

LOGISTICS OF AYURVEDIC AUSHADHA KALPANA

*¹Dr. Shubham Bansal and ²Dr. Rosy Gupta¹MD Scholar (Dravyaguna), ²Reader, Deptt. of Dravyaguna VigyanaPost Graduate Training and Research Institute, Government Ayurvedic College and Hospital,
Patiala, Punjab.Article Received on
10 Jan. 2021,Revised on 31 Jan. 2021,
Accepted on 20 Feb. 2021DOI: <https://doi.org/10.17605/OSF.IO/H4MV6>***Corresponding Author****Dr. Shubham Bansal**MD Scholar (Dravyaguna),
Post Graduate Training and
Research Institute,
Government Ayurvedic
College and Hospital,
Patiala, Punjab.**ABSTRACT**

Aushadha kalpana is the process of modifying the raw *dravyas* of various sources into more therapeutically fit form. *Aushadha kalpana* can be further divided into *kashaya kalpana*, *sneha kalpana*, *sandhan kalpana* and others. *Panchavidha kashaya kalpana* are the most basic and ancient *kalpana* described in various *samhitas*. *Sneha kalpana* can be correlated with the liposomal drug delivery system developing in conventional system of medicine. *Sandhana kalpana* are the self fermented alcoholic extracts of raw drugs. Change in a *kalpana* also changes the effects of a drug due to change in process i.e. *sanskar* which causes *vishesh guna antardhan* in the preparation.

KEYWORDS: *kashaya kalpana*, *sneha kalpana*, *sandhan kalpana* and others.

INTRODUCTION

“AUSHADHAM” means a substance having the ability to pacify pain or *roga* while “KALPANA” means the ideology of making use of different *dravyas*. ‘*Kalpana*’ is the process or modification through which a substance is transformed into medicinal form. The raw products obtained from animal, plant or mineral source is to be converted into that form, by which it would be therapeutically fit for use. It increases the potency of medicine by adding or generating special property (by *sanskar* i.e. *vishesh gunantardhana*). It increases the shelf life of *aushadha*. It makes the medicine palatable and removes the toxic effect of medicine by purification (*shodhana karma*). It also makes the medicine as per the need of the patient and disease.

TYPES OF KALPA/PHARMACEUTICAL PREPARATIONS^[1]

1. *Aushadha kalpana*/therapeutic preparations.
2. *Ahara kalpana*/dietetic preparations.

AUSHADHA KALPANA^[2]

1. *Kashaya kalpana* (Watery preparations)
2. *Sneha kalpana* (Fatty preparations)
3. *Sandhana kalpana* (Fermented preparations)
4. Others

1. KASHAYA KALPANA

Among *kashaya kalpana* the *panchavidha kalpana* i.e. *swarasa*, *kalka*, *kwatha*, *hima* and *phanta*, are the basic and most important *kalpana*. The other *kalpana* are just *upkalpana* of these five. These five *kalpana* get *laghu* (lighter) and their strength also goes on decreasing in an descending order which means the *swarasa* is the most *guru*(heaviest) among all of them and *phanta* being the most *laghu*(lightest); therefore, a *kalpana* must only be prescribed after considering the strength of both the disease to be treated (*vyadhi*) and the patient (*aatur*).^[3] As per *Charak samhita*, the name *Kashaya* pertains to 5 *kshaya rasas* (except *lavan rasa*) of the drugs from which the *kshaya kalpanas* are prepared.^[4] Short shelf life of 24 hours is the limitation of these *Kalpana*.

Some *Acharyas* have described more than five basic forms as: *Shadvidh kashaya kalpana* has been described by *Acharya Sushruta*, by adding *Kshira kalpana* (medicated milk). *Saptavidh kashaya kalpana* has been described by *Acharya kashyap*, i.e. by adding *Churna*; but as told before these are accepted as *upkalpana*.

As *Sharangdhar samhita* is considered as a pioneer literature in the subject of *Bhaishajya kalpana*, therefore, most of the description is taken from it.

