

REVIEW ON LIQUID DOSAGE FORMS IN AYURVEDA

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ABSTRACT

Bheshaja is one among *Chikitsa Chatuspada* which is essential for efficient treatment. *Bhaishajya Kalpana* is a branch which explains about Dosage forms. These are the forms in which a particular dose (mixture of active principle and nondrug components) given in a patient to cure the disease. These have been classified into different types such as *Aushadha kalpana*, *Aahara kalpana*, *Bahya and Abhyantara kalpana*, solid, liquid and semisolid forms, as well as of plant, animal and mineral origin. Among these Liquid dosage forms stays an upper hand as it has more absorption rate in human body. Few of liquid dosage forms like *Swarasa*, *Kwatha*, *Taila*, *Ghruta*, *Asava*, *Arishta*, *Arka*, *Dravaka* etc are explained mainly based on their Physical state and its uses.

Keywords: *Bheshaja*, *Ayurveda*, *Bhaishajya Kalpana*, *Dosage forms*,

INTRODUCTION

Ayurveda being the science of life in which *chikitsa* is given utmost importance. '*Aushadha*' is considered as one among the quadruple in *Ayurveda* classics. *Kalpana vijnana* is also essential to attain the knowledge of *chikitsa*. The term *kalpana* is originated from the root *Kripu Saamardhye* meaning that which make a substance potent or active. The potentiation may be either to *chikitsa* or to *Aushadha*. *Bhaishajya Kalpana* is a branch which is entirely devoted to *Aushadha yogas*. In *Ayurveda* there is a description of different dosage forms in classics which have been explained nearly 5000yrs ago. *Ayurvedic* formulations are preparing based on *Desha*, *kala*, *Samyoga*, *Vishlesha* and *yukti*. Even the potency of the drug can be altered by the same. Concept of *Dravya* is principally based on the type of activity of a substance on the human body.

In this respect edible substances are broadly divided in two categories like '*Aahaara Dravya*' ie; used as food substance and '*Ausadhi Dravya*' in which substance used as drug. According to the form *Dravya* is subdivided into solid, liquid and semisolid dosage forms. Among total number of dosage forms liquid form is one among the important which commonly used in *Ayurveda*.

Dosage forms

It is defined as physical form of a chemical compound used as drug or medication intended for administration or consumption. In *Ayurveda* Dosage forms are explained as *Kalpanas*; which means transformation or plan of preparation of medicines by using either a single drug or a combination of several drugs. Different *Kalpanas*, in different forms have been explained which stands good even for present era. Following are

some liquid dosage forms which are used in Ayurveda clinical practices.

Swarasa (Juice of drugs)

The juice extracted from the drug is known as *swarasa*. Extracted water Soluble contents in a drug is present in *Swarasa*. It is one of the basic preparations in Ayurveda and one among the *pancavidha kashaya kalpana* and the most potent among them. Ex:

Tulasi swarasa . It is also used as *bhavana dravya*, *shodhana dravya* in mineral preparation and as an ingredient of various secondary preparations. This is divided into two types as *Agni Sidha* and *Anagni Sidha*. Depending on this dose is *1pala* and *1/2pala* respectively.

Table 1-Method of preparation is,

	If Fresh drug (e.g Tulasi)	In slight hard or Moderate hard drug(Triphala)	In more hard drugs (e.g dashamula)	In Fibrous drug (e.g Vasa)
<i>Sharangadhara</i>	Drug - pounded well - filtered through clean cloth = <i>swarasa</i>	1 kudava drug+2part water (Soaked for one night and filtered)	1part drug+8part water then reduce till pada shishtam	Putapaka method
<i>Charaka</i>	Yantra nispeedita	1adaka churna+1 adaka jala(ahoratra sthitham)		

Prakshepaka dravyas used are madhu,sita,kshara,jeeraka,lavana,ghruta,taila and other ingredients in Kola pramana.

Kwatha :(Decoction): It is the another basic preparation where the coarse powder form of a drug is taken and it is boiled with dif-

ferent ratio of water using an opened earthen pot and it is heated on mandagni.eg *rasnadi kwatha*.

