



## Review on Sandhana Varga with Special Reference to Bhavaprakasha Nigantu

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**ABSTRACT:** Fermented Medicines can be considered as a unique approach of Ayurveda which facilitates easier and qualitative absorption of medications. Several references regarding *Sandhana Kriya* (fermentation techniques) and their dravyas are depicted in Ayurveda literatures. *Sharangadhara Samhitha* is mainly considered for practical references *Sandhana* formulations now a days. *Sandhana Varga* by *Bhavaprakasha Nigantu* emphasizes more *Dravyaguna* aspects of using *Sandhana* drugs. As those references seem underutilized, thorough review on *Sandhana Varga* of *Bhavaprakasha Nigantu* opens new utilities and practical ideas on usage of fermented medicines in Ayurveda.

**KEYWORDS:** *Sandhana, Bhavaprakasha Nigantu, Samhita, Sharangadhara samhitha, Fermentation.*

### INTRODUCTION

Ayurveda stands as a unique science by its principles, pharmaceuticals and treatment. Natural products are importantly used as medicines and source of pharmacotherapeutics either directly or as raw materials in Ayurvedic treatment. Herbal dosage forms are formulated through the transference of active ingredients by different manufacturing processes. Among these dosage forms, '*Sandhana kalpana*' is a unique and superior contribution from the field of Ayurveda in which different form of acidic and alcoholic fermented formulations are prepared.<sup>1</sup>

The Process of Fermentation is an evolving technique in the present era especially among food and medical field. Chronologically, the fermentation technique may be revealed in each period of Indian civilization, ie, from *Vedic* period to till date. Alcoholic drinks using Maple fruits, bark of tree, cereals, etc were used by men from the Paleolithic age. In *Vedic* rituals, fermentation was advanced and *Sura* was used as food and in divine, evening offerings. The sweet liquid *Somarasa* is a unique formulation mentioned in Vedas, which is supposed to be a product obtained with the help of the fermentation technique. In *Rigveda*, along with *Somarasa* (*Rigveda* -2/14/01), another alcoholic drink *Sura* was prepared by fermentation process. *Somarasa* was used as an offering to God and *Sura* (*Rigveda* -6/66/10) was for human consumption. The people in this period were well known for the production of an acidic fermented product curd, which was routinely

used in the daily diet.<sup>1</sup>Medaka, Prasanna, Asava Arishta are other terminologies of fermented products mentioned in kautilya arthasastra.

In Ayurvedic science, these drugs are formulated in such a way that the alcohol-soluble extractives of herbal drugs are preserved in self-generated alcohol and used as medicines. In European countries also, some of the fermented products like wine and beer are formulated and used for therapeutic as well as non therapeutic purposes.<sup>1</sup>But the authenticity of fermentation or *sandhana* has its root in Ayurvedic literature. The basic principles to prepare fermented products are fundamentally similar from those prevalent in the ancient time to modern era. The difference observed is in the use of equipment, type of raw drugs, sterilization techniques, and preparation methods. Evolution is noted in testing parameters and also quality standards of the finished products. In the ancient period, subjective parameters were used in the process and finished drug testing, while in the modern era, various analytical and advanced biotechnological techniques are utilized to test the quality of the finished drug.<sup>1</sup>

Ayurveda literatures gives a clear cut idea about good properties and adverse effects of *Sandhana* (fermented) formulations. Among Ayurveda classics, vast number of herbal formulations and diseases are documented in Brihatrayees (Caraka Samhitha, Susrutha Samhitha, Ashtanga hridaya). Among those medicines and dravyas, biologically tested information about alcoholic drinks are also depicted in the name 'madya varga'. Later on laghutrayees, nigantus and other classics also extended the scope of Ayurvedic treatment with vast knowledge of different dravyas and their preparations. Sandhana, the term literally means union, combination or restoring. Here the medicines are combined together and are allotted to be in the same state for a specific time period. Fermented products are categorized under Madya varga in brihatrayee textbooks. It is defined as those which produces madakatwa or intoxicating.

