



Conceptual Review on Pharmaceutics in Sushruta Samhitha

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ABSTRACT

Introduction: Bhaishajya kalpana is the branch of science which deals with the conversion of raw material into therapeutically suitable form. In ancient time, physicians themselves used to prepare medicine for administering to their patients. Sushruta samhitha belongs to Dhanvantari sampradaya, which mainly deals with shalya and shalakyta tantra. Though the text is shalya pradhana, details of pharmaceutics are available in all the divisions, in a scattered manner. An attempt has been made here to compile the important concepts of bhaishajya kalpana explained in sushruta samhitha.

Methods: Literary search was done in sushruta samhitha, and concepts pertaining to the same were searched in peer reviewed journals.

Observation: The different concepts found are adharabhutha siddhanta, dravya Sangrahana and samrakshana, maana, viruddha, shadvidha kashaya kalpana, Details of kshara kalpana, sneha kalpana and other kalpana like lavana, ayaskruthi, pathya kalpana, masi kalpana.

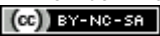
Conclusion: Sushruta samhitha belonged to ancient period. The details concerning to aushadha nirmana are available in all the divisions, in scattered manner. Details regarding collection of drug, different dosage form and their method of preparation are explained.

A separate branch for medicine preparation did not exist in samhitha period. From this it can be inferred that knowledge of bhaishajya kalpana was inevitable, and every vaidya had to know it.

Key Words: Sushruta samhitha, Bhaishajya kalpana, Aushadha nirmana, Pharmaceutics

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INTRODUCTION

Bhaishajya kalpana (Ayurveda pharmaceuticals) is the branch of science which deals with the conversion of raw material into therapeutically suitable form. In ancient time, physicians themselves used to prepare medicine for administering to their patients. Evidences regarding the various dosage forms like swarasa, kalka are found in Vedas. In ayurvedic classical texts like brihatrayee there is no separate section for pharmaceuticals, the details regarding the same are found in a scattered manner. Also there is explanation regarding dietetic preparations and few mineral preparations.

It was Acharya Sharangadhara of 13th century BC who compiled the concepts regarding preparation of medicine into a separate branch called bhaishajya kalpana. Systematic explanation regarding different dosage forms and their details are mentioned in Sharangadhara samhitha.

Among brihatrayee, Sushruta samhitha belongs to Dhanvantari sampradaya, which mainly deals with shalya and shalakyta tantra. It belongs to a period of about 1000 BC^[1]. The present available Sushruta samhitha contains six sthana. Though the text is shalya pradhana, details of aushadha nirmana are available in all the divisions, in a scattered manner. An attempt has been made here to compile the important concepts of aushadha nirmana explained in Sushruta samhitha.

MATERIALS AND METHODS

Literary search was done in Sushruta samhitha, and concepts pertaining to the same were searched in peer reviewed journals.

OBSERVATION

The details regarding pharmaceuticals were available in scattered manner throughout the samhitha. The different concepts are as follows.

- Adharabhutha siddhanta – concept of dravya sangrahana and samrakshana, concept of maana, concept of viruddha,
- Concept of shadvidha kashaya kalpana,
- Details of kshara kalpana
- Details of sneha kalpana and kashaya kalpana, their, ratio and rules
- Different methods of taila extraction/ preparation, shatapaaka and sahasrapaaka taila
- Other kalpana- lavana, ayaskruthi, pathya kalpana, masi kalpana

1. Concept of Aushadha Sagrahana and Samrakshana^[2]

Drug collection is an important aspect in preparation of medicine, especially collection of quality drugs matters a lot. This was known to our acharya long back and hence they have given explanation regarding the same. Before collection of the drug one has to thoroughly check the land for contamination, land of burial ground, temple, anthill and other such should be avoided. After inspecting the land one should inspect the plant. Plants should be devoid of krimi (pests), visha (poison), shastra (sharp objects) and those which have single rasa (taste), deep rooted, and roots spreading towards north should be collected.

Collection of janghama dravya (animal origin drugs) is specifically mentioned here as- blood, hair, hoof, milk, urine should be collected from middle aged animals and after digestion of food. Time of collection, sheeta dravya should be collected in sheeta kaala and ushna dravyas in ushna kaala.

Collection of drugs based on karma (action) or use

- ❖ For Virechana –drugs should be collected from pruthvi and apmahabhuta pradhana bhumi
- ❖ For Vamana –agni, akasha and vayu pradhana bhumi
- ❖ For Shamana – akasha pradhana bhumi

2. Concept of Bheshajagaara^[3]

The collected drugs should be cleaned and should be stored in a proper manner. It is mentioned that, the area should be in an auspicious direction, clean place, drugs should be covered by cloth and kept in pots which should be placed on wooden planks or hung by hooks.

