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# Review on *Ushirasava* (fermented traditional medicine of Ayurveda)

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## ABSTRACT

*Sandhana Kalpana* is very common *Kalpana* described in Ayurvedic literature. We can find many footprints of *Sandhana Kalpana* in *Vedas* also. *Asava* and *Arishta* are popularly used in Ayurvedic practice. These preparations occupy unique position in pharmaceuticals on account of their superiority to other preparations. *Ushirasava* is one of the important *Asava* among them. *Ushirasava* / *Ushheerasava* is a liquid Ayurvedic medicine used in treatment of bleeding disorders. This medicine is cooling in nature and is prescribed in the diseases which occur due to the excessive heat in body. Hence this medicine pacifies the excess *Pitta Dosha* in body.

**Key words:** *Sandhana Kalpana, Ushirasava, Asava, Ayurveda.*

## INTRODUCTION

Ayurvedic herbal dosage forms are formulated through the transference of active ingredients by different manufacturing processes. Among these dosage forms, '*Sandhana Kalpana*' is a unique form in which acidic and alcoholic fermented formulations are prepared. In order to manufacture these medicines, liquid basic drugs (juices or decoctions) are kept for fermentation as indicated in the classics. *Sandhana Kalpana* includes all fermented products. The word *Asava* signifies the process of preparation (*Esham Asavanam Asutatvat Asava Sanjna*). That which is prepared by the process of fermentation is called as *Asava*. *Asava* (fermented infusion) are considered as

superior to other dosage forms due to their easy palatability, accelerated therapeutic action and enhanced drug concentration. *Asava* and *Arishta* are included in Ayurveda by *Charaka Samhita, Sushruta Samhita, Astanga Hridaya, Bhaishajya Ratnavali, Sarangadhara Samhita, Yogaratnagaram, Asavarishtasangraham* and *Astanga Sangraham*.<sup>[1]</sup>

In this process, self-generated (in these dosage forms) ethyl alcohol is produced by in-source material used in pharmaceutical procedure, and is not added from outside. Here, ethyl alcohol is not the only product yielded but is a part of many other organic compounds; further, alcohol/acetic acid (as per desired indications) is formulated and extraction of active principles of the herbal drugs is done. Thus, these formulations have longer shelf life, quick absorption and action and excellent therapeutic efficacy as compared to other Ayurvedic herbal medicines. Therefore, the Ayurvedic fraternity relies on this unique dosage form, i.e., *Sandhana Kalpana* (*Asava, Arishta, Kanji*, etc.) to treat diseases in routine practice.<sup>[2]</sup>

While screening through whole *Samhita*, many *Sandhana Kalpas* were found especially in *Chikitsasthana, Kalpasthana* and *Siddhisthana*.

*Ushirasava* is important among all the *Asava*. *Ushirasava* is mentioned in classics such as *Bhaishajya*

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*Ratnavali, Sharangdhar Samhita, Gadanigraha* and *Sahstrayog. Ushirasava (Usheerasava)* is a liquid Ayurvedic medicine used in treatment of bleeding disorders (rectal bleeding, excessive bleeding after delivery, menorrhagia and nose bleeding), skin diseases, blood purification and urinary problems etc. This medicine also contains around 4 - 9 % of self-generated natural alcohol in it. This medicine is cooling in nature and is prescribed in the diseases which occur due to the excessive heat in body. Hence this medicine pacifies the excess *Pitta Dosha* in body.<sup>[3]</sup>

#### Historical review

*Ushirasava* mentioned in different classics such as *Bhaishjya Ratnavali, Sharangdhar Samhita, Gadanigraha, Sahstrayoga. Ushirasava* mentioned in *Bhaishjya Ratnavali* as in *Raktapitta Rogadhikar. Sharangdhar, Sahstrayog* and *Gadanigraha* also mentioned in *Raktapitta Rogadhikar*.