“बुद्धिं लुम्पति यद् द्रव्यं मदकारिं तदुच्यते ।

तमोगुण प्रधानं च यथा मद्यं सुरादिकम्” ||(शा .प्र.ख 4/22)

This reveals Sandhana process can change the property of a drug by accelerating chemical and biochemical reactions in it, increasing shelf life and providing quick effects. Most Acharyas mainly described sandhana prakriya using cereals, grains and herbs. Specific dravyas in specific medium for specific time initiates the process of sandhana. However, the action of fermented products differs hugely from that of non fermented and latest literatures like Bhavaprakasha has documented specific list or varga meant for the process of Sandhana showing the importance selection of dravyas for the process.

### Approach of fermented products in Classics

Quest for longevity of man has always brought out different newer interventions .Because of the same, man tried to makes the *dravyas* (*oushada or ahara*) more palatable, quick absorbing and long lasting. *Sandhana prakriya* came out as a result of these needs .Later preparations got highest therapeutic and pharmaceutical value because of their unique properties among all other dosage forms.

As those *dravyas* used for fermentation are placed under '*madya*' which means intoxicating, Acharyas points to a fact that these drugs should be used judiciously in very specific doses. According to Ayurvedic terms, Any Oushada should be used according to the disease and upto specific doses .In other wise 'yukthipoorva yojana' holds place in medicine administration.

यथा विषं यथा शस्त्रं यथा अग्निरशनिर्यथा ।

तथौषधं अविज्ञानं विज्ञानं अमृतं तथा ||(च .सू.1)

*Charakacharya* emphasize it by quoting that *oushada* when used unjudiciously will act as *visha*, while even vish if properly used can act as *oushada*.

As *Madya* gunas antagonizes with that of *Ojoguna*, *Acharya* empowers the therapeutic potential of fermented products as well as is thre at of non judicious administration. *Madya gunas* are quoted as,

लघु उष्ण तीक्ष्ण सूक्ष्मल व्यवायशुगमेव च ।  
रूक्षं विकाशी विशदं मद्यं दशगुणं स्मृतम् ॥(च.सु.1)

During the *sangraha* period, the classical literature of *sandhana kriya* was merely compiled ,reclassified and arranged in proper manner. *Sharangadhara* in his *samhitha* added new features collected from other sources and incorporated contemporary literature and interpretations to *sandhana* process. The process, duration and doses are clearly mentioned in *Sharangadhara Samhitha*. Later on *Bhavamisra* on his work explained *sandhana varga* and defined *madya* as ‘intoxicating alcoholic drinks’ which seems similar from that of *Sharangadhara* views. Of those alcoholic medicinal preparations, *asavas* and *arishtas* are most popular pharmaceutical products used in various diseases.<sup>1</sup>

However General definition of *Sandhana* is recognized as,

सन्धीयते यद् इति सन्धानम् । श .क .दु .

It is the process of adding *dravadravya* along with other medicinal drugs is put in a closed inert vessel for a specified time period to carry out fermentation.<sup>1</sup> However, it can include alcoholic and non alcoholic preparations depending upon the fermentation. References like *Kanjika*, *sauvira* can be analysed as non alcoholic fermented products .But they are also categorized under *Madya varga* in *Brihatrayees*. *Sharangadhara Samhitha* elaboratedly explained *sandhana* preparations under one of the *Bhaisajya Kalpanas* or Pharmaceutical Preparations. While considering *Dravya guna* aspects, *Bhavapraksha nigantu* separately explained *Sandhana Varga*, incorporating drugs/preparations meant for fermentation. Drugs, Time period and *gunakarmas* of each preparations are explained by *Bhavamisra* under this unique title, *Sandhana varga* which is not explained by other *samhithas*. Both alcoholic and non alcoholic fermented products can be properly inferred and picked from *Sandhana varga* for practical purposes.