SWARASA (EXPRESSED JUICE)^[5]

It is the simplest *kalpana* of all. It is the expressed juice obtained by crushing and squeezing the fresh herb. Dose: $\frac{1}{2}$ *pala* i.e. Approximately 24ml. If fresh herbs are not available, make the powder of dry herb. 1 part herb powder: 2 parts water. Keep this mixture in an earthen pot for 24 hours. Extract the juice after proper grinding and straining through a cloth or sieve. Dose: 1 *pala* i.e. 48ml(approx.) To make the preparation more palatable and to increase its

potency, some dravya like honey, sugar, *jiraka*, etc, known as *Prakshep dravya* are added. Quantity – 1 *kola* (upto 6 Grams).

It is the most potent among all the other *panchavidha kalpana* and most *guru* in property therefore must be used in patients with good *agnibala*.

Putapaka Method: first prepare *kalka* (paste) of the herb to be used. Then wrap it in a leaf and tie it with a thread. Over this, mud should be smeared uniformly for about 1 cm thickness. Then it should be dried and heated. When it becomes red hot, it must be taken out and allowed to cool. The outer mud layer, leaves etc. should be removed and juice may be extracted straining the *kalka* through a clean cloth. Dose: 1 *pala*. The basic idea behind this process is that morphologically the cellular structure of the plants like *neem*, *jambu*, *vasa* etc. may not allow losing their contents by normal squeezing process.

KALKA^[6]

It is the paste of coarsely grinded drugs. Dose: 1 *tola* i.e. 12gms. *Kalka* is *laghu* than *swarsa* therefore easy to digest as compared to it. To increase its potency, some *dravya* like honey, sugar, *jiraka*, etc can be added. Quantity: i. *Madhu*, *ghrita*, *taila* – double the quantity of *kalka*. ii. Sugar, *guda* – in equal quantity of *kalka* iii. *Drava* – four times the quantity of *kalka*.

CHURNA^[7]

It is considered as an *upkalpana* of *kalka kalpana*. Fine sieved powder of well shade dried herbs. Method of Preparation: Dry herbs are nicely powdered in *Imam Dasta* or in Disintegrator or Pulverizer machine. Sieved in meshes of different mesh nos. or with thin cotton cloth to obtain a powder with fine particles. Moisture content, particle size and other critical quality standards are applied before packing. Sometimes *bhavana* of *kwath* or *swarasa* of the same *dravyas* in a *yoga* is given to make it even more potent. Eg: *Amalaki rasayan churna*. If salt, sugar, camphor, *hing* are to be added, they must be mixed at last *Churna kalpana* is an important preparation for almost all GIT related ailments. Eg: *hingwashtak churna*, *lavanbhaskar churna*, *narayan churna*, *shivakshar pachan churna* etc. As it is microfine, it gets digested and assimilated easily and does not need further disintegration unlike *guggulu* or *vati kalpana*. It has more shelf life than *kalka kalpana* and its potency can be further increased by the process of *bhavana*. It is further useful in preparation of other *kalpana* like *lehyam*, *vati*, *asava*, *arishta*, *kwath* etc.

VATI/GULIKA KALPANA^[7]

The powdered drugs are grinded well with the prescribed liquids and some sticky binding agents like *ghee*, *guggul* or *guda* is also added afterwards. The resultant semi solid form is made into tablet form in suitable machinery and dried properly. Hardness, friability, disintegration time, weight consistency, moisture, colour, odour, taste etc. are assessed by specific parameters and then packed well. The *bhavana* process helps to increase its potency therefore the dose decreases. It is a more palatable form than *churna*. Its shelf life is also more than *churna*. New pharmaceutical forms like tablets, capsules etc are also available in the market.

KWATHA OR KASHAYAM (DECOCTION)^[8]

It is the most famous *kalpana* in *Ayurveda*. It is the aqueous extract of a drug, prepared after boiling the drug with water.

