



PHARMACEUTICAL AND ANALYTICAL STUDY OF BHUNIMBADI KWATH BY TWO DIFFERENT METHODS

Vd. Kalyani Ghongade

PG Scholar, Department of Rasashastra and Bhaishjyakalpana, Government Ayurved College, Nagpur, 440009.

Vd. Pradnya S Swan

Associate Professor, Department of Rasashastra and Bhaishjyakalpana, Government Ayurved College, Nagpur, 440009.

Vd. Manish S. Bhojar

Assistant Professor, Department of Rasashastra and Bhaishjyakalpana, Government Ayurved College, Nagpur, 440009.

ABSTRACT

Background: Bhaishjyakalpana is the pharmaceutical department dealing with various types of medicinal preparations, their formulations, dosage etc. told in Ayurveda. Kwath Kalpana is one of the Kalpana includes in Panchvidh Kashay Kalpana. Bhunimbadi Kwath is prepared by two different methods i.e. by sandhan process and by adding preservative. This study shows comparative pharmaceutical as well as analytical assessment of the Bhunimbadi kwath. **Aim:** Pharmaceutical and analytical study of Bhunimbadi Kwath by two different methods. **Objective:**

1) To study preparatory aspect of Bhunimbadi kwath by two different methods.

2) To study analytical test of Bhunimbadi Kwath by two different methods **Material and methods:** Classical reference of Bhunimbadi kwath was Yogratnakar, Amlapittarogadhikar prakaran. The main ingredients of Bhunimbadi Kwath were Bhunimba, Nimb, Patol, Triphala, Vasa, Amruta, Parpat, Bhringraj. For Sandhan process added Dhataki pushpa and Guda and sodium benzoate used for preservative method. In this study comparison and detailed description & documentation of pharmaceutical and analytical study has been done. **Discussion:** the study shows that comparison of Bhunimbadi kwath by two different methods through examination of pharmaceutical analytical characteristics. The various analytical parameters like pH, total solid, alcohol percentage, specific gravity, and viscosity were assessed. Cause and effect of pharmaceutical and analytical probable findings discussed in this paper. **Conclusion:** This study revealed that analytical value of two formulations has significant changes seen. It concludes that bhunimbadi kwath prepared by sandhan process is best method for formulation than by adding preservative. Efficacy and shelf life of sandhan kwath is more and stable than another method.

KEYWORDS : Bhaishjyakalpana, Panchvidh Kashay Kalpana, Sandhan, Bhunimbadi kwath

INTRODUCTION

Bhaishjyakalpana is the branch of Ayurveda which deals with various type of medicinal formulations and dosage.^[1] The different dosage forms of the formulations evolved from time to time, according to need. In Bhaishjyakalpana, among the large no. of formulations specified by acharyas, the Panchvidh Kashay Kalpana have great importance as they form the basic or primary dosage form. The 5 basic Kalpana comprises of Swaras, Kalka, Kwath, Hima, Phant etc.^[2]

These Panchvidh Kashay Kalpana increases potency of medicine and widely used therapeutically and pharmaceutically. It makes medicine palatable and durable, removes toxic effect of medicine by purification. It also increases shelf life. Kwath Kalpana is one of the form in basic 5 preparation, it more potent in descending order (Swaras > Kalka > Kwath > Hima > phant) and used according to digestive power, strength & need of the diseased condition.^[3]

This reference of Bhunimbadi kwath in the classical text. Classical reference of Bhunimbadi kwath are Yogratnakar, Amlapittarogadhikar prakaran. The main ingredients of Bhunimbadi Kwath are Bhunimba, Nimb, Patol, Triphala, Vasa, Amruta, Parpat, Bhringraj. This study is aimed at establishing a standard manufacturing procedure of Bhunimbadi Kwath by analysing various ayurvedic & modern parameters prescribed in Ayurved pharmacopeia of india (API)

Bhunimbadi kwath prepared by two different methods because Kwath Kalpana's shelf life is 1 day so, this kwath prepared by sandhan process and by adding Preservative for increasing its shelf life. Compare these two methods by its preparatory aspect and analytical aspect. this kwath prepared in summer season. no previous work done on Bhunimbadi kwath prepared by two different methods.

AIM

Pharmaceutical and analytical study of Bhunimbadi Kwath by two different methods.

OBJECTIVE

- 1) To study preparatory aspect of Bhunimbadi kwath by two different methods.
- 2) To study analytical test of Bhunimbadi Kwath by two different methods

Material & Methods

Study was carried out in two steps.