### **Highlights of “ Sandhana” procedures by different Acharyas**

As *Sandhana* process highlights the extraction of alcohol soluble derivatives, its absorption and bioavailability will be higher compared to other herbal formulations. Except the references of *Bhavapraksha nigantu*, the process of *sandhana* is categorized under *Madya varga*. *Bhavamisra* without differentiating the alcoholic and non alcoholic preparations, explained drugs which can be given fermentation for adding its *gunakarmas* under a broad heading *Sandhana Varga*.

*Acharyas* of *Ayurveda* had given different types, uses and explanation regarding *Sandhana Kalpanas*. Important among the references are tabulated below.<sup>2</sup>

**Table 1: References of Sandhana in different classics**

Caraka Samhitha	<i>Madya varga</i> is explained. 9 Yoni of <i>Asava</i> and 84 fermentative products are described. <i>Acharya Charaka</i> contributed six factors that are to be considered carefully before administration of any <i>Madya</i> as - <i>Anna, Pana, Vayas, Vyadhi, Bala, and Kala</i>
Susrutha Samhitha	<i>Acharya Susruta</i> has to be credited to exploit <i>Sandhana Kalpana</i> in the purview of surgical practice. He described a total of 11 <i>Asava-Arishtas</i> and 46 <i>Madya Varga</i> - <i>Madya, Sura, Prasanna, Jagala, Surasava, Madhvasava, Shukta, Dhanyamla</i> , etc., serving various therapeutic purposes

Ashtanga Sangraha & Ashtanga Hridaya	Along with other ingredients, the use of <i>Dhataki Pushpa</i> as a fermentation initiator is documented for the first time in <i>Ashtanga Hridaya</i> gradation of the Shukta Varga products with respect to their <i>laghuta</i> is an innovative approach and a useful guideline to the practising physicians. A total of 14 <i>Asava-Arishta</i> in <i>Ashtanga Sangraha</i> and 8 in <i>Ashtanga Hridaya</i> are quoted
Bhavaprakasha Nigantu	14 different preparations were included under Sandhana Varga.
Sharangadhara Samhitha	Definition, general principles, measures to be adopted when specificity is unsaid, various classification based on the source/raw material of fermentation is mentioned
Bhaishajya ratnavali	Duration of time for fermentation is mentioned, i.e., 15 days or 1 month. A total of 50 <i>Sandhana Kalpanas</i> are quoted out, of which 15 are <i>Asava</i> , 29 <i>Arishta</i> , 2 <i>Chukra</i> , 2 <i>Sura</i> , 1 <i>Shukta</i> , and 1 <i>Kanji Kalpana</i>
Yogaratanakara	Detailed description about <i>Asava and Arishtas</i> in <i>Madya Kalpana</i> is described.

#### SANDHANA VARGA ACCORDING TO BHAVAPRAKASHA NIGANTU<sub>4</sub>

*Bhavaprakasha nigantu* can be called as a contemporary classic of Ayurveda which emphasize the branch of *Dravyaguna Vijnana* more clearly and systematically. This piece of literature, being written after the time of Sharangadhara, holds more recent additions and opinions that can be related to current lifestyle. *Bhavaprakasha nigantu* listed number of drugs with its *guna karmas* and identity by categorizing them into different *Vargas*. Each *Varga* has its own importance and was incorporated with similar drugs having similarity in *gunakarmas*. *Vargas* like *Saka varga*, *Kritanna Varga*, *Sandhana Varga* stands unique among other *nigantus* by their newer practical implications. Many drugs explained in other *nigantus* and *Samhithas* cannot be practically applied now a days because of reasons like less availability of drugs, confusion in botanical identity, climatic variations affecting preparations and procedures etc. These confusions are relieved in case of *Bhavaprakasha nigantu* as most of the drugs matches with current botanical identity and procedures mentioned meets with the current needs. Thus *Bhavaprakasha nigantu* can be considered as a authentic reference which can be made useful in current pharmacology and treatment especially in practical means.

