undergoing reactions and gets converted into alcohol and CO_2.

Sandhaneeya dravyas like dhataki pushpa (*Woodfordia fruticose*), madhuka pushpa (*Madhuca longifolia*), sura beeja (sediments containing yeast cells, accelerator of fermentation process) etc. have been used in most of the sandhana kalpanas.[7] Most commonly used sandhaneeya dravya is dhataki pushpa. Sura beeja can be used only for the same formulation in future. Now-a-days instead of these sandhaneeya dravyas most of the manufacturers are using yeast. Dhataki pushpa is having the qualities like hridya, vranaropaka (wound healing), garbha sthapana (protects pregnancy), etc. which may increase the efficacy and quality of the final product, whereas yeast quickens the fermentation process but increases the alcoholic percentage. Asavas and aristas should have only 5-15% of alcohol content but when the alcoholic percentage increases then it is not considered as medicine.

CONCLUSION

From the result of practical study, it can be concluded that temperature, quantity of drava dravya plays an important role in the sandhana prakriya. There was no any gross comparative difference found in observation during pharmaceutical study in between two formulations. From the observations of analytical study, it is concluded that there is no specific difference in the organoleptic characters. pH, ash value, solid content is more in Vasakasava prepared with vasa puta paka swarasa, still all are with in normal range. Therefore, pharmaceutically it is easy to prepare vasakasava with vasa kwatha as drava dravya. Yet further studies should be conducted pharmacologically.

Further scope of the study

Researches should be carried out in order to prove the importance of dhupana and lepana of sandhana patra.

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