In *Bhaishjya ratnavali, Sahstrayoga* and *Sharangdhar Samhita* classics, *Ushirasava* mentioned same ingredient, same quantity with same preparation method. But *Gadanigraha* classics mentioned some different ingredients and quantity than above three classics. In *Gadanigraha*, quantity of *Ushira* is double than *Bhaishjya Ratnavali*. They use *Keshara* instead of *Gambhari* drug. Quantity of water is half and honey taken in double quantity.

#### Bhaishajya Ratnavali

*Acharya Govind Das* has mentioned 44 *Asava-Arishta*. Among them 12 are *Asava* and 31 are *Arishta* and remaining 1 is *Sura*. *Ushirasava* is one of *Asava* mentioned in *Raktapitta Rogadhikar* 13<sup>th</sup> chapter.<sup>[4]</sup>

#### Gadanigraha

*Gadanigraha* text written by *Acharya Shodhala* in 12<sup>th</sup> century and *Acharya Sharangadhara* followed this text. This book is compiled according to *Kalpna* wise. In this text I Part, 6<sup>th</sup> chapter i.e. *Asavadhikara*, total 60 *Asava Arishta* are mentioned. Among them *Ushirasava* is one.<sup>[5]</sup>

#### Sharangadhara Samhita

*Sharangadhara Samhita* is one and unique text of *Bhaishajya Kalpana*. In this *Samhita* change is made

from routine description of *Bhaishajya* according to disease wise. One most remarkable thing about this *Samhita* is that it is most important text about *Bhaishajya Kalpana* as it explains preparation, proportion, dose, *Saviryata* (shelf life) etc. fully and completely about formulation. Total 13 *Asava Arishta* are mentioned, among them four are *Asava* and nine are *Arishta. Ushirasava* is one of them.<sup>[6]</sup>

#### The Ayurvedic Pharmacopoeia of India

The Ayurvedic Pharmacopoeia of India, Part-II, vol-II mentions 24 *Asavaristas* with their composition, methods of preparation and physico-chemical testing parameters. *Ushirasava* also mentioned.<sup>[7]</sup>

#### Ayurvedic Formulary of India

This compendium mentions 57 *Asavaristas* in Parts I (37), II (3) and III (17), under the publication by Department of AYUSH, Government of India, with complete detail of ingredients with their parts, proportion of each formula and therapeutic uses.<sup>[9]</sup>

#### Ingredients

SN	Name	Latin Name	Parts Used	Quantity
1.	<i>Ushira</i>	<i>Vetiveria zizanioides</i>	Root	48 g
2.	<i>Lotus</i>	<i>Nelumbo nucifera</i>	Flower	48 g
3.	<i>Hribera</i>	<i>Coleus vettiveroides</i>	Root	48 g
4.	<i>Gambhari</i>	<i>Gmelina arborea</i>	Root / Stem bark	48 g
5.	<i>Neelotpala</i>	<i>Nymphaea stellata</i>	Flower	48 g
6.	<i>Priyangu</i>	<i>Callicarpa macrophylla</i>	Flower	48 g
7.	<i>Dhanvayasa</i>	<i>Fagonia cretica</i>	Whole plant	48 g
8.	<i>Patha</i>	<i>Cissampelos pareira</i>	Root / Whole plant	48 g