*Sandhana Varga* is mentioned as a separate *Varga* in *Bhavaprakasha nigantu* explaining the drugs meant for fermentation. Though Sharangadhara had mentioned details about the procedure of *Sandhana Kalpana* before, Bhavamisra emphasized the drug pharmacology which can be useful for *Sandhana Karma* by incorporating a separate *Varga* for *Sandhaniya* drugs. Both acidic and alcoholic preparations are extracted from *sandhana kalpana*. Though direct classification is not mentioned in classics, based on the product, sandhana kalpanas are divided into *suktha kalpanas* (acidic preparations) and *madya kalpanas* (alcoholic preparations). *Bhavaprakasha nigantu* explained some of the *sandhana* preparations broadly under *Sandhana varga*. Acharaya had not mentioned about the classification also.

#### 1. Kanjika

*Bhavaprakasha nigantu* started sandhana varga with Kanjika.

#### Preparation:

Dhanya/Manda added with water and kept for 3 days to form kanjika.

### **Gunas:**

It is bhedi, tikshna, ushna, rochana, pachana and laghu in nature. It is vatakaphapaha if taken internally and decreases daha and jwara by its sparsha (external application)

Bhavaprakasha explains kanji made of mashadi is gunadhika and is more pachana. It will be laghu guna but vatanashaka, basthisodhaka and can be used for shula, ajirna, vibandha, aama etc.

### **Contraindications:**

For persons who are soshitha, having murcha, bhrama, mada, kandu, kushta, rakthapitta, mandajwara, kshatakshina, rajayakshma etc. kanjika sevana is contraindicated.

- *Kanjika* comes under *Sukhta Kalpana* and is commonly used for the purification of metals and Mercurial processings. In classics, *Kanjika* as a final product of rice is beneficial for health. Physico chemical assesment showing a high pH value and nil value of alcohol % confirms the acidic fermentation of kanjika.<sup>4</sup>
- The tikshna guna due to acidic fermentation may aid to its bhedana property

### **Practical uses:**

- Considering current climatic condition and preservation methods, AFI advised fermentation of shashtika shali (with 14 parts water) for four weeks for the preparation of Kanjika.
- Dhanyamla dhara or kanjika dhara is widely used in Ayurvedic treatment for vatavikaras.
- Used as pachana, deepana, alleviates vata and kapha rogas when used internally and pacifies daha in its external use.
- In a special preparation of kanjika with shunti and saindhava, it act as dipana pachana and alleviates aamavata.<sup>5</sup>

## **2. Tushodaka**

### **Preparation:**

Tushodaka is a fermented drink prepared by fermenting the boiled broken yava with husk.

### **Guna & Prayoga:**

It is meant as pittarakthakrit and tikshna in nature. It is dipana, hridya, ushna and pachana. Tushodaka can be used for pandu, krimiroga, vasthishula etc.

## **3. Sauvira**

### **Preparation:**

It is similar to tushodaka, but it is prepared by the fermentation of yava without husk.

### **Guna & Prayoga:**

It is bhedi, kaphagna, and good for dipana, udavarta, ashtishula, grahani, arsas, angamarda, anaha etc.

## **4. Aaranala**

### **Preparation:**

Aaranala is prepared by the fermentation of godhuma without husk.

## 5. Shindaki

### Preparation:

It is prepared by the fermentation of rajika and leaves of mulaka or sarshapaswarasa and salipishta.

### Gunas:

It is guru and increases pitta and kapha. This preparation is rohani also.

## 6. Suktha

### Preparation:

Preparation made by fermenting tubers, roots, fruits etc with salt and oil in liquid is suktha.

### Gunas:

This is laghu, ruksha, tikshna, ushna, in nature. Suktha also does bhedana, pachana, rohana action. It decreases kapha, but increases raktha and pitta. Suktha preparation is indicated in pandu, krimi etc.

