

A Study On Sandhan Kalpana In Ayurveda**Dr.Ravneet Kaur Chahal****Lecturer****Department Of Rasashastra & Bhaishajya Kalpana****Government Ayurvedic College****Patiala****Punjab****(Received:20March2022/Revised:10April2022/Accepted:20April2022/Published:27April2022)****Abstract**

Ayurveda is an ancient medical system. Over the course of more than two millennia, Ayurvedic treatments have evolved and changed. Medicine, special diets, meditation, yoga, massage, laxatives, enemas, and medical oils are all part of Ayurveda therapy. It is based on the idea that mental, physical, and spiritual wellness are intertwined. Rasashastra is a compilation of traditional Indian medicine practices in Ayurveda. It explains how various metals, minerals, and other substances, including mercury, work. Rasashastra is a pharmaceutical subfield of the Indian medical system that focuses primarily on toxic herbs, minerals, animal products, metals, and their therapeutic applications. Ayurveda's Rasashastra and Bhaishajya Kalpana is a significant branch. In this, medicine preparation is carried out. Numerous formulations are used to treat diseases in Ayurveda. To treat the disease, herbal and mineral preparations are used separately or in combination. Sharangadhar Samhita, a piece of Ayurvedic literature, emphasized the formulation's concept. An important formulation is Sandhan Kalpana (biomedical fermented formulations). It is utilized for health promotion and the treatment of numerous diseases. Sandhan Kalpana includes every preparation that comes out of the fermentation process. Sandhan is the process of fermenting a liquid (Kwath, Swarasa, and other liquid preparations), a sweetener (jaggery, honey, or sugar), praksepa dravya (fine powder of medicinal drug), and Sandhan dravya (fermentation agents) (Dhakti Pushpa, Madhukapushpa, as fermentation initiators) in an inert vessel for a predetermined amount of time to

Keywords : Kwath, Swarasa, Prakshepa Dravya, and Sandhan Kalpana.**Introduction**

Ayurveda is an ancient medical system. It is based on the idea that mental, physical, and spiritual wellness are intertwined. Ayurvedic medicine focuses on disease prevention and treatment rather than disease fighting. Ayurveda helps people live longer and avoid unnecessary discomfort. In Ayurveda, natural remedies are used to treat disease rather than just treat symptoms. In addition,

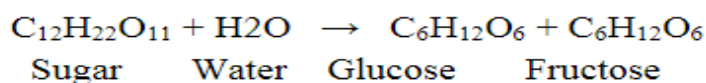
it encourages a healthy lifestyle to prevent body imbalance [Ayurveda's Rasashastra and Bhaishajya Kalpana is a significant branch. In this, medicine preparation takes place. To treat the disease, herbal and mineral preparations are used separately or in combination. Sharangadhar Samhita, an Ayurvedic text, emphasized the formulation's concept. Many of the formulations that are described in our classical texts are very important to health and to the treatment of diseases because sometimes the chemical component of a single drug is insufficient to achieve the desired therapeutic effect. On the other hand, when used in combination with other multiple herbs, it will give a better therapeutic effect.^[2] The pharmaceutical property, ease of administration, material collection, shelf life, and other factors influence drug formulation in Ayurveda. Depending on the source, the formulation may consist of herbal, mineral, or herbal-mineral components. There are many different kinds of formulations, such as Panchvidh Kashaya Kalpana and its Anuklapana, Sneha Kalpana (an oil preparation), Sandhan Kalpana (biomedical fermented formulations), Avaleha Kalpana (a medicated semisolid preparation), Vati Kalpana (a tablet), and Churna Kalpana (powder), among others. Sandhan Kalpana is an important formula.^[3] It is used to treat any kind of disease and improve health. Sandhan Kalpana includes every preparation that comes out of the fermentation process. Because of self-generated alcohol, there is a unique identity, which has many additional benefits. Additionally, it is known as a spiritous liquid. As a result, Ayurveda prescribes numerous dosage forms to alleviate pain and illness. Sandhan Kalpana is a novel dosage form in which the drugs are fermented into an acidic and alcoholic product.^[4] Fermented products like alcohol serve as preservers and are distinctive due to their high stability, palatability, and improved clinical outcomes. Multiple drugs are involved in this pharmaceutical preparation at various stages in multiple steps. Kashaya, Swarasa, and other liquids from Sandhan Kalpana are available. Additionally, drugs can be food or medicinal, such as guda (jaggery) and honey, among others. is referred to as Sandhana when they are mixed and kept in a vessel together for some time to achieve fermentation. Mixing, compounding, and distilling liquors are all examples of the word sandhana.