Method of preparation: Crush herbs coarsely (*yavakut*) , add water 4/8/16 times to coarse powder quantity. Boil till the liquid is reduced to one-fourth/one-eighth and then filtered. 4/8 times water is reduced to 1/4th liquid- for soft herbs (leaf, thin stem, flower). 16 times water is reduced to 1/8th liquid- for hard herbs(h.t.wood,bark etc.). 8 times water is reduced to 1/4th liquid for mixed quality (hard+soft herbs). Based on the quantity of herbs for preparation of *Kwatha*, herbs less than 4 tola in weight – 16 times water is required. Herbs weighing in between 5 to 16 tola – 8 times water is required. Herbs above 16 tola in weight – 4 times water is required. Dose: 2 *pala* equivalent to 96ml approximately. To increase its potency, some dravya like honey, sugar, jiraka, etc can be added. Quantity– *Churna* – 1 *shana* (3 gram approx) *Madhu* – 1/16th , 1/8th ,1/4th part for *vata*, *pitta* and *kapha roga* resp. Sugar – 1/4th , 1/8th , 1/16th part for *vata*, *pitta* and *kapha roga* resp. *Drava* – 1 *karsha* (12ml).

It is a *laghu kalpana* and can be given to a *madhyam* and *alpa agnibala* person also except some of the *kshayam* with *guru dravya* as main ingredients like *vidarayadi*, *prasaranyadi* *kshayam* etc. It is better not to reheat *kshayam*. The time of administration is usually 1hr. before food but can be altered according to the *roga* and *rogi* assessment of the *Vaidya*.

Bottled kashaya/concentrated kashaya^[9]

The *kwath* formed after boiling raw drugs is further concentrated in a vacuum concentrator machine until required quality parameters are attained. The resultant material is preserved by adding preservatives like benzoic acid, sodium benzoate etc.

Dose of the bottled *kshayam* is lesser than the classical *kalpana* as it is more concentrated viz. 30-40ml a time; the *kshayam* prepared by South Indian pharmaceuticals may have even lesser dose of 10-15ml as they are even more concentrated.

UPKALPANA OF KWATHA

- **Pramathya-** *Pramathya* is *Upkalpana* of *Kwatha Kalpana*. It is slightly different from *Kwath Kalpana*. Here the drugs are added in the form of *Kalka*.
- **Mamsa rasa-** Goat meat when boiled at low flame in sufficient quantity of water by which bones are separated from the meat & its marrow comes out in the water & it remains in semi solid form is called *mamsa ras*. Varieties :- 1. *Krit mamsa ras* – salt, pepper, cumin, ginger, asoefitide etc. along with ghee/oil are added. 2. *Akrit mamsa ras* – Above juice without spices.
- **Ksheerpaka-** When herbs boiled in 8 times of cow's milk & 4 times of water to the milk (32 times) & reduced to the quantity of milk (8 times). Herbs 1 part, Milk 8 parts of herbs, Water 32 part of the herbs reduced to 8 parts = *ksheerpak*.
- **Ushnodaka-** Water boiled & reduced to $\frac{1}{2}$, $\frac{1}{4}^{\text{th}}$ or $\frac{1}{8}^{\text{th}}$ is called *ushnodak*. $\frac{1}{2}$ part for *Shishira*, *Vasanta* and *Greeshma* $\frac{1}{4}^{\text{th}}$ part for *Sharad*, $\frac{1}{8}^{\text{th}}$ part for *hemantha* & *Varsha*.
- **Paneeeya-** Medicines boiled on a slow heat in the ratio of 1:64 & reduced to half, filtered and used after cooling at room temperature. viz. – *Shadangapaneeya* for fever & thirst
- **Vatya manda-** Coarse husk less Barley (*Nistush*) powder boiled in 14 times of medicated water till cooked completely & to be used after filtering by mixing sugar or salt or pepper, ginger as per taste. Indication:- Good for throat infections, improving taste, hemoptysis, mitigates *kapha* & *pitta*.
- **Lajja manda-** Fried popped rice prepared in a similar fashion of *vatya manda*.

SHITA (COLD INFUSION)^[10]

Also known as *Hima kalpana*. Fourth *kalpana* among *pancavidh kashaya kalpana*. It is usually made from drugs with aromatic contents. Cold water is used for dissolving contents of drugs. *Dravya* is crushed and cold water is added in a ratio of 1 part (drugs): 6 (water) parts. The mixture is kept overnight and is ground and sieved through a clean cloth in the morning. Dose: 2 *pala* (96ml).