9.	<i>Kiratatikta</i>	<i>Swertia chirata</i>	Whole Plant	48 g
10.	<i>Padmaka</i>	<i>Prunus cerasoides</i>	Stem	48 g
11.	<i>Lodhra</i>	<i>Symplocos racemosa</i>	Stem bark	48 g
12.	<i>Manjishta</i>	<i>Rubia cordifolia</i>	Root	48 g
13.	<i>Shati</i>	<i>Hedychium spicatum</i>	Rhizome	48 g
14.	<i>Parpataka</i>	<i>Fumaria parviflora</i>	Whole plant	48 g
15.	<i>Pundarika - Kamala</i>	<i>Nelumbo nucifera</i>	Flower	48 g
16.	<i>Patola</i>	<i>Trichosanthes dioica</i>	Leaf / Whole Plant	48 g
17.	<i>Kanchanara</i>	<i>Bauhinia variegata</i>	Stem bark	48 g
18.	<i>Nyagrodha</i>	<i>Ficus benghalensis</i>	Root / Stem bark	48 g
19.	<i>Udumbara</i>	<i>Ficus religiosa</i>	Root / Stem bark	48 g
20.	<i>Jambu Jamun seeds</i>	<i>Syzygium cumini</i>	Stem bark	48 g
21.	<i>Shalmali</i>	<i>Salmalia malabarica</i>	Exudate	48 g
22.	<i>Draksha</i>	-	Raisins	960 g
23.	<i>Dhataki</i>	<i>Woodfordia fruticosa</i>	Flower	768 g
24.	Sugar	-	-	4.8 g
25.	Honey	-	-	2.4 kg
26.	Water	-	-	24.576 liters

27.	<i>Jatamansi and Black pepper</i>	<i>Nardostachys jatamansi and Piper nigrum</i>	Fine Powder	Quantity Sufficient
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#### Method of manufacturing<sup>[6]</sup>

- A mud pot is taken. It is sterilized with the powders of *Jatamansi* and Black pepper.
- Pure water in the given quantity is taken in the vessel.
- Powders of the rest of the ingredients is added along with sugar and honey.
- The ingredients are kept closed air tight for about month period so that fermentation (*Asuta Prakriya*) can take place.
- Filtered the ingredients and preparation is preserved.

#### Prepared Asava examination<sup>[10]</sup>

The confirmatory test told in the above mentioned classics are *Jatarasam*, *Vyaktha Amla Katuka Jatam* etc. and even like other *Kalpana Gandha Varna Rasautpatti* are also described. In old practices, performing fermentation in a heap of whole grain of that season was indicated. A crude match-box method is applied to check whether fermentation has occurred. This method depends upon the release of carbon dioxide during the process.

#### Physicochemical parameter test for Asava (Ushirasava).<sup>[7]</sup>

##### Standardization of Kumari Asava

1. Determination of pH
2. Determination of viscosity
3. Determination of specific gravity
4. Determination of total solid content
5. Determination of alcohol content
6. Determination of reducing sugars
7. Determination of non-reducing sugars
8. Determination of total phenolic content



- Urinary tract disorders (*Mutra Vikara*)
- Diabetes (*Prameha*)
- Piles (*Arsha*)
- Intestinal worms (*Krumi*)
- Inflammation (*Shotha*)

#### Piles (*Arsha*)

*Ushirasava* helps in reducing the symptoms of piles and also prevents them from getting worse. The herbs used in this preparation of this medicine relieve the symptoms of piles such as constipation, pain while passing stools, and bleeding from the anus.

#### Urinary tract disorders (*Mutra Vikara*)

*Ushirasava* is highly effective in relieving urinary complaints like renal stones and urinary tract infections. The antibacterial action produced by the herbs in this medicine destroys the bacteria in the urinary tract causing infections. It also provides relief from painful urination. It produces an antispasmodic action and reduces colicky pain caused when a kidney stone tries to come down through the urinary tract.

#### Polymenorrhea

*Ushirasava* can be used for the treatment of menstrual disorders. It is prescribed for treating an increased menstrual flow. However, it is not effective in the management of irregular or prolonged menstrual periods. It is helpful in treating polymenorrhea, a disorder that causes frequent menstrual periods or shorter menstrual cycles. It can also be used in the treatment of menorrhagia, which causes heavy menstrual bleeding

#### Dysmenorrhea

*Ushirasava* is an effective medicine to treat abdominal cramps occurring during menses. This condition is called dysmenorrhea. It causes pain in the lower abdomen that usually begins two to three days before the menses and disappears once the flow starts. The main cause of Dysmenorrhea is an increased level of prostaglandin, which is responsible for stimulating the contractions of the uterus. The repeated uterine contractions result in severe cramps and pain in the

#### Pharmacological activity (how it works)

In *Raktapitta*, *Rakta* gets *Vidhgdha* and *Pitta* also become *Vidhgdha*. Blood vessel becomes thin. Blood pressure is raised on that vessels. Because of that bleeding is cause. In this situation *Ushirasava* works magically on *Vidhgdha Pitta* and *Rakta*.