## 7. Asootham

### Preparation:

Fermentation of kanda, moola, and phala in liquid is Asootham.

### Gunas:

It is vatahara, laghu, ruchya and pachana.

## 8. Madya

Any drink which produces madaka or delusion to the body is Madya. guna of Madya is depicted in table below;

**Table 2: Qualities of Madya**

Qualities of Madya according to BhavaPrakasha nigantu	
Ushna	<ul style="list-style-type: none"><li>• Ruchya</li><li>• Pachana</li><li>• Aashukari</li><li>• Tikshna</li><li>• Sukshma</li><li>• Vishada</li><li>• Vikashi</li></ul>
Pittakrt	
Vatanashana	
Kaphahara	
Bhedana	
Sighrapaki	
Ruksha	
Amla	
Dipana	

Preparation of Madya is not mentioned in Bhavaprakasha Nigantu separately as division of alcoholic fermentation is not highlighted.

### Types of Madya:

*Bhavaprakasha Nigantu* explained four types of Madya preparations-Arishta, Sura, Sidhu, Asava

#### 1) Arishta:

##### Preparation:

*Arishta* is prepared by the fermentation of *pakwa oushadhas*.

##### Gunas:

It is *laghupaka* and has more *guna*. It exhibits specific *gunas* of *dravyas* added in it.

#### 2) Sura:

##### Preparation:

Madya prepared out of *Sali*, *sashtika* is called as *sura*.

##### Gunas:

It is *balya* and good for *stanyapushti*. It is also *balya, guru, grahini* and *kaphakari*. *Sura* is extensively used for conditions like *sotha, gulma, arsas, grahani* and *mutrakrichra*

According to *Bhavapraksha*, *Varuni* is *Surabeda*. *Sandhana* (fermentation) of *Sali* & *punarnava* or *tala phala* & *kharjura* is *varuni*. *varuni* is said to be more *laghu* than *sura*.

#### 3) Seedhu:

Two types of *seedhu* are mentioned in *Bhavaprakasha Nigantu*, they are

- *Pakwa rasa seedhu* and
- *Sita rasa seedhu*.

*Pakwa rasa seedhu* is that which is prepared out of *pakwa ikshu rasa*. It is *sreshtha* among the two with properties like *swarakrit, agnikrit, balakrit, varnya, and rochana*. *Pakwa rasa seedhu* is meant for *Sadya Snehana* and is *vatapittakara* in nature. It is indicated in *vibandha, meda, sophra, arsa, udarasotha* and other *kaphaja rogas*.

*Seedhu* prepared out of *aama ikshu rasa* is *Sita rasa seedhu* having *alpa guna* compared to *Pakwa rasa seedhu*. Though it has *avara guna*, *Seedhu* prepared of *aama ikshu rasa* is *adhika lekhana* in action.

*Samhithas* give references of other types of *Seedhu* also. *Seedhu* prepared using boiled *ikshu rasa* fermented with *dhataki* and after a certain period of fermentation added with little *ghrta* and *jaggery* is known as *sasyaka*. *Akshikah-sidhu* is made of decoction of *Bibithaka (Terminalia bellerica)* Gaertn. Roxb) and *jaggery* processed with *Dhataki flowers*. It alleviates *Pandu*, and is *pittahara* & *rakthasodhana*. *Seedhu* made of *jambu [Syzygium cumini (L.) Skeel]* fruit is *anti diuretic, astringent, pacifies kapha* while aggravates *vata* and *pitta*.<sup>6</sup>

#### 4) Aasava

##### Preparation:

Aasava is prepared out of fermentation of apakwa oushadas in water.

##### Gunas:

Gunas of aasava depends on the oushada dravya in which they are prepared with.