PHANTA (HOT INFUSION)^[11]

It is the last *kalpana* among *panch-vidha kalpana*. It is extremely light for digestion. Hot water is used in this *kalpana*. To the *yavkut dravya*, hot water is added in a ratio of 1 part

(drugs) : 4 parts (water) The mixture is mashed lightly & filtered and used in luke warm condition. Dose: 2 *pala* (96ml).

2. SNEHA KALPANA (FATTY PREPARATIONS)

Sneha Kalpana/paka may be defined as “A pharmaceutical process to prepare oleaginous medicaments from the substances like *Kalka* (herbal paste of different parts of botanicals), *Kwatha* (specifically prepared decoction in accordance of Ayurvedic principles) or *Drava Dravya* (any other liquid such as milk, self expressed juices, meat juice, etc.) taken in specific proportion and by subjecting them to unique heating pattern and duration to fulfill certain pharmaceutical parameters, according to the need of therapeutics.”^[12]

Liposomal system of drug delivery is a new invention in the conventional system of medicine. Liposome is an advanced dosage form in which nanoparticles comprising lipid bilayer membranes surrounding an aqueous interior are formed increasing its bioavailability. Probably, there is very distinctive similarity between these two on account of their aqueous and oleaginous origin.^[13]

According to *Sharangdhar Samhita*, *Sneha Kalpana* may be defined as “the medicament prepared by using one part of *Kalka dravya*, four parts of oil/ghee (commonly sesame oil/cow ghee) and sixteen parts of *Drava dravya*.”

Rules for sneha paka

- If the *Drava dravya* during preparation of *sneha* is *jala*, *kwatha*, and *swarasa*, then amount of *kalka* used should be one-fourth, one-sixth, and one-eighth of *sneha*, respectively.
- When indication of *sneha* preparation is in *dugdha* (milk), *dadhi* (curd), *takra* (butter milk), and *mans rasa* (meat juice) as *sneha* part, the *kalka* to be used should be one-eighth and water should be added four times.
- When *Drava dravya* are more than five, then each *dravya* should be taken in the same quantity as that of *sneha*. If less than five, the total quantity of all the liquids should be four times.
- When *paka* (pharmaceutical process for preparation of medicated oil/ghee in which individualized heating process is adopted as per ingredient of formulation) is mentioned by only *Kalka dravyas*, then water should be added four times of *sneha* to replace

the *drava*. When *paka* mentioned by only *kwatha dravya*, then *kalka* should also be prepared of the same drugs.

- When flower is used as *Kalka dravya*, then its quantity should be one-eighth to that of *sneha*.

Importance: The *sneha kalpana* can cross BBB as it is a lipophilic in nature. Its effects are long standing as compared to other *kalpana*. *Taila* and *ghrita* *kalpana* are two major *kalpana* in *sneha kalpana*. The *taila kalpana* is majorly prepared for external use while *ghrita kalpana* is prepared mainly for internal use. However, some *taila* like *mahanaryana taila*, *dhanwantram taila*, *sahcharadi taila*, *ksheerbala taila* etc can be used for internal use also. *Sneha kalpana* is used profoundly in both *shodhana* and *shaman chikitsa*. This *kalpana* is guru in nature, therefore, must be used in a proper dose decided only after assessing the *agnibala* of the patient and in *niraama* conditions.

SANDHANA KALPANA (FERMENTED PREPARATIONS)^[14]

These are fermented preparations containing self generated alcohol. The most profoundly used *sandhana kalpana* are *asava* and *arishta*.

Arishta: Suitable sugar bases like *guda*, *ikshu khaanda*, *sita* or *madhu* are dissolved in *kwath* of raw drugs of the particular *yoga* and fermented for 30 days in air tight vessels. The fermentation is augmented by *dhatki pushpa* (*Woodfordia fruticosa*)/*kinhwa* (yeast).