3. Concept of Maana^[4]

The concept of measurement plays an important role in preparation of medicine, treatment. It is, as given in table 1. Bindu pramana is also seen. The drop that falls after dipping two phalanges of index finger in a liquid and removing, is considered as bindu^[5].

4. Concept of Viruddha^[6]

There is explanation regarding the concept of incompatibility with example. It is explained in terms of samyoga viruddha, karma viruddha, maana viruddha and rasa viruddha. Examples: Samyoga viruddha- freshly harvested grains, sprouted grains with meat of gramya, aanupa desha etc. Karma viruddha- Meat of kapota fried in sarshapa taila (mustard oil); ghee kept in bronze vessel for more than ten days. Maana viruddha- Honey and water; honey and ghee in equal

quantity. Rasa viruddha- Madhura Amla; Madhura Kashaya; Amla Kashaya and others.

5. Concept of Shadvidha Kashaya Kalpana^[7]

The most important part of bhaishajya kalpana is the primary preparations. Six kashaya kalpana are explained in the text. They are ksheera, rasa, kalka, shrutha kashaya, sheeta kashaya, churna. These primary preparations play a very important role in therapeutics and are also used to prepare secondary preparations.

- Putapaka Swarasa Vidhi^[8]

Two lumps of finely pounded meat weighing one pala each, drugs one pala and liquid one kudava are mixed together and made into a bolus. Then it is wrapped with leaves of eranda and others. Pasted with mud, dried in sun and heat is given using khadira kashta. Once it is cooked well, the outer covering is removed and contents are squeezed to obtain rasa. This is used for putapaka kriya kalpa.

6. Concept of Kshara Kalpana^[9]

Detailed explanation regarding definition, properties of kshara, types and preparation of kshara kalpana are given. Also use of kshara sutra in nadivrana chikitsa is mentioned. An entire chapter is dedicated for kshara kalpana.

7. Concept of Sneha Kalpana^[10]

Details regarding the preparation of kashaya, proportion and certain rules related to the preparation are available in different chapters. Kashaya is classified into shrutha kashaya and sheeta kashaya. Mainly the proportions are explained under the concept of sneha kalpana. For preparation of gritha or taila, if kashaya is used as drava dravya, then the ratio of drug and water required to prepare the kashaya is mentioned. The ratios and rules are as given in table 2 and 3.

Types of sneha paaka likemridu, madhyama, kharapaaka and sneha paakasiddhalakshana are also explained. Different taila preparations like bhallataka taila^[11] using paatala yantra, anu taila^[12], and gandha taila^[13] are explained. In these preparations, taila extraction instruments are also mentioned. Preparation of dipika taila^[14] is also explained.

- Shatadhauta Gritha^[15]

Use of shatadhouta gritha (ghee which is washed for hundred times) along with other drugs for external application is mentioned.

8. Concept of Shatapaka and Sahasrapaaka taila^[16]

Reprocessing of a taila for 100 times or 1000 times increases its potency. Detailed explanation of method of preparation is mentioned.

9. Concept of Churna Kriya/Ayaskriti^[17]

Use of metals, especially iron in the form of churna for therapeutic purpose is explained. Marana or bhasmikiranana procedure is not seen, but the method to reduce the particle size is explained here. Different types of aushadha ayaskriti and mahaushadha ayaskriti are explained.

10. Different dosage forms

Other than the above mentioned dosage forms there are different kalpana mentioned throughout the text. They are as given below.

- Varti Kalpana^[18]

Vrana varti is explained. varti is prepared using drugs having shodhana property.

- Rasakriya^[19]

Nyagrodhadhi rasakriya is mentioned and the method of preparation of rasakriya is explained in the commentary as reheating the kashaya till it becomes semisolid and then mixing it with other churna dravya.

- Lavana Kalpana^[20]

Preparation of patra lavana and sneha lavana are mentioned. In patra lavana, the fresh leaves of different drugs along with equal quantity of salt are given heat in anunctuous pot which is smeared by cow dung. In sneha lavana, the stems of different drugs are taken in a pot along with ghee, oil, muscle fat and marrow. Then the pot is smeared with cow dung and subjected to heat.