By analyzing references of Madya from different Samhithas, Ayurveda beverages are grouped based on the nature of raw materials used and the nature of fermentation, viz. sugar based beverages, fruit based beverages, cereal based beverages, beverages prepared from cereal with or without fruits but contain herbals etc. Sugar based beverages include *Sarkara, Gauda, Sidhu* etc.. Fruit based beverages include *Mardvika, Kharjura, jambhava* (made of *mardvika rasa, kharjura* and *jambu rasa* respectively). *Sura, Kohalah* or *Tushambu* comes under beverages made of cereals.<sup>6</sup> Beverages prepared from cereals or fruits along with herbals seems to have more therapeutic applications in our science. They include;<sup>6</sup>

<i>Vibhitaka Sura</i>	<i>Sura prepared out of Vibhitaki phala</i>	<i>Used in vrana, kushta, pandu</i>
<i>Varuni</i>	<i>Alcoholic drink prepared from punarnava paste and rice. Also prepared out of –Taala (Borassus flabrilifer L.) + kharjura juice Punarnava + salipishti</i>	<i>Cures pinasa, adhma and sula.</i>
<i>Aksika</i>	<i>Made out of bark of aksa (Terminalia arjuna Roxb.)</i>	<i>Good for pandu, krimi and aruchi.</i>
<i>Maireuyaka</i>	<i>Made of refermentation of sura and asava, prepared separately then combined together which has the effect of both these preparations. Honey is added to the basic source of sura and asava (flour &amp; jaggery respectively)</i>	<i>Alleviates arsas, gulma, krimiroga etc.</i>
<i>Dhanyamla</i>	<i>Liquor prepared by fermenting water in which rice and other grains like kodrava, pulses have been cooked or washed.</i>	<i>Satmya for anupadesa, ideal for asthapana, vasthisula, srama, klama, vataroga etc.</i>
<i>Sauviraka</i>	<i>Made using dehusked barley either raw or cooked by adding 8 times water and then fermented.</i>	<i>Cures duodenal disease, bodyache, arsas, grahani, udavarta, asthisula, anaha etc</i>
<i>Tusodaka</i>	<i>Prepared by coarse powder of yava along with its husks</i>	<i>Good for pandu, krimi, vasthisula etc</i>
<i>Kanjika</i>	<i>Preparation made of fermenting rhizomes, roots, kulmasha (half baked wheat) and dhanya manda (fermented cereals) Rice and millet is also used for preparation.</i>	<i>Cures daha, jawara, sula, ajirna, vibandha etc</i>

Tonic wines like arishta, asava are medicinally useful and seems practically used for various diseases. Those wines generally increase vitality and improve digestion. They are made by steeping medicinal herbs in wine for several weeks.<sup>7</sup>



Analysis shows that Bhavaprakasha nigantu emphasizes more on those preparations with herbals which possess good therapeutic qualities. Thus the scope and utility of fermentation are more pronounced in Sandhana Varga.

## DISCUSSION

*Kanjika* is much discussed and used product in practice. Studies about the Physicochemical properties of *Kanjika* proves its Ayurvedic qualities in a scientific manner. Though Bhavaprakasha nigantu advised a fermentation period of three days, after a period of 31 days, its pH comes nearly to the pH of gastric juice which validates the *pachana* property of *Kanjika*. Nil alcoholic content of *Kanjika*'s in its physico chemical parameter confirms acidic fermentation nature of *Kanjika*.<sup>4</sup> Findings proving Probiotic lactic acid bacterium from *kanjika* being a potential source of Vitamin B12 leads to further usages of *Kanjika* in treatment.<sup>5</sup>

By analyzing the properties of Sandhana varga, we could infer that that process of fermentation increased the *sukshmatva* of dravya. According to Bhavaprakasha nigantu, *Kanjika* is formed by the fermentation of *Manda*. *Manda* having properties like *deepana*, *laghutva* and does *vatanulomana*. After Sandhana process, *manda* possess qualities like *pachana*, *bhedana* and *tikshnatva*. In Samhithas, *Souvira* and *tushodaka* being fermented products of *yava* is mentioned together. According to Bhavaprakasha nigantu, *Souvira* is meant as the fermented products of broken *yava* with husk and *Tushodaka* being the product of fermentation of *yava* without husk. Though qualities of *nisthusha yava* (dehusked *yava*) is mentioned as inferior to that of husked *yava* which is *ruksha*, *sita*, it shows different qualities after fermentation.

