

PHARMACEUTICO-ANALYTICAL STUDY OF NAGRADI GHANVATI AND SWADANSTRADUI KASHAYA

Ekka Deepak.¹, Dubey Swati.², Khichariya S.D.³, Parhate S.M.⁴

¹P.G.Scholar, Dpt of Kaya Chikitsa (Medicine) N.P.A. Govt Ayurvedic college Raipur (C.G.)

²P.G.Scholar, Dpt of Rasa shastra & Bhaishajya Kalpana (Pharmaceutical)N.P.A. Govt Ayurvedic college Raipur (C.G.)

³Assistant Professor Dpt of Kaya Chikitsa (Medicine) N.P.A. Govt. Ayurvedic college Raipur (C.G.)

⁴ Professor & Head of department Rasashastra & Bhaishajya Kalpana (Pharmaceutical) N.P.A. Govt. Ayurvedic

ABSTRACT :- *Ayurveda* have many number of effective basic formulations for treating various diseases and disorders. *Vati kalpana* is another type of *kalaka kalpana* and *Pancha vidha kashaya kalpanas* being the primary preparations and the most widely used formulations as a starting dosage form as well as a base for many different dosage forms, *acharya sharandhara* was the first who described a detailed about *vati kalpana* synonyms with *Vati* (tablets) are *Gutika* (pills) and *Modaka* (Large size pills) and *Varti* (draggees). To use these formulations in this present era they require effective modifications into new dosage forms with more shelf life and palatability that suit to the patients without compromising the underlying basic principles and by which the effective basic preparations can be available to treat many number of diseases. *Nagradi Ghanvati* and *Swadanstradi Kashaya* are described by *Acharya Chukradutta* in *Ashmari Prakrana* (Renal Calculus) Both medicine are prepare with proper technique and accurate pharmaceutical standardization protocol. Aim of this article is know about the making procedure and result of physiochemical parameters of both medicines.

KEYWORDS:- Vati Kalpana, Kashaya Kalpana, Nagradi ghanvati, Swadanstradi kashaya.

1. INTRODUCTION

Vatikalpana is one among the important secondary preparation in *Ayurveda* pharmaceuticals. This is largely produced and solid dosage form in pharmaceutical world of both *Ayurveda* and modern. It is fact that the success of treatment depends mostly upon the quality of drugs, for that medical research work gives emphasis to drug research. Similarly in *Ayurveda* Pharmacy also several *Acharyas* has been added or modified the different formulations or preparations according to their own experiences from time to time without violating the basic principles, to find out the most potent drug to prepared different formulations of herbal, herbo mineral compounds in various form. To keep the medicine potent for long time, to prepared the medicine for easy administration and also quick action is taken into consideration. In the *Ayurvedic* field of practice through several types of *kalpanas* are being used presently, *Vati kalpana* plays an important role in pharmaceuticals of *Ayurveda*.¹ Every man of this universe can take the drug inside the body either as diet or in the form of medicine. But every drug must be formulated in such a way, so that it should be easy for administration. For this purpose, different processes are derived which are known as *Kalpana* - which indicates the methods and procedures involved in the manufacturing process of formulations. So *Kalpana* is a method/ process or a sort of modification / transformation /conversion or plan of preparation of medicines using either a single drug or several drugs² Different *Vati* formulations are mentioned in old classics. But *Acarya Sarngadhara* was the first person who mentioned the detailed description regarding *Vati kalpana* in a separate chapter.³ and also *Acharya Sharangdhra* mention *kashaya kalpana* in separate chapter⁴.

2. MATERIAL AND METHODS

2.1 Vati Kalpana – Vati is a solid dosage form of medication prepared by liquefying guda, sarkara, guggula etc. and fine powder of ausadha dravya to it by triturating it with honey or any liquid preparations.⁵

2.2 Synonyms – Here with some specific synonyms of vati kalpana which is given by Acharya Sharandhara Vataka, Vatika, Gutika, Pindi, guda and Varti.⁶

Vati, Vataka, Vatika, Gutika are almost similar in shape and size with very thin line of differences. There sizes may fall in the range of 250mg to 1gm as per present day scenario. It should be noted that the classical dosage of vati given as one karsha(12gm) has to be taken in divided dosages through the day.