- Asavarishta^[21]

The use and preparation of asava and arishta are mentioned. The specified drugs are boiled with four part of water and are reduced to one fourth. After cooling it is mixed with specified quantity of jaggery. Then it is taken in an unctuous jar and kept in heap of barley for one month or fifteen days as required.

- Masi Kalpana^[22]

Use of krishna sarpa masi is mentioned for the treatment of kushta.

- Basti Kalpana^[23]

Saindhava lavana one karsha and honey two prastha are taken in a vessel and is churned with palm. To this sneha is added little by little followed by paste of madanaphala. Then in a deep vessel, paste of other drugs are added and churned with suitable method, till the consistency is neither thick nor thin. Drava dravya like rasa, ksheera, mutra etc are used in specified quantity based on condition of dosha. Finally kashaya is added in quantity of five prastha and basti dravya is prepared.

- Lehya Kalpana^[24,25]

Preparation of kshara kehya is mentioned as ash of tila, ikshurasa, palasha, sarshapa, yavanala, and mulaka are decanted with urines of cow, goat, sheep, elephant and is then added with powders of kushta, saindhava, madhuyasti, shunti, vidanga and ajamoda one pala and samudra lavana ten pala. The contents are cooked in an iron vessel on mild fire till semisolid consistency is obtained. It is used to alleviate all types of gulma and vata vikara. Similarly preparations of kalyanaka guda and Agasthya haritaki lehya are also explained.

- Pathya Kalpana^[26]

The author has mentioned about the properties of manda, peya, vilepi, yavagu, payasa, krishara, tandula, supa, mamsa rasa, yusha, khada, khambalika, raaga, shadava, rasala, sakthu. The ratio of water added in anna, yavagu, manda and vilepi is given by the commentator as given in table 4. Detailed explanation regarding anupana is also available.

DISCUSSION

Concepts regarding basic principles of pharmaceuticals like collection and storage of drugs, measurements, incompatibility are found in Sushruta samhitha. Seventeen different dosage forms and their preparations were available in the text.

While explaining the collection of aushadha sangrahana, author tells the specific age and time for collection of janghama dravya (animal origin drugs), which is specific to this text. It indicates the importance given to the collection of the drug and time of collection. In a study, evaluation of influence of rutu on quality of haridra by pharmacopoeial tests and HPTLC fingerprinting, the result showed that haridra collected in sharad rutu contained comparatively higher active principles than any other rutu^[27]. Haridra is having ushna virya and sharad rutu is ushna kaala.

For kshara kalpana an entire chapter is dedicated and it is explained even before collection of drugs, the reason might be that, kshara does not need specific time or duration for collection and it might have been used more during the era of Sushruta.

Shadvidha kashaya kalpana seen in Sushruta samhitha are ksheera, rasa, kalka, shrutha kashaya, sheetha kashaya and churna. It slightly differs from panchavidha kashaya kalpana in Charaka samhitha and saptavidha kashaya kalpana in Harita samhitha. Ksheera here may be considered for latex

of different drugs which are used for preparation of kshara and also as milk preparations (ksheera kalpana- considered as one of the upakalpana of kashaya kalpana).

Maana followed in Sushruta samhitha is Kalingamaana. It is explained before explaining the preparation of snehakalpana.

Concept of viruddha or incompatibility is dealt under four types as- samyoga, kaala, rasa, maanaviruddha, whereas in Charaka samhitha eighteen different types of viruddha are explained. Instruments used for taila extraction are specified in certain instances. It can be noted that the technology required for extraction and the concept of extraction of taila was prevalent since samhitha period. Sneha kalpana are explained in detail. Certain rules and ratio explained for preparation of sneha kalpana are followed by Sharangadhara samhitha.

Dosage forms like varti, lavana kalpana, masi kalpana, ayaskruti kalpana, asavarishta, are mentioned in different chapters. The properties of pathya kalpana are mentioned but the method of preparation is detailed by the commentator. This shows that vaidya/acharya of samhitha era were well versed in different dosage forms, their preparation methods and its application.

In spite of having number of dosage forms detailed by sushruta samhitha, the specific SOP is not available for those formulations. Other details related with manufacturing like the precautions to be taken during the preparation, Duration of processing, Quality standards during processing (Siddhi lakshana) and other specifications related are not available in sushruta samhitha.