According to Samhithas, Dehusked *godhuma* and *yava* shows different qualities like *sita snigdha* and *ruksha snigdha* respectively. But according to Bhavamisra, fermented products of these two, viz. *Souvira* and *aaranala* is said to have similar *gunas*.

### Process of Fermentation <sup>3</sup>

Fermentation is defined as a process by which production of product was done by mass culture of microorganisms. For microbial activity, microorganisms required several nutrients such as carbohydrates, lipids, purines and pyrimidines, vitamins and growth factors, amino acids, nitrogen sources, elements, and inorganic ions. Ethyl alcohol is yielded from the process of fermentation along with 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.<sup>2</sup> Owing to these properties, these formulations carry the active principles of their herbal ingredients and the resultant effect is achieved faster than many other formulations.

According to modern studies, The Fermentor System is divided into a three phase systems which involve liquid-solid, gas-solid, and gas-liquid reactions. During operation in the fermentor, the provision of adequate gas exchanging is important. Oxygen is the most important gaseous substitute for microbial metabolism, and carbon dioxide is the most important gaseous metabolic product. Sterilization of culture media, fermentation air, and fermentor is necessary which need to be completed in three stages namely -Inoculum presentation, Inoculum buildup & Fermentor culture.

Nowadays Yeast is used as a fermentor which metabolizes sugars, such as glucose and fructose, resulting in the formation of ethanol and carbon dioxide. Yeast influences the efficiency of conversion of sugar into ethanol. In modern science, the fermentation is growing vastly in the various fields such as biotechnology, pharmacy, and microbiology. Various new studies are conducted by the scholars on the fermentation concept, and the new procedures are finding to make it more beneficial and easy for use and production. Fermentation is a biological and biochemical process in which metabolic changes take place.

Microorganisms are responsible for the fermentation changes in organic substances by enzymatic activity released in there surrounding. *Sandhana Kalpana* proves highly beneficial over other processes in Ayurveda as this process having medicinal as well as nutritional values. Biochemically, fermentation is incomplete oxidation. In the absence of molecular oxygen, microbes can switch to a pathway, wherein glucose is broken down into carbon dioxide and alcohol.<sup>3</sup>

## CONCLUSION

*Bhavaprakasha nigantu*, by explaining a separate varga for fermentation products leaves a scope for diverge application of *Sandhana Kalpanas*. Most of the *Sandhana Kalpanas* practically used now a days are processed based on procedures mentioned in *Sharangadahara Samhitha*. *Bhavaprakasha Nigantu* written by *Bhavamisra* shares more contemporary ideas on *Sandhana Kalpanas*. Emphasizing the importance of *Dravyaguna sastra*, *Bhavaprakasha Nigantu* separately explained those drugs which can be used for fermentation under *Sandhana Varga*. Though *Bhavaprakasha Nigantu* didn't differentiated about suktha and madya kalpanas, *Sandhana Vidhi* of each products specifies the mode, time and effect of fermentation of each dravyas. This opens the thought of *dravyaguna* researchers on its Phytochemical aspect of fermentation technique. Also, the misconception of modern era, about all fermented products are byproducts of alcoholic beverages are also cleared here. Those products coming under madya like *arishta*, *asava* only serves as alcoholic beverages while other products are subjected to mere form of fermentation for increasing its therapeutic qualities. So, *Sandhana Varga* of *Bhavaprakasha Nigantu* should be subjected to more discussions and researchers for its effective application on practical formulations.

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