2.3 Type Of Vati : In the Ayurvedic Pharmaceutical text two types of Vati preparation methods are mentioned, these are, like (i) Agnisadhya Vati and (ii) Anagnisadhya Vati.

2.3.1 Agnisadhya Vati: In case of Agni Sadhya vati preparation, the sugar or Jaggery (guda) or Guggulu is made like lehya on mild fire then the powders of the ingredients are added to the Paka (lehya) which become soft mass paste like then vati is to be made by rolled into circular in shape.

2.3.2 Anagnisadhya Vati: By this process Vati is prepared without heat. The powders of ingredients are either pounded with Guggulu and guda, adding with any suggested liquid or honey to prepared the vati or triturated with any suggested liquid or honey to made into vati

2.4 ESSENTIAL INGREDIENTS OF VATI KALPNA⁸ :-

2.4.1 Muladravya – Base drug like guda, sarkara, guggula, madhu.

2.4.2 Drava dravya – Liquid preparation like swarasa, kwath, jala etc.

2.4.3 Ausadhadravya – Fine powder of medicine drugs/ Bhasma of metals and minerals. In relation with churna of medicinal drug.

2.5 ADVANTAGES OF VATI KALPAN :-

- Vati preparation is control of the dose.
- Vati preparation can be swallowed easily as they are in compressed form with convenient shape.
- Bitter taste and irritating odor of the drug can be masked.
- Volatile principles of the drug used can be retained for long.
- They are more economical when compared to others to others dosages forms.
- Vati is palpable as compare to others dosages form of medicine.

3. KASHAYA KALPANA

Kashaya is one among the *Panchavidha Kashaya Kalpana*. In *Ayurvedic* classics; prime importance is given for the preparation of medicine. Boiling the drug in water for a definite period of time and reducing it to specific quantity is called *kashaya*.

3.1 The word *Kashaya* means¹⁰

'Ka': denotes *kaya* /*shareera*, (body)

'Sha': denotes functions.

'Ya': denotes regulation or *Yantra* (control or to sustain).

Literally, the word *Kashaya* means that which brings about normalcy to the body by maintaining equilibrium of physiological factors by removing pathology.

3.2 SYNONYMS^{11,12}

Kashaya, *Kwatha*, *Shrita*, *Niryuha Kwatha* forms the basis for majority of the preparation like *Arishta*, *Rasakriya*, *Ghruta*, *Taila* etc. These are mainly to increase the shelf life of the prepared medicine, because all the five basic formulations have a shelf life with maximum of 24 hrs.

3.3 NIRUKTI

3.3.1 *Kashaya*^{13,14}: Generally *kashaya* is referred to *kashaya rasa*.

3.3.2 *Kwatha*¹⁵: The word *Kwatha* refers to decoction, wherein the drug is boiled in water and reduced to a specific quantity.

3.3.3 *Shrita*¹⁵: *Shrita* is a synonym of *Kashaya* where in the drug soaked in the water, boiled on fire and then filtered.

3.3.4 *Niryuha*¹⁶: *Niryuha* is a synonym of *kashaya* which is specifically prepared with *shimbi dhanya* (cereals and pulses).

4. MERITS OF KASHAYA KALPANA

Pancha vidha kashaya kalpanas are the basic formulations in *Ayurvedic* pharmaceuticals from which various *upakalpanas* and secondary preparations are made. *Kashaya* is that which irritates the throat and *Kashaya kalpana*⁹ irritate the disease condition and drove them away from the body.

4.1 PREPARATION OF NAGRADI GHANVATI¹⁷:-

4.1.1 Essential Drug for *Nagradi Ghanvati* - *Sunthi*, *Varuna Chala*, *Gokshura*, *Pashanabheda*, *Makoya*.

4.1.2 Anupana – *Guda*, *Yavak Kshara*

4.1.3 Methods of preparation – Firstly *Nagradi Ghanvati* contained are dried and made into powders separately and boiled over *mandagni* till it reaches to thick consistency. Then the contents were spread uniformly and exposed to sunlight for 2 to 3 day and the criteria to determine the final stage of the formulation before making pills is that, it should not stick to the fingers when rolled in between two fingers. *Vati* may be dried in the shade.