CONCLUSION

Sushruta samhitha belonged to a period of about 1000 BC. The presently available Sushruta samhitha contains 6 sthana. Even though it is considered as shalya pradhana tantra, the details concerning to pharmaceuticals are available in all the divisions, in scattered manner. The knowledge regarding seventeen different dosage forms and their method of preparation are mentioned. Details on collection of drug and storage are also given. Shadvidha kashaya kalpana is mentioned and detailed explanation on kashaya, sneha, kshara kalpana and ayaskrithi are available. A separate branch for medicine preparation did not exist in samhitha period. From this it can be inferred that knowledge of bhaishajya kalpana was inevitable, and every vaidya had to know it.

Table 1: Measurmets according to Sushrutha

Measurment	Equivalent
12 Dhanya Masha(madyama)	1 Suvarna Masha
16 Suvarna Masha	1 Suvarna
19 Madyama Nishpava	1 Dharana
2.5 Dharana	1 Karsha
4 Karsha	1 Pala
4 Pala	1 Kudava
4 Kudava	1 Prastha
4 Prastha	1 Adhaka
4 Adhaka	1 Drona
1 Tula	100 Pala
20 Tula	1 Bhara

Table2: Ratio for preparation of Sneha Kalpana

1/4 Dravya + 1 Sneha + 4 Drava Dravya
1 Pala Behsaja Kalka + 1 Kudava sneha + 4 Parts Jala

Table3: Rules to be followed during Sneha Preparation

If ratio not mentioned	Standrad ratio (1:4:16) should be considered
If liquid is not mentioned	Water has to be used
If Paste/Decoction is not mentioned	The respective drugs mentioned for the preparation of Sneha should be used for paste/decoction

Table 4: Ratio of water in preparation of anna,yavagu, manda and vilepi

Preparation	Ratio of Water
Anna	Panchaguna(5 parts)
Yavagu	Shadguna(6 parts)
Manda	Chaturdashaguna(14 parts)
Vilepi	Chaturguna(4 parts)

REFERENCES

1. Rao RM. Ayurveda Itihasa History of Ayurveda. 1st ed.;Metro printers:Vijayawada, 2007
2. Y.T Acharya(editor). Sushrutha samhitha of Sushrutha. Dalhana's Nibandha sangraha(sans), Reprint. Sutra sthana, Chapter36. Varanasi: Chaukhamba Krishnadas Academy; 2004.p158-9.
3. Y.T Acharya(editor). Sushrutha samhitha of Sushrutha. Dalhana's Nibandha sangraha(sans), Reprint. Sutra sthana, Chapter36, Verse 17. Varanasi: Chaukhamba Krishnadas Academy; 2004. p 160.
4. Y.T Acharya(editor). Sushrutha samhitha of Sushrutha. Dalhana's Nibandha sangraha(sans), Reprint. Chikitsa sthana, Chapter31, Verse 7. Varanasi: Chaukhamba Krishnadas Academy; 2004. p 508.
5. Y.T Acharya(editor). Sushrutha samhitha of Sushrutha. Dalhana's Nibandha sangraha(sans), Reprint. Chikitsa sthana, Chapter40, Verse 28. Varanasi: Chaukhamba Krishnadas Academy; 2004. p 555.
6. Y.T Acharya(editor). Sushrutha samhitha of Sushrutha. Dalhana's Nibandha sangraha(sans), Reprint. Sutra sthana, Chapter20, Verse 13. Varanasi: Chaukhamba Krishnadas Academy; 2004. p 96-7.
7. Y.T Acharya(editor). Sushrutha samhitha of Sushrutha. Dalhana's Nibandha sangraha(sans), Reprint. Sutra sthana, Chapter44, Verse 91. Varanasi: Chaukhamba Krishnadas Academy; 2004. p 195.
8. Y.T Acharya(editor). Sushrutha samhitha of Sushrutha. Dalhana's Nibandha sangraha(sans), Reprint. Uttara sthana, Chapter18, Verse 37. Varanasi: Chaukhamba Krishnadas Academy; 2004. p 635.
9. Y.T Acharya(editor). Sushrutha samhitha of Sushrutha. Dalhana's Nibandha sangraha(sans), Reprint. Sutra sthana, Chapter11, Verse 11. Varanasi: Chaukhamba Krishnadas Academy; 2004. p 45-50.
10. Y.T Acharya(editor). Sushrutha samhitha of Sushrutha. Dalhana's Nibandha sangraha(sans), Reprint. Chikitsa sthana, Chapter31. Varanasi: Chaukhamba Krishnadas Academy; 2004. p 507-9.
11. Y.T Acharya(editor). Sushrutha samhitha of Sushrutha. Dalhana's Nibandha sangraha(sans), Reprint. Chikitsa sthana, Chapter1, Verse 93. Varanasi: Chaukhamba Krishnadas Academy; 2004. p 404.
12. Y.T Acharya(editor). Sushrutha samhitha of Sushrutha. Dalhana's Nibandha sangraha(sans), Reprint. Chikitsa sthana, Chapter4, Verse 28. Varanasi: Chaukhamba Krishnadas Academy; 2004. p 422.