Definition Of Sandhan Kalpana

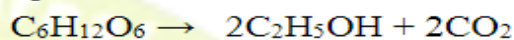
According to the etymological perspective, Sandhan literally translates to "Sandhiyte Yen Tat Sandhanam – anekadravyasambharo yen madymyathavata pramenan sandhiyate." This entails the exciting amalgamation of a number of components for the Madyautpaadanam process, which

results in the development of exhilarating attributes.^[5] Sandhan As a result, the medications are mixed together and allowed to remain in the same state for a certain amount of time. Shabdkalpadruma Sandhan describes the fermentation process. The Sandhan Kalpana, or biomedical fermented formulations, has been well defined by Acharya Sarangdhar. According to Acharya Yadavji Trikam ji Dravyaguna Vinjanam paribhasha khand, Sandhan is the fermentation process in which the liquid (Kwath, Swarasa, and other liquid preparations), sweetener (jaggery, honey, or sugar), Praksepa dravya (fine powder of medicinal drug), and Sandhan dravya (Dhaskti Pushpa, Madhuk either with the medicine that has been kept for a long time for the fermentation process. In Paribhashaprabandh, a procedure in which Dravdravya or Dravadravaya, along with other Aushadhdravya, is placed in a vessel, sealed, and kept there for a specific amount of time to make things easier.

A modern metabolic process that uses an organic molecule as the final electron acceptor and produces energy from sugar or another organic molecule without the use of oxygen or an electron transport system. It is a food preservation technique using microorganisms. The invertase and zymase enzymes, which are secreted by yeast cells in the addition of sweetening agent diluted in the liquid preparation, complete the oxidation of sugar to ethanol and carbon dioxide in the absence of oxygen during fermentation. Sugar is converted into glucose and fructose in the initial stage. Fructose undergoes further transformation into ethanol and carbon dioxide. Ethanol is produced by itself during this procedure.^[8]



Step – 2



The formulation is based on methods that are more palatable and try to preserve and use for a longer period of time and extend the shelf life. Among all other dosage forms, Sandhana Kalpana is regarded as the most effective pharmaceutical and therapeutic. The preparation of Sandhan Kalpana dates back to the Vedas or Puranas. Sandhan Dravawas referred to at the time as Madya (Alcohol), Sura, Somarasa, and other names. They were made with the utmost care and good fortune before being used as a medicine. In later times, this preparation was more popular as an alcoholic beverage but had less medicinal value. Significance of Sandhan Kalpana .

- It is a self-generated alcohol preparation that acts as a preservative. As a result, the appropriate use of the preparation becomes a great benefit to the medical community.^[9]
- The longer shelf life and increased potency over time make it a superior preparation. Thus, they are simple to store.
- Important Madya properties like Tikсна guna (sharp) aid in the rapid assimilation and absorption of medication.
- Due to its high therapeutic efficacy and good bioavailability, it is a more stable preparation.
- Because it is a liquid, it can be given to patients of all ages, including children and the elderly.
- It boosts the activity of digestive enzymes, which is beneficial.
- Sandhan Kalpana makes use of palatable sweetening agents.
- These also function as beneficial nutrients for the body.

Patra-Sanskar Samanya Sanskar (General)

Either the Dhoopan (fumigation) procedure or herbalized ghee preparations known as Ghrita lepana are used inside the vessels. Aguru (Aquilaria agallocha), Chandan (Santalum album), Jatamansi (Nardostachys Jatamansi), Karpura (Cinnamomum camphora), and other Krimighna dravya are used in the Dhupanor fumigation process.

Vishista Sanskar (Specific)

This tool is used to clean vessels that will be used multiple times. Hot water is used to clean the used pot during this procedure. It now contains Sudha-Jala and has been boiled for an hour. After that, the liquid inside is thrown away, and the pot is washed once more with hot water until the litmus paper tests negative in the water that has been washed. The pot will now be reused for fermentation after drying in sunlight. In Prelepana sanskara, certain drugs are used in the form of a paste inside a pot. Inside the pot, Lodhra (Symplocos) and Dhakti Pushpa (Woodfordia fruticosa) are used in the Kalka/pasteform. Fermentation may be tripled through this method. In various texts, the term "dhoopan dravya," or mode of disinfection, is clearly defined. Dhoopan dravya (the fumigation process) is Sharkara (sugar), and Aguru (Aquilaria agallocha), such as Kankarishta, may be utilized. Mansiand Marich's Dhoopan dravya (fumigation process) Acharya Sharangdhar has been identified where the fermentation will take place^[12]