4.2 PREPARATION OF SWADANSTRADI KASHAYA¹⁷ –**4.2.1 Essential Drug for Swadanstradi Kashayam - Gokshura, Eranda Patra, Sunthi, Varuna Chala.****4.2.2 Methods of preparation** – All above contained of *Swadanstradi Kashaya* are cleaned up with tap water and crush thoroughly in grinder added with 4 part of water and subjected to mild heat with infrequent stirring without covering it's mouth. Reduction was done until the quantity reduced to 1/4th of its original volume and contents were filtered through double-folded clean cotton cloth in to a stainless steel vessel and the residue was discarded.**5. LABORATORY TEST**All physicochemical test will be done in **Office of the controller, Drug Testying Laboratory Avam Anusandhan Kendra, Raipur, Chhattisgarh.**Table 1- Physicochemical Parameters of *Shunthi*¹⁸ (*Zingiber officinale*)

No.	Parameters	Result
01	Loss on Drying at 110 ^o c	8.9%
02	Toatal Ash Value (% w/w)	5.66%
03	Acid insoluble's Ash (% w/w)	0.96%
04	Water Soluble extractive (% w/w)	12.22%
05	Alcohol Soluble extractive (% w/w)	5.62%
06	pH (10% aqueous solution)	4.9%

Table 2- Physicochemical Parameters Of *Varuna Chal*¹⁹ (*Crataeva nurula*)

No.	Parameters	Result
01	Loss on Drying at 110 ^o c	7.1%
02	Toatal Ash Value (% w/w)	8.43%
03	Acid insoluble's Ash (% w/w)	0.16%
04	Water Soluble extractive (% w/w)	10.78%
05	Alcohol Soluble extractive (% w/w)	2.90%
06	pH (10% aqueous solution)	6.88%

Table 3- Physicochemical Parameters Of *Gokshura*²⁰ (*Tribulus terrestris*)

No.	Parameters	Result
01	Loss on Drying at 110 ^o c	5.65%
02	Toatal Ash Value (% w/w)	13.9%
03	Acid insoluble's Ash (% w/w)	1.8%
04	Water Soluble extractive (% w/w)	10.8%
05	Alcohol Soluble extractive (% w/w)	7.18%
06	pH (10% aqueous solution)	6.44%

Table 4- Physicochemical Parameters Of *Pashanabheda*²¹ (*Bergenia ligulata*)

No.	Parameters	Result
01	Loss on Drying at 110 ^o c	6.1%
02	Toatal Ash Value (% w/w)	10.93%
03	Acid insoluble's Ash (% w/w)	0.46%
04	Water Soluble extractive (% w/w)	32.06%
05	Alcohol Soluble extractive (% w/w)	11.52%
06	pH (10% aqueous solution)	5.42%

Table 5- Physicochemical Parameters Of *Kakmachi*²² (*Solanum nigrum*)

No.	Parameters	Result
01	Loss on Drying at 110°C	3.35%
02	Total Ash Value (% w/w)	15.3%
03	Acid insoluble's Ash (% w/w)	6%
04	Water Soluble extractive (% w/w)	27.5%
05	Alcohol Soluble extractive (% w/w)	7.74%
06	pH (10% aqueous solution)	6.35%

Table 6- Physicochemical Parameters Of *Eranda Patra*²³ (*Ricinus comunis*)

No.	Parameters	Result
01	Loss on Drying at 110°C	7.65%
02	Total Ash Value (% w/w)	15.3%
03	Acid insoluble's Ash (% w/w)	1.53%
04	Water Soluble extractive (% w/w)	17.7%
05	Alcohol Soluble extractive (% w/w)	5.56%
06	pH (10% aqueous solution)	5.96%

Table 7- Physicochemical Parameters Of *Nagradi Ghanavati* :-

No.	Parameters	Result
01	Loss on Drying at 110°C	12.6%
02	Total Ash Value (% w/w)	21.2%
03	Acid insoluble's Ash (% w/w)	2.73%
04	Water Soluble extractive (% w/w)	78.2%
05	Alcohol Soluble extractive (% w/w)	4.10%
06	pH (01% aqueous solution)	5.44%

UV-VIS Spectra – For alcoholic extract the wavelength observed are reported on “As is” basis for UV Spectra.

HPLC Chromatography – for Aqueous solution extract chromatogram peak's observed at Retention time are reported on “As is” basis.