Asava: This preparation is same as that of *arishta* but instead of *kwath* boiled and cooled water is used as *drava dravya*. The medicinal properties are derived from the coarse powder (made from the raw drugs of the given *yoga*) of drugs added prior to fermentation.

The *prakshepa dravyas* like *ela*, *twak* etc are to be added to the finished product of *asava* or *arishta*. In this *kalpana*, alcoholic extract of herbal ingredients is present. It is fast acting and can cross BBB. It has a very long shelf life. *Arishta* are *laghu* than *asava* (because of the *agnipaka*).

In general, this *kalpana* possesses *guna* like *laghu*, *tikshna*, *vyavaayi*, *sukshma* and *ushna virya*. Must be avoided in conditions like *rakta-pitta*, gastritis, peptic ulcers, alcoholic liver disease, sensitive stomach.

OTHER COMMON PREPARATIONS

- **Guggulu-** *Guggul* is the dominant ingredient and hence the name *guggul kalpana* is given. *Guggul* in small pieces is boiled in *gomutra* or *Dugdha* or *Triphala* decoction until it becomes soft mass and is strained. Then powders of various drugs of the particular formulation are added and then molded into tablet form. *Shodhan* of *guggul* allows its aqueous soluble extraction. *Guggul* being the dominant ingredient the basis of this *kalpana*'s therapeutic action are like that of *guggul* itself like *medohara*, *vrana hara*, *shula hara*, *vata shaman*, *sandhi-asthi balya* etc.^[15]
- **Guda/Gudika:** The powdered ingredients are pounded along with jaggery and thus the medicine is prepared. Quick results will be found if *gudikas* are given by grinding into a paste with honey, *jeerak* water or ghee. But the medicine of such a *kalpana* cannot be stored for a long time. It may get easily spoiled after a period of one month. Therefore, *lehya kalpana* is popular and used in treatment today, as it can be stored for a longer duration. But as the *kalpana* changes the effectiveness of the medicine i.e. medicine is also affected because of *sanskar*. Eg: *sarpi-guda*, *kalyanak-guda*, *manibhadra-guda*. Dose: generally 1 *karsha* (10gm) but varies according to the *yoga* and assessment of *roga-rogi bal*.
- **Lehya kalpana:** The formulation which can be licked with tongue is called *lehya/avaleha*. These are sugar based preparations which are usually palatable and pleasant. The drugs are generally incorporated as *kshaya*, *swarasa* and *churna*. All of these materials are boiled and concentrated into the optimum *paaka*. Additives like *madhu*, *ela*, *twak*, *tugakshiri* etc are added after *paaka*. It is a *guru kalpana* therefore, good *agnibala* is needed for its intake. Dose: 10-15gms a time on an empty stomach.^[16]
- **Rasa Aushadi-** *Ayurvedic* medicines containing metals/mineral drugs as the main ingredients are called *Rasa yogas*. They are available in pill form or in powder form. Metals, minerals such as *Swarna* (gold), *Rajata* (silver), *Tamra* (Copper) are used in *bhasm* form in these preparations. These are converted into *Bhasma* form with the help of other drugs which are added in small quantities, mixed well and grounded in the vessel to form fine powder.
- **Arka** – Distillate for *dravya* having volatile Contents. Eg: *Gulab Jal*, *Pudinah Arka*, *Ajowain Arka*, *Gomutra Arka* etc.

DISCUSSION

Swaras kalpana is the crude extract of fresh raw drugs, therefore, it is the most *guru kalpana* of all the other *panchavidha kashya kalpana*. *Kalka kalpana* is *laghu* in *guna* when compared to *swarasa* as the fibre content is also present. The *kashaya*, *hima* and *phanta kalpana* are water soluble extracts of the raw drugs and due to *agnipaka* they are much lighter than *swarasa* and *kalka kalpana*. The *sneha kalpana* is the fat soluble extracts of the raw drugs and its properties and actions are close to the newly discovered liposomal drug delivery system. In *Charak samhita sutrasthan snehadhaya*, it is already described that *sneha* spreads in all the *marga* (channels) of body and has more latent effects than other *kalpana*. The *sandhana kalpana* is the alcohol soluble extracts of the raw drugs and its properties allow it to even penetrate blood-brain barrier. *Sandhana kalpana* is quick acting but must be used with precaution in *pitta pradhan vyadhi*. Hence same drugs when prepared differently i.e. change in *kalpana*, changes the properties, actions and dose of the formulation. Change in *kalpana* matters a lot; while selecting a *kalpana* the *vaidya* must consider these factors also. Just relying on the ingredients is not enough, the *kalpana* to be used is also to be judged.