- According to classical texts, the vessel should be kept in Dhanyarashi, where mud pots are buried.
- According to Acharya Shodhalhas, specific palaces such as Bhugarbha, Suryatarpa, and others are mentioned. Yogendra Chintamani claims that Ashwashala is used for Jambhirasav, among other things.
- Pharmaceutical companies now maintain their temperature in their own separate control room.
- To maintain the necessary temperature, a palace was chosen for the Sandhan (fermentation).
- A temperature of about 300 to 350 degrees Celsius is ideal for the Sandhan Prakriya (fermentation) in vessels.
- Mud pots dug into the ground were used in ancient times to keep the temperature constant. However, there are a few drawbacks, such as an increased risk of breakage. The better method is thought to have been to keep the pots in the husk of the paddy, but this was only used for small-scale production.

Prakshepa Dravya

Prakshepadravya is mixed with Sandhan dravya in the form of a fine powder. Prakshepa dravya ought to be a dry, uninfested drug.

Sandhan Dravya{Fermentation Products}

- As natural fermentation initiators, the role of Sandhan dravya—fermentation products collected from nature—is a sound scientific strategy.
- Some significant fermentation products known as Sandhan dravya are described in classical texts. As fermentative initiators, Dhataki Pushpa (*Woodfordia fruticosa*), Madhuka Pushpa, and yeast are utilized.
- The best Sandhan dravya belongs to Dhataki Pushpai. After thorough cleaning, only dry Dhataki (*Woodfordia fruticosa*) flowers are permitted.
- The colored Madhuka Pushpa (*Madhuca longifolia*), more commonly referred to as the Mahua flower, can be found in western regions.
- It also contains a lot of sugar, essential nutrients, and vitamins.

- The presence of yeast in Madhuka Pushpa is mentioned in recent works like Indian Materia Medica Vol. Ist (K.M. Nadkarni) and Illustrated Bhaishajya Kalpana Vijnana (Dr. P. V. N. R. Prasad).
- There is a greater chance of fungal growth in preparation if they are not clear properly.

Duration of Sandhan Kriya (Fermentation)

- The Sandhan Kriya is completed by describing the significant roles played by Desh (place), Ritu (season), and Dravya (drugs) in classical texts.
- The classics span seven days to six months. It is contingent on the nature of the drugs, components, sweeteners, location, and fermentative initiators.
- Sandhan Kriya (Fermentation) can take up to two weeks in the summer, while it can take months in the winter.

The classification of Sandhan Kalpana There are two distinct varieties.

- Madya Kalpana (a drink)
- Sukta Kalpana (an acid drink)

Table no. 1 Classification of *Sandhan Kalpana* ^[13]

S.No.	<i>Madya Kalpana</i> (Alcoholic preparation)	<i>Sukta Kalpana</i> (Acidic preparation)
1.	<i>Asava</i>	<i>Tushambu</i>
2.	<i>Arishta</i>	<i>Sauvira</i>
3.	<i>Sura</i>	<i>Kanjika</i>
	a) <i>Prasanna</i>	<i>Sandika</i>
	b) <i>Kadambari</i>	
	c) <i>Jagala</i>	
	d) <i>Medaka</i>	
	e) <i>Surabija</i>	
4.	<i>Sidhu</i>	
5.	<i>Varuni</i>	

Historical Perspective

Alcoholic beverages and fermented products date back to ancient times. In the Rigveda, Yajurveda, and Atharvaveda, the fermentative formulations Sura and Somarasa are referred to as offerings made by deities to the god. The Vedas talk about cereals, both raw and cooked, and the bark of some trees. The use of wooden containers for fermentation formulations like distilled

alcohol and Soma juice is mentioned in Vedic literature. These offerings to God were intended for consumption by humans. In the formulation of the arthashastra of Kautilya, such as Medaka,