#### Indications<sup>[3,11,19]</sup>

- Heavy menstrual bleeding(*Raktapitta*)
- Bleeding disorders like rectal bleeding and nasal bleeding etc. (*Raktapitta*)
- Anemia (*Pandu*)
- Early stage of liver diseases
- Night fall
- Spermatorrhoea
- Skin diseases (*Kushtha*)

abdomen. *Ushirasava* can provide significant relief from the pain by maintaining the hormonal balance and reducing the production of prostaglandins.

#### Bleeding disorders

*Ushirasava* can be used for treating bleeding disorders that cause nasal bleeding, rectal bleeding, and heavy menstrual bleeding

#### Intestinal worms

*Ushirasava* can be used to get rid of parasitic infections. It helps in eliminating parasites from the digestive tract and treats the complications of these infections like anemia.

*Ushirasava* is useful in all cases of internal and external Hemorrhages. It checks bleeding and maintains hemostasis. It purifies blood and reduces the toxins substances in it by increasing their excretion. The main therapeutic effects of *Ushirasava* are observed on urinary system and reproductive system in addition to its effects on bleeding.

#### Epistaxis (Nose bleed)

*Ushirasava* is recommended for nasal bleeding occurring due to rupture of tiny blood vessels in the nose. It helps to stop bleeding and prevents recurrence of the epistaxis. For promising results, it is given in along with the following combination.

#### Hematuria

*Ushirasava* checks bleeding occurring in the urination. It acts as a styptic, anti-infection, anti-microbial and anti-bacterial. It also promotes wound healing. Therefore, it is more likely to be effective against hematuria occurring due to any injury in the urethra, urinary bladder or any part of the urinary tract. The lesion can develop due to stones. It reduces bleeding by promoting quick healing and stopping the bleeding. In hematuria, it should be given along with *Chandanasava* and *Durvadi Ghrita*.

#### Urinary Tract Infections

Anti-microbial and anti-bacterial actions of *Ushirasava* help to fight against infections. In many cases, the patient feels burning sensation during urination and

has foul smelly urine and pain during urination. *Ushirasava* reduces all these symptoms and helps to clear the infection causing organisms from the urinary system. In this case, it should be given along with *Chandanasava*, *Chandanadi Vati*, and *Bang Bhasma*.

#### Metrorrhagia & Menorrhagia

*Ushirasava* along with *Ashokarishta* and *Chandraprabha Vati* is useful for the management of abnormal uterine bleeding and excessive bleeding during menstruation.

#### Membranous Dysmenorrhea

In Membranous Dysmenorrhea, *Ushirasava* acts as a supportive medicine. However, the main medicine for it is *Sutshekhar Ras*. In combination with *Praval Pishti* and *Ushirasava*, *Sutshekhar Rasa* gives a quick relief from the pain and cramps occurring during menstrual periods. This combination should be continued for 3 months to completely cure the problem and prevention of recurrent Dysmenorrhea.

#### Contradictions

- A very high dose of 50 ml or more, may result in the stomach irritation.
- If given for wrong complaints, it can cause delayed periods and prolong the menstrual cycles.

#### Dosage

- **Adults** - 12 - 24 ml. once or twice daily, advised after food. If required, equal quantity of water can be added before consumption.
- **Safe for kids** - In lower dosage use of this medicine is safe, in children above 5 years of age.
- **Pregnancy and Lactation** - During pregnancy, it is advisable to avoid this medicine or take it only under medical supervision. During lactation period, it can be taken in lower doses as per doctor's advice.