13. Y.T Acharya(editor). Sushruta samhitha of Sushruta. Dalhana's Nibandha sangraha(sans), Reprint. Chikitsa sthana, Chapter3, Verse 55-62. Varanasi: Chaukhamba Krishnadas Academy; 2004. p 519.
14. Y.T Acharya(editor). Sushruta samhitha of Sushruta. Dalhana's Nibandha sangraha(sans), Reprint. Uttara sthana, Chapter21, Verse 20. Varanasi: Chaukhamba Krishnadas Academy; 2004. p 646.
15. Y.T Acharya(editor). Sushruta samhitha of Sushruta. Dalhana's Nibandha sangraha(sans), Reprint. Uttara sthana, Chapter39, Verse 283. Varanasi: Chaukhamba Krishnadas Academy; 2004. p 692.
16. Y.T Acharya(editor). Sushruta samhitha of Sushruta. Dalhana's Nibandha sangraha(sans), Reprint. Chikitsa sthana, Chapter4, Verse 29. Varanasi: Chaukhamba Krishnadas Academy; 2004. p 423.
17. Y.T Acharya(editor). Sushruta samhitha of Sushruta. Dalhana's Nibandha sangraha(sans), Reprint. Chikitsa sthana, Chapter10, Verse 10. Varanasi: Chaukhamba Krishnadas Academy; 2004. p 448-51.
18. Y.T Acharya(editor). Sushruta samhitha of Sushruta. Dalhana's Nibandha sangraha(sans), Reprint. Chikitsa sthana, Chapter1, Verse 55. Varanasi: Chaukhamba Krishnadas Academy; 2004. p 401.
19. Y.T Acharya(editor). Sushruta samhitha of Sushruta. Dalhana's Nibandha sangraha(sans), Reprint. Chikitsa sthana, Chapter1, Verse 72. Varanasi: Chaukhamba Krishnadas Academy; 2004. p 403.
20. Y.T Acharya(editor). Sushruta samhitha of Sushruta. Dalhana's Nibandha sangraha(sans), Reprint. Chikitsa sthana, Chapter4, Verse 32. Varanasi: Chaukhamba Krishnadas Academy; 2004. p 423.
21. Y.T Acharya(editor). Sushruta samhitha of Sushruta. Dalhana's Nibandha sangraha(sans), Reprint. Chikitsa sthana, Chapter6, Verse 15. Varanasi: Chaukhamba Krishnadas Academy; 2004. p 433-34.
22. Y.T Acharya(editor). Sushruta samhitha of Sushruta. Dalhana's Nibandha sangraha(sans), Reprint. Chikitsa sthana, Chapter9, Verse 17. Varanasi: Chaukhamba Krishnadas Academy; 2004. p 444.
23. Y.T Acharya(editor). Sushruta samhitha of Sushruta. Dalhana's Nibandha sangraha(sans), Reprint. Chikitsa sthana, Chapter38, Verse 36. Varanasi: Chaukhamba Krishnadas Academy; 2004. p 542.
24. Y.T Acharya(editor). Sushruta samhitha of Sushruta. Dalhana's Nibandha sangraha(sans), Reprint. Uttara sthana, Chapter42, Verse 44. Varanasi: Chaukhamba Krishnadas Academy; 2004. p 720.
25. Y.T Acharya(editor). Sushruta samhitha of Sushruta. Dalhana's Nibandha sangraha(sans), Reprint. Uttara sthana, Chapter52, Verse 38-46. Varanasi: Chaukhamba Krishnadas Academy; 2004. p 769-770.
26. Y.T Acharya(editor). Sushruta samhitha of Sushruta. Dalhana's Nibandha sangraha(sans), Reprint. Sutra sthana, Chapter46, Verse 344-420. Varanasi: Chaukhamba Krishnadas Academy; 2004. p 238-44.
27. Sikha A, Harini A, Prakash Hegde L, Sunil Kumar KN.Evaluation of influence of Rutu(Seasons) an quality of Haridra(*Curcuma longa* Linn.) by pharmacopoeial testa and HPTLC fingerprinting. Journal of Ayurvedic and Herbal Medicine. 2016;2(1):26-30.