Table2-Jala Pramana based on consistency of dravya

General -1part dravya	16 parts water	1/8 reduction	E.g
Soft drug-1 part	04 parts water	¼ reduction	Guduchadi
Moderate hard drug-1part	08 parts water	¼ reduction	Laghu & brihat panchamula
Hard drug-1part	16 parts water	¼ reduction	Daruharidra, devadaru, rakthacandana

Based on Quantity of the drugs

- 1 Karsha – 1 Pala : 16 times of water
- 1 Pala - 1 Kuduva : 8 times of water
- 1 Kuduva – 1 prastha and Khari : 4 times of water

Table3-Types of kashaya according to function (according to haritha)

Kashaya	Reduction	Indication
<i>Pachana</i>	Reduce to ½	If ama dosha, should be administered on 7 th day

Deepana	Reduce to 1/10	<i>Madhyama</i> (to increase agni)
Shodhana	Reduce to 1/12	In nishi after assessing dosha
Kledana	Reduce to ¼	
Shamana	Reduce to 1/8	In <i>nirama avastha</i> ,morning
Tarpana	Just boiled not reduced	After complete cure
Vishoshi	Reduce to 1/16	<i>Sleshmajaroga-Prathama ahani</i> Usually at night

The dose of *kwatha* preparation is 2palas(96ml) and administrated before food ie after the digestion of previous food. It can also be used for secondary preparation like preparation of medicated ghee and oil. and also used as

anupana,niruhabasti,bhavanadravya. There are certain upkalpana of kwatha like pramathya kalpana, paniya kalpana, usnodaka, ksirapaka,laksarasa, mamsa rasa.

Table4-Upakalpanas of kwatha

Kalpana	Method of Preparation	Dosage	E.g
Pramathya	1 part of drug in form of Kalka + 8 parts of water = reducing to ¼.	1-2 Pala	<i>Musta-indrayavasiddha pramathya</i>
Paneeya	1 part drugs + 64 parts of water = reduced to half	2 Pala	<i>Shadanga paneeya</i>
Ushnodaka	¼ reduction- <i>vatahara</i> ½ reduction- <i>pitta hara</i> 3part water- <i>Kapha hara</i> evaporation		
Ksheera paka	Drug:milk:water=1:8:32 Reduced to <i>ksheera-vashesha</i>	according to roga and rogi bala.	<i>Arjuna Ksheera-paka,lashuna ksheerapaka</i>
Laksha rasa	<i>Laksha</i> in <i>Dola yantra</i> till ¼ reduction	2 tola	
Mamsa Rasa	2, 4, 6 and 8 parts of water is added considering the nature of chopped meat		<i>Kruta Akruta</i>

Table5-Prakshepaka dravyas

	Vata	Pitta	Kapha
Sita	¼ of <i>kwatha</i>	1/8 of <i>Kwatha</i>	1/16 of <i>Kwatha</i>
Madhu	1/16 of <i>Kwatha</i>	1/8 of <i>Kwatha</i>	¼ of <i>Kwatha</i>
<i>Jeeraka,Guggulu,Kshara,Lavana,Shilajatu,Hingu,Trikatu-1Shana</i> <i>Ksheera,Ghruta,Guda,Taila,Mutra and other Drava-1 Karsha</i> <i>Kalka,Churna-1 Karsha</i>			

Hima Kalpana/Sheetha Kashaya(Cold infusion): It is also one of the primary prep-

aration mentioned in fourth position. One part of drug is put in 6 part of cold water and

kept overnight in an earthen pot. Next day the drug is taken and macerated well and filtered through a clean cloth, and the formulation thus obtained is called as the *Hima Kalpana*, compared to cold infusion. The active principles of the drugs are diffused into water. The extraction is aided by the reduced particle size of drug and the continuous contact of water. Here heat liable con-

stituents will not be lost as no heat is applied during the processing.