CONCLUSION

“Sanskara changes things”. Alterations in a process of preparation i.e. *Sanskara* will cause a change in the *guna* of the medicine also. Eg: covering the vessel while preparing a *kwath* will change its *guna* to *guru* from *laghu*. Another example is *manibhadra guda* which is a very effective *yoga* for *switra*, *prameha*, *shwasa*, *kasa* etc but due to lesser shelf life *manibhadra leham* is available in market instead; even after having the same ingredients, its efficacy lessens. While prescribing a *kalpana yukti pramana* is most important. Every *kalpana* has its own specifications therefore it must not be decided by merely relying on its indications but after properly assessing both *roga* and *rogi*. And palatability is also important to consider but not at the cost of efficacy.

REFERENCES

1. Sharma P.V., *Dravyaguna vigyana*, 2008, vol. 1, Varanasi, Chaukhamba Bharati Academy, chp. 5, pg. 404.
2. Sharma P.V., *Dravyaguna vigyana*, 2008, vol. 1, Varanasi, Chaukhamba Bharati Academy, chp. 5, pg. 404
3. Tripathi Brahmanand, *Charak samhita*, 1995x vol. 1, Varanasi, Chaukhamba Subharati Prakashan, sutrasthan chp. 4, shalok 7, pg. 42.

4. Tripathi Brahmanand, Charak samhita, 1995x vol. 1, Varanasi, Chaukhamba Subharati Prakashan, sutrasthan chp. 4, shalok 6, pg. 39.
5. Sharma Prayagadatta, Sharangdhar samhita, Varanasi, Chaukhamba Amarabharati Prakashan, madhyamkhand, chp. 1, pg. 139.
6. Sharma Prayagadatta, Sharangdhar samhita, Varanasi, Chaukhamba Amarabharati Prakashan, madhyamkhand, chp. 5, pg. 177.
7. Shaffeer V. Muhammed, SAMS, Kanyakumari, Sri Sarada Ayurveda Hospital, ed. 3, vol. 1, pg. 33.
8. Shri Prayagadatta Sharma, Sharangdhar samhita, Varanasi, Chaukhamba Amarabharati Prakashan, madhyamkhand, chp. 2, pg. 146.
9. Shaffeer V. Muhammed, SAMS, Kanyakumari, Sri Sarada Ayurveda Hospital, ed. 3, vol. 1, pg. 31.
10. Sharma Prayagadatta, Sharangdhar samhita, Varanasi, Chaukhamba Amarabharati Prakashan, madhyamkhand, chp. 4, pg. 175.
11. Sharma Prayagadatta, Sharangdhar samhita, Varanasi, Chaukhamba Amarabharati Prakashan, madhyamkhand, chp. 3, pg. 173.
12. Onten CS, Kumar Vikas Chaudhary A. Varanasi: BHU; 2009. Study of Stability (Saveeryata Avadhi) of Samanya and Panchavartita Panchtikta Ghrita, (M.D.Ayu. dissertation).
13. Singh Neetu and Chaudhary Anand, A comparative review study of sneha kalpana (paka) vis-a-vis liposome, Ayu, 2011 Jan-Mar; 32(1): 103-108.
14. Shaffeer V. Muhammed, SAMS, Kanyakumari, Sri Sarada Ayurveda Hospital, ed. 3, vol. 1, pg. 32.
15. Shaffeer V. Muhammed, SAMS, Kanyakumari, Sri Sarada Ayurveda Hospital, ed. 3, vol. 1, pg. 34.
16. Shaffeer V. Muhammed, SAMS, Kanyakumari, Sri Sarada Ayurveda Hospital, ed. 3, vol. 1, pg. 36.