Prasanna, Asava

More and more people were making medicines with self-generated alcohol for different diseases using a variety of ingredients and techniques. During the Samhita period, the medicinal and therapeutic applications of the fermentative product were described in three major Ayurvedic texts: the Charak Samhita, the Suruta Samhita, and the Ashtanga Hridya. In addition to Phala (fruit), Dhanya (cereals), Mula (root), Pushpa (flower), Twaka (skin), Sara, Kanda, Patra (leaves), and Shankara, Acharya Charakha has been described as a herbal source for fermentation. Additionally, Acharya Charak described the fermentation procedure, preparation method, container specification, fermentation duration, specific testing parameters, product outcome, and clinical application of final products. Charak referred to Soma Rasa as "Aushadhinam Shreshtham" and Surawas as "Shramharanam Shreshtham"[13]. The Sushruta Samhita describes a variety of fermentative products used during surgery, including Madya, Sura, Prasanna, Jagala, and Surasava, as well as Dhanyamala, which is included in the Madya category. For the first time, Ashtang Hridya referred to the DhatakiPushpa as the catalyst for fermentation. In addition, the Kashyap Samhita described the Abhisava as a fermentative drug and the five sources of preparation for Madya (alcohol), including Draksha (Vitis vinifera), Ikshu (Saccharum officinarum), Madhu (honey), Shali (Oryza sativa), and Vrihi (variety of rice). First, make the distinction between Asava and Arishta clear in the Sharangdhar Samhita. As a result, Asavais prepared the dish using fresh juice or plant extract without using heat and keeping a vessel for the fermentation process. However, Agni Sanyoga or direct heat are used to make decoctions in ArishtaKalpana. The fermentation formulation is also mentioned in other Ayurvedic formulation compendiums, such as Shodhal Nighantu, Raj Vallabh Nighantu, Nighantu Ratnakar, Raj Nighantu, and Dhanvantari Nighantu, among others. There are distinct descriptions of Asavas-Arishta in Bhaishjya Ratnawali, Sahasrayogam, Gada Nigraha, and Yogaratnakar for a variety of diseases.

(1) Madya Kalpana

Madya Kalpana is a beverage made with alcohol. Yoga Mahodadi defines Madya as a beverage or liquor that causes the consumer to experience Madakata, or happiness. The Madya's historical

perspective is mentioned in the Vedas as well, but Ayurvedic writings like Charak and Sushrut were the only ones to use it for medicinal purposes.

Madya's benefits include its ease of administration.

- It can be used for a long time without damaging anything.
- Greater efficiency
- Useful, economical, and risk-free
- The patient readily accepts it.
- Consumable.

Arishta, or asava, is the more well-known alcoholic dish that is made through fermentation. Asava and Arishtai's differences have been resolved by Acharya Sharangadhara, Asava is made by Hima Kalpana or Swarasa Kalpana without boiling the drug in water; Arishta was made by using decoctions.^[14] A detailed description of Asava-arista was made for the first time in Charak Samhita, but Acharya Sharangdhara gave preference to Asava Arishta.

I. Asava

The terms "Asava" and "Arista" were used interchangeably in earlier times. However, at the time of Acharya Sharangdhara, differences were probably made based on the majority of cases. According to Acharya Sharangdhara, Arishta is made by boiling drugs with liquid, while Asava is made without boiling the drugs. As a result, Asava is believed that alcohol and drugs could be produced through fermentation that did not involve boiling.

A) Prasanna The Sura's uppermost section is referred to as Prasanna. Suramand and Madira are other names for it. It is a distinct Sura supernatant. Due to the higher alcohol concentration, it is highly joyful or intoxicating. It treats Hikka-kasa (hiccups-cough), Shwas (asthma), Pratishtay (coryza), Malabaddhata (constipation), Aruchi (anorexia), and Vaman (emesis), among other conditions, as vataghna.

(B) Kadambari is slightly thicker and contains less alcohol than Prasanna.

(C) Compared to the uppermost layers, the Jagala-Jagala contains less alcohol and is comparatively thicker. The Grahi, Ruksha (rough), and Ushna (hot) properties are known as Jagalais. It helps with Sotha (inflammation), Sula (pain), Pravahika (diarrhea), Atopa, Vataja, and Kaphajashool, among other conditions.

(D)Medaka This semisolid Sura layer can be found above the Surabija, which is the Sura's lowest layer. The alcohol concentration is lower. It was added to the Dhanyasav group by Acharya Charaka.

(E) Bakkas Bakkas is the solid portion at the fermentation vessel's bottom. Additionally, it is known as Surabijaor Kinwa. In new fermentation preparation, it can be used to stimulate the fermentation process.