#### Asava (fermentation )in modern point of view

##### Fermentation Process<sup>[25]</sup>

During autumn and summer seasons, fermentation takes place in 6 days. In winter, it takes 10 days. During rainy season and spring, fermentation takes place in 8days . The fermentation vessel is left

undisturbed for a month and then opened. The medicine is filtered and taken for use. If the filtered medicine shows further sedimentation, it is allowed to stand for few more days and again filtered to separate the sediment. In the usual practice, 7-10 days are enough in the hot tropical climate and the long period of 30 days is allowed in cool temperature climate when biological activity is at its low. In old practices, performing fermentation in a heap of whole grain of that season was indicated. A crude match-box method is applied to check whether fermentation has occurred. This method depends upon the release of carbon dioxide during the process. The major role in this dosage form is played by *Woodfordia fruticosa*, which is used as inoculum for fermentation but appears to play a role beyond that.

Transformation of chemical compounds during self fermentation Fermentation processes help in rupturing of cells of the herbs and expose its contents to the bacteria and enzymes for transformation. Fermentation also creates active transport system with dissolved constituents from the herbal material. There are claims that yeast cell walls naturally bind heavy metals and pesticide residues and act as natural cleaning system, making self-fermentation of herbal products safer than powder decoctions.

Merits of the Fermentation Process has mentioned some of the benefits of fermented herbal products which are summarized below:

1. Fermentation removes most of the undesirable sugars from plant material, makes the product more bio-available and eliminates side effects such as gas and bloating.
2. Fermentation extracts a wider range of active ingredients from the herb than any extraction method since the menstruum undergoes a gradient of rising alcohol levels.
3. Yeast cell walls naturally bind heavy metals and pesticide residues and, therefore, act as a natural cleansing system.
4. Fermentation not only removes contaminants, it can also lower the toxicity of some of the toxic components in plants.

5. Fermentation actively ruptures the cells of the herb, exposing it openly to the menstruum and bacteria have enzymes that break down cell walls to further assist in the leaching process. Fermentation also creates an active transport system that moves the dissolved constituents from the herbal material to the menstruum.

## DISCUSSION

*Ushirasava* is cooling, haemostatic and *Pitta* pacifying medicine. It is diuretic, cooling, tranquilizer and blood purifier. It is useful in all types of bleeding disorders, e.g. epistaxis, bleeding per rectum, menorrhagia etc. *Ushirasavam* contains about 4 - 9% of self generated natural alcohol in it. This self generated alcohol and the water present in the product. *Ushirasava* mentioned in mainly *Raktapitta Rogadhikar* in all classics. There are some differences in both references i.e. *Bhaishjya Ratnavali* and *Gadanigraha*. There is difference of one drug and quantity of honey and water. *Ushirasava* is most powerful medicine among all *Asavas*. *Ushirasava* have no side effects safe to use.

## CONCLUSIONS

*Ushirasava* formulation is considered as medicated wine where microbial transformation initiate alcohol formation which helps in extraction of therapeutic attributes and thereby increases the bioavailability of the ingredients. In these dosage forms multiple phytochemicals having therapeutic values are transformed into liquid form to provide safe, potent and better administered liquid form. This fermented product is well standardized since *Samhita* period. Microbes involved in the fermentation process increase therapeutic property by the microbial biotransformation of the initial ingredient of *Ushirasava* into more effective therapeutics. The hydro-alcoholic extraction of phytoconstituents from the herbs shows improvement in drug delivery in the body of consumer. Biotransformation in the formulation is mediated by native microbes, which potentiates the drug and preserves the formulation. From this review it may be concluded that *Ushirasava* is the best formulation in Ayurvedic preparation as

they possess better keeping quality due to self generation of alcohol by fermentation.

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