We cannot preserve *Hima*, so should be taken immediately. It can be given in the dose of 2Pala by adding *Prakshepaka Dravyas same as kwatha (Sita guda makshikadi)* and some opines that *Rakthothpala, Ghruta, Taila, Puram, Vajrodaka in Gadhyanaka pramana.*

Table-6-Upakalpanas of hima

<i>Kalpana</i>	Method of preparation	E.g	Uses
<i>Tandulodaka</i>	1pala(powdered rice)+8/6/4parts jala (Macerate and collect tandulodaka)		<i>Anupana, Dhara, Pana</i>
<i>Mantha</i>	1pala drug+4pala cold water(macerate)	<i>Karjuradi mantha</i>	<i>Sadhyobalakara, Pipasanashaka, Madyaroga</i>
<i>Panaka/Sarkarodaka</i>	Prepared by dissolving sugar in drava dravya	<i>Chicha panakam</i>	Pitta syamaka

Phanta Kalpana: Phanta (hot infusion): It is last preparation among the *pancavidha kashaya kalpana*. Here the coarse powder of a drug is put into hot water and it is rubbed and filtered with a cloth. Some opines that straining should be done after the content is cooled and some says that filtration should be done immediately after mixing. By this there is softening of the drugs takes place as

the extraction of all the volatile principles from the drug to water. It is considered to be the least potent among the *panchavidha kashaya kalpana*. The time taken to prepare *phanta* is less. *Sharangadhara* mentions that *Mantha* is *Phanta bheda*.

Table 7-Comparison of Kwatha, Hima, Phanta

	<i>Kwatha</i>	<i>Hima</i>	<i>Phanta</i>
Drug	<i>Ipala</i>	<i>Ipala</i>	<i>Ipala</i>
Water	16 times	6 times	4 times
Process	Boiling till 1/8 th	Compounding with cold water	Compounding with hot water
Strength	Less	Lesser	Least
Water liable principle	++++	++	+
Heat Liable Principle	++++	++	+

Arka (Distillation): It is a secondary preparation which is obtained by distillation of

certain liquid or drugs(1part) soaked in water(3parts/10parts/25parts) using an

arkayantra. It is an extraction (60%) of volatile substance of a drug. *Arka* is prescribed as *anupana* and used as *bhavana dravya*. It is commonly prescribed in the case of *agnimandya*, *amaajeerna* and *amatisara* in the dose of 12-24ml.

Sarkara Kalpana (Syrup): The medicines in the syrup form is called *sarkara*. mentioned by *Acharya Yadavji Trikamji*. Here two parts of sugar is added to one part of *kwatha/swarasa/hima* is added and heated on *mandagni* till it gets proper *paka* and after cooling it is filtered and mainly used for children due to its sweetness and the sugar concentration in this preparation will be 66.7% due to which it also acts as a preservative. It is mainly given in *pittaja vikara* in the dose of 1-2 *pala*. eg. *parushaka sarkara*.

Arishta: are made by soaking the drug (1/10th of *guda*- powder form) in *Kashaya* (*1Drona*) in which a solution of sugar or jiggery (1 *tula*) is mixed and kept it for fermentation to generate alcohol, thus facilitating the extraction of active principles contained in the drug.

Asava: *Kashaya* is not prepared to make *asava*.

The alcohol thus generated acts as a preservative and thus facilitating the extraction of active principles contained in it. It is preserved for many years. They are known to have infinite shelf life and it is believed that they get better and better with time. *Asava*

and *Arishta* kindle appetite by stimulating the activity of digestive enzymes due to its *agneya guna*. They are more palatable as it has sweetening agents. eg *draksarista*, *kanakasava*. They are prescribed in the dose of 1 *pala*.

Ayaskruti: Since these metallic drugs cannot be administered internally in their original form, our acharyas came out with a procedure to make these metals consumable. The procedure adopted by them for this purpose was called *ayaskriti*. *Charaka* has explained in *lehya* form, but *Vagbhatta* and *Susrutha* explains as liquid form. Jaggery is added to *Asanadi Kashaya* which is kept in mud pot. To this *madhu* and *Vatsakadi gana churna* is added. Then thin sheets of *tikshna lauha* is heated and dipped in solution and Pot should be closed and kept for fort night.

Sneha Kalpana

Taila /Grutha are preparations in which *taila* are boiled with a prescribed *drava dravya* and *kalka* according to the formula. This is mainly in the ratio 1:4:16. This form of medicine can be used internally as well as externally. *Sneha Kalpana* helps to extract lipid soluble and water soluble active principles from drugs. It has enhanced shelf life and drug absorption due to its *sukshamatwa*. Few rules are followed in processing of *sneha*.