(2) Sukta Kalpana Fermentation is also used to make it. Preparation acid is produced during this fermentation. They mostly taste sour. As a result, it is a fermented, acidic food that was made indirectly or when an alcoholic food turned acidic. Sukta only contains sour Rasa, whereas Madya typically contains five Rasa. Sukta, according to Acharya Dalhan, is when a Madya preparation turns acidic after being stored for a long time and masks other flavors. According to Acharya Sharangdhar, when Phala (fruit), Dhanya (cereals), Mula (root), Pushpa (flower), Twaka (skin), Sara, Kanda, Patra (leaves), Shankara, and other ingredients are added to the liquid. are utilized alongside Sneha, Lawana, Rajika, Haridra, and others. are given a chance to ferment in any Drava-Dravya. The sour, fermented liquid that results is referred to as "Sukta." Yadav Ji Trikamji says that Madya Kalpana, or a sweet liquid, is called Sukta when it spoils and has an acidic taste or turns into an acidic fermentation preparation. The Sukta, on the other hand, can be made with grape juice and juice from sugarcane. Sukta Kalpana, which is made with Phala (fruit), Pushpa (flower), and Mula (root), hasn't caused bad side effects in humans. As a result, it is now clear that no Suktaand food material should be consumed internally. However, the preparations are not to be used because they cause a complication in the body and become sour as a result of decomposition and putrefaction. Modern Suktas is referred to as "vinegar" in English and "siraka" in Hindi. Vinegar is typically made by storing fruit juice in a closed container under direct sunlight until it becomes acidic, at which point it is filtered and stored. Good vinegar typically requires two months to prepare. Source of Sukta: Numerous classical texts provide descriptions of Sukta's sources.

Vinasht is the name given to a fermented liquid or fermented Madhur Drava (sweet). The liquid that is produced as a result of this fermentation of Vinashta will be referred to as Chukra.

Tushambu The sour liquid that is produced when raw broken barley is kept for the fermentation process is referred to as Tushambu. Souvira: Souvira refers to the cooked and dehusked barley

that is kept for the fermentation process. Acharya Adhamalla says that the Kanjika type includes both the Tushambu and the Souvira.

Kanjika includes things like Dhanya (Shashtikashali), Manda (cooked rice water), and Kutsita Masa (Kulmasa). are combined and kept for the fermentation process in a clean mud pot. Open the mud pot seal after two weeks to obtain Kanjika, a sour liquid.

Sandaki is the sour liquid that is produced when Mulika, Sarshapa, Saindhavalawana, Jira, and ShuddhHINGUKEPT are fermented with eight times as much water to produce Sandaki.

Pittakaraka, laxative, and sharp. Siddhi Lakshan to finish the Sandhan Kalpana^[20]

- First, the Prakshepa dravya will settle into the vessels.
- When fermentation is finished, we won't be able to hear anything from outside.
- If a burning matchstick is carried inside the vessel, it will continue to burn.
- The prepared liquid will achieve the desired color, odor, and flavor after completion.
- When a sample is taken from a transparent glass tube, no particles will be visible; if they are, the experiment is not complete. Now all Siddhi Lakshan can weigh in on whether or not a fermentation preparation is finished. If no Siddhi Lakshan is found, it will need more time to reach Siddhi Lakshan or the preparation will not be finished.

Discussion

Ayurveda is a branch of medicine that has been used to treat ailments for thousands of years. A major consideration when taking a medication is whether or not it is fast-acting, palatable, simple to administer, and inexpensive. In the prepared medicine by Sandhan, each of these qualities is mentioned. The properties of these prepared medicines have been discussed in daily clinical applications. Similar to Asava-Arishta, which are used to treat diseases, they are quick and easy to use. In the current scenario, these preparations are utilized on a broad scale. These preparations are used as an appetizer, to increase physical strength, reduce insomnia, and improve mental strength. Sura is used for Stanyakshya's lactating mother whose milk production is low. Shukta Kalpana is used for Krimijanyavikar and Mutravaha srotasjanya vyadhi, Klama is used in Vata-Kaphajanyavyadhis, and Sidhuis is also used in Asthapanbasti (a medicated enema). As a result, the fermentation preparation of Ayurveda is more commonly used today than it was in the past.

Conclusion

Due to its curative and preventative nature and lack of side effects, Ayurveda is poised to regain its lost fame. Sandhan kalpa (fermentation products) is an important ayurvedic remedy that is frequently used to treat a variety of ailments. They offer a healthy appetizer as well. Customers prefer them because of their palatability, quick action, ease of administration, longer shelf life, and preparation. Sandhan kalpaare is prominent in Ayurvedic literature and classical texts. In ancient times, the sandhan patrawas were placed in dhanya-rashi, bhugarbhetc, for the purpose of preparing sandhan kalpa. to steer clear of fluctuations in temperature. In various fields like biotechnology, pharmacy, and microbiology, fermentation is expanding significantly in modern science. Changes in metabolism take place during the biological and biochemical process of fermentation. Sandhan Kalpana is superior to other formulations in Ayurveda because this process has nutritional and medicinal value.

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