Table 8- Physicochemical Parameters Of *Swadansradi Kashaya* :-

No.	Parameter	Result
01	Loss on Drying 110°C	6.9%
02	Total Ash (% w/w)	10.9%
03	Acid insoluble Ash (% w/w)	2.13%
04	Water soluble extractive (% w/w)	19.1%
05	Alcohol soluble extractive (% w/w)	3.82%
06	pH (01% aqueous solution)	6.06%

6. RESULT

Both medicine *Nagradi Ghanvati* and *Swadansradi kashayam* are made department of *Rasashstra* and *Bhaishajya kalpana* at Govt. Ayurved college Raipur Chhattisgarh and Analytical test of each drug on above compound are done on Office of the controller, Drug Testing Laboratory Avam Anusandhan Kendra, Raipur, Chhattisgarh and result is proper finding as per guideline of references textbook. Both drugs are made followed by appropriated technique and protocol of Pharmaceutical standardization.

7. DISCUSSION

- In ancient era *Acharya* are used a self made medicine for patients due to increase population and repeatedly taking *mithya aahar-vihar* number of patients and growing demand of medicine in present scenario that's why using a modern technology for making medicine to provide a sufficient quantity of human being. So the Equipments required for Tablets/Pills Manufacturing are Rapid Mixer Granulator, Double Cone Blender / Mechanical Shifter Spray Coating Machine, Rotary Tablet Press, Tablet Counting Machine, Tablet Polishing Machine, Automatic Tablet Printing Machine, Strip Packing Machine In Ayurveda So many medicine with specific *kalpana* like *Vati*, *Kashaya*, *Churna*, *Asava*, *Aristha* etc. are available for various disease. *Vati* and

Kashaya kalpana are most easy and reliable to individual for taking for preparation both medicine contain are take according to all properties of *grahya dravya* which is described in our classics and firstly wash with tap water and dried in sunlight after then grinder with pulverize for brake down in *Yava kuta* in entire pharmaceutical procedure is adopted is *churna* and *Kashay kalpana*, Shodhana is not necessary because of not any *Visha dravya*, only *samanya shodhana* with tap water to remove a un-necessary things. In *vati kalpana* all ingredients are *yavakuta* and put on Large container with 1/4th water and *Paka* with *mandagni* until convert to *Ghan kalpana* then separately collected in other container in sunlight for 2 to 3 day. Then make a tablet 250mg of *Nagradi Ghanvati* were prepared in the automatic tablet making machine. Tablets are compressed under pressure. The risk of microbial growth is less. Quality of medicine would be almost accurate in tablet compression. For *kashaya kalpana* we adopted same procedure difference s is only we collect *kwath darvya* when medicine are rest 1/4th of total medicine, it is easy in digest and absorbed in body and fast action for particular disease.

8. CONCLUSION

In any formulation first thing which is very important, pharmaceutical standardization of drug, so in this formulation standardization are proper follow up with proper technique. It is lead to safe production and show effective result. Pharmaceutical procedure which is adopted is *Shodhana*, *Churna* and *Kwath kalpana* references is *Sharnadhara madhyanna khanda*. In current scenario, there is a need to develop new formulations along with the specific modifications in the older formulation to gain wider acceptance.