Table 8-Quantity of *Kalka* according to *Drava dravya*

<i>Drava</i>	<i>Kalka</i>
<i>Ambu</i>	1/4 of <i>sneha</i>
<i>Kwatha</i>	1/6 th of <i>sneha</i>
<i>Swarasa</i>	1/8 th of <i>sneha</i>
<i>Dugdha, Dadhi, Mamsarasa, Takra</i>	1/8 th of <i>sneha</i> + 4times <i>jala</i>
If numbers of <i>drava</i> -5	Equal to <i>sneha</i>

If only *Kwatha dravya* are given in *sneha*, then *kalka* of same drug is needed. In case

where *kalka* is not mentioned *sneha* may be prepared without *kalka*. And in case of

pushpa kalka ,it should be taken in 1/8th part of *sneha* due to its lighter weight. *Sneha* Kalpana completion can be confirmed by following tests like *Vartivath kalka*(when rubbed between the fingers),*Shabdha heena*(in *agni kshiptha*),*Phenodgama*(appearance of froth)

in *taila*, *Phenashanti*(Disappearance of froth) in *sarpi* and desired *Gandha,Varna,rasa* of *sneha*.Pharmaceutically and clinically *Paka* is classified as,

Table9-Sneha paka lakshanas

<i>Paka</i>	Pharmacetically	Clinically
<i>Mrudu</i>	<i>Kalka</i> -soft, little moisture present	<i>Charaka-Nasya, Susrutha-Abhyanga</i>
<i>Madhyama</i>	<i>Kalka</i> -Soft, Devoid of moisture	<i>Charaka-All purposes, Susrutha-All purposes</i>
<i>Khara</i>	<i>Kalka</i> -hard	<i>Charaka-Abhyanga, Susrutha-Basti</i>
<i>Dagdha</i>	Should be avoided	
<i>Ama</i>		<i>Nirveerya,Vahnimandya kara,guru</i>
<i>Gandha/Patra</i>	<i>Gandha dravyas</i> are placed in a vessel in which <i>sneha</i> is filtered	

Time duration to cook *Sneha* Kalpana is explained by *Vaidhyaka Paribhasha Pradipa* depending on nature of ingredients as,

If the *sneha* contains - *ksheera*-2days, *Swarasa*-3days, *Takra, Dadhi, Kanji, Gomutra*-5days

Mula,Valli-12days, *Vreehi,Mamsa*-1day

Even *Sharangadhara acharya* quotes that *Ghruta, taila, Guda* preparations should not be cooked in a single day. If done so *Guna sanchaya* takes place to the formulation. *Sneha* can be preserved for 16 months And it can be prescribed in the dose of one pala generally and according to *Agni bala Uttama matra, Madhyama matra, Jaghaneeya matra*(1pala,3 karsha,2 karsha) along with *Ushnana-*

jala, Madhu, Sharkara, Churna, Kashaya. Concept of *murchana* of *sneha* plays an important role in internal administration as *murchana* removes the *ama dosha* of *sneha* and increases the action of *sneha*. eg. *Triphalagrutha, Dhanwantara taila*.

CONCLUSION

All the *Kalpanas* which have been mentioned in *Ayurveda* are mainly aimed at isolation of suitable active principles through different media like water, oil and ghee. Liquid dosage forms are an important part of *Ayurvedic* dosage forms where *aap Mahabhuta* is the deciding factor which distinguishes liquid dosage form from the others. Most of them are the potent forms and are major part of the *panchavidha Kashaya kalpana*. Even majority of semisolid and solid dosage form are derivative of liquid dosage form. Compared to solid and semisolid formulations liquids are easier to administrate therefore it can be prescribed for children, old age and unconscious patients. They are quick in action than tablets and capsules. Liquid dosage form can be mixed homogeneously, therefore can be given in uniform dose. As there is no need for dissolution of liquid dosageform it acts and penetrates quickly than Solid and semisolid as it mixes easily with body fluids. I would like to conclude that, human body contains 72% of

water and among *Sapta Dhatus*, majority are in liquid form. So the absorption rate of liquid dosage forms will be more than Solid and Semisolid dosage forms.

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