REFERENCES

- [1] Purnendu panda, S.K..meher, Banamali das, G.C.bhuina tablet & tableting in ayurveda (vati kalpana)-a review, International Ayurvedic Medical Journal, Volume 4; Issue 07; July- 2016. Page- 1218-22.
- [2] Deepthi Cp, Ganti Basavaraj Y, Sreekanth G, Rohit Ks, Anu Pk Modifications Of Pancha Vidha Kashaya Kalpana Unique Journal Of Ayurvedic And Herbal Medicines, Deepthi Et Al. UJAHM 2015, 03 (05): Page 60-63.
- [3] Purnendu panda, S.K..meher, Banamali das, G.C.bhuina tablet & tableting in ayurveda (vati kalpana)-a review, International Ayurvedic Medical Journal, Volume 4; Issue 07; July- 2016. Page- 1218-22.
- [4] Churna Kalpana, Dr. Shaileja Shrivastva, Sharangdhra Samhita Madhyam khand Chapter 4 of Acharya Sharangdhara, Publishers-Choukhambha Oriyantalia, Varanasi 2011 Page –195.
- [5] Churna Kalpana, Dr. Shaileja Shrivastva, Sharangdhra Samhita Madhyam Khand of Acharya Sharangdhara, Verse 7/2 Publishers-Choukhambha Oriyantalia, Varanasi 2011 Page – 195.
- [6] Churna Kalpana, Dr. Shaileja Shrivastva, Sharangdhra Samhita Madhyam Khand of Acharya Sharangdhara, Verse-7/1 Publishers-Choukhambha Oriyantalia, Varanasi 2011 Page –195 .
- [7] Purnendu panda, S.K..meher, Banamali das, G.C.bhuina tablet & tableting in ayurveda (vati kalpana)-a review, International Ayurvedic Medical Journal, Volume 4; Issue 07; July- 2016. Page- 1218-22.
- [8] 8.Churna Kalpana, Dr. Shaileja Shrivastva, Sharangdhra Samhita Madhyam Khand of Acharya Sharangdhara, Verse 7/4 Publishers-Choukhambha Oriyantalia, Varanasi 2011 Page – .195
- [9] Agnivesha, Charaka Samhita, Revised by Charaka and Dridabala with Ayurveda Deepika Commentary of Chakrapanidatta, Edited by Vaidya Jadavji Trikamji, Varanasi; Chowkambha Sanskrit Samsthana – 4thEdition. 2001, T.pg: 73.
- [10] Dr P.V.N.R Prasad, Bhaisajya Kalpana Vijnana,Chaukhamba Krishnadas Academy.
- [11] RajaRadhakanta Deva, Shabdakalpa druma, 1-5vol, Chowkambha Sanskrit Series Office, Vaidyavihar Press, Varanasi
- [12] Sharma HemarajaPandit, Satyapala Bhishakacharya,“KashyapaSamhitha”, VidhyotinitikaYukta, Vrdha Jeevaka Vastya Prathisamskartha, Isted, Varanasi, Chaukhamba Sanskrit Series, 1953.
- [13] Sri Tarka vachaspati Taranath, “Vachaspatyam”(A Comprehensive Sanskrit Dictionary), Vol 3 3rded, Varanasi, Chaukhamba Sanskrit Series, 1970.
- [14] Umshaachandra Gupta Kaviraj, “Vaidyaka ShabdaSindu”, 4thed,Varanasi, Chaukhamba Orientalia, 1999.
- [15] Vagbhata’s,“Ashtanga Hridayam”, with commentaries (SarvangaSundara) of Arunadatta and (Ayurvedarasayana) of Hemadri, collated by Dr.Anna Moreshwar Kunte and Krishna Ramachandra Shastri
- [16] “Ayurvediya/Mahakosha/Shabdakosha” ,2ndpart(Purarnka),Mumhai,Maharashtra RajyaSahitya and Sanskrit Mandal, 1968.
- [17] Dr. Indra Dev Tripathi, Editor-Prof. Ramanath Deivedy Chakradatta, Choukhambha Samskrit Samsthan 4thEdi Varanasi,Page – 212.
- [18] Prof. P.V. Sharma Dravyaguna-Vijana Vol. 2nd Varanasi, Published by Chaukhambha Bharti Academy Reprint 2012 Page – 331-334.
- [19] Prof. P.V. Sharma Dravyaguna-Vijana Vol. 2nd Varanasi, Published by Chaukhambha Bharti Academy Reprint 2012 Page – 652-653.
- [20] Prof. P.V. Sharma Dravyaguna-Vijana Vol. 2nd Varanasi, Published by Chaukhambha Bharti Academy Reprint 2012 Page – 632-634.
- [21] Prof. P.V. Sharma Dravyaguna-Vijana Vol. 2nd Varanasi, Published by Chaukhambha Bharti Academy Reprint 2012 Page – 650-652.
- [22] Prof. P.V. Sharma Dravyaguna-Vijana Vol. 2nd Varanasi, Published by Chaukhambha Bharti Academy Reprint 2012 Page – 540-542.
- [23] Prof. P.V. Sharma Dravyaguna-Vijana Vol. 2nd Varanasi, Published by Chaukhambha Bharti Academy Reprint 2012 Page – 58-61.