- 1) Pharmaceutical study
- 2) Analytical study

Pharmaceutical study

The preparation of Bhunimbadi Kwath was done according to reference of Yogratnakar Amlapittarogadhikar.

भूनिम्बनिम्बत्रिफलापटोलवासामृतापट्टमार्कवणाम ।

क्वाथो हरेतक्षौद्रयुतोअम्लपित्तं -----।

यो.र.^[4]

Raw material collected from local market and examined by the experts to confirm the identity, purity, and strength.

Ingredients

Table No.1: - Showing The Main Ingredients Of Of Bhunimbadi Kwath.^[5]

Sr.No.	Ingredients	Latin name	Quantity
1	Bhunimb	Andrographis paniculata	50gm
2	Triphala	-	50gm
3	Nimb Twak	Azadiracta indica	50gm
4	Patol	Trichosanthes dioica	50gm
5	Vasa patra	Adhatoda vasica	50gm
6	Guduchi	Tinosporia cordifolia	50gm
7	Parpat	Fumaria indica	50gm
8	Bhringraj	Eclipta alba	50gm
9	Gud	Jaggery	400gm
10	Dhataki Pushpa	Woodfordia fruticose	16gm
11	Sod.benzoate	-	0.15mg

Procedure

A. Method of preparation Bhunimbadi kwath.

- 1) Ingredients of kwath collected and washed properly.
- 2) Drugs taken in vessel & added 16 times water in it. Reduced 1/8th water for preparing kwath.

- 3) Vasapatra, bhringraj & nimbtwak used fresh drugs for better effectiveness.
- 4) Mandagni should be given to kwath. Maintain 85-90° c temperature.^[6]
- 5) Continuous stirring while heating process.
- 6) Then Kwath was filtered by using cotton cloth.

**• Preparation Bhunimbadi Kwath by Sandhan process.^[7]
Purvakarman**

- Selection of Sandhan patra – used porcelain pot for Sandhan.
- Patra Sanskar – clean the porcelain pot & dhupan was done.

Pradhankarma

- Preparation of Kwath
- Preparation of Dhataki pushpa phant

For phant preparation, take 16gm dhataki pushpa and add 4 times of water in it. Filterd through cotton cloth.

- Addition of Guda & Prakshep Dravya

Guda prepared as a powdered form and added in kwath. Then Kwath was again filtered and kept in a vessel. Then kwath and prepared Dhataki pushpa phant was added in porcelain pot. Mouth of pot tied with cotton cloth.

Paschatkarma

The onset of fermentation was observed after 10 days. Then removed cotton cloth & proper sandhibandhan carried out. After 30 days fermentation was complete, then filtration done by cotton cloth. Obtained Bhunimbadi kwath was Filled in air tight container.

By adding Preservative^[8]

- Taken 300ml hot Kwath and add Sodium benzoate 0.15mg according to ratio of 0.05% per litre in a Kwath then allowed to cool overnight.
- Put for stabilisation for one day.

Observations

Kwath

- 1) Mandagni should be given to kwath. Maintain temp. at 85-90°c.
- 2) During preparing Kwath, guda was mixed.
- 3) Nimb, vasa & bhringraj should be used freshly.

Sandhan process

- 1) After 10 days, hissing sound observed during Sandhan.
- 2) wick of lamp continuous heating during fermentation
- 3) When removed cotton cloth after 10 days, layer of fungus seen on surface.
- 4) Removed fungus & do the sandhibandhan.

By adding preservative

- 1) After few days, seen fungus layer on kwath prepared by preservative method.
- 2) Transparent liquid observed.

Table No. 2 - showing organoleptic character.

organoleptic character	Kwath prepared by Sandhan	Kwath prepared by adding preservative
Shabda	Not specific	Not specific
Sparsh	Mrudu	Mrudu
Roop	Dark brownish	Brownish
Rasa	Katu Kashaya	Katu Kashaya
Gandha	Madhugandhi	Amlagandhi

Precaution

- Mandagni should be maintained during kwath procedure.
- Continuous stirring should be maintained.

Obtained quantity of process by two methods.

A) First method;

Kwath prepared by Sandhan

- Kwath – 500ml
- Guda – 400gm
- Dhataki pushpa phant – 64ml
- Final product – 1040ml

- B) Second method;**
Kwath prepared by adding preservative
- kwath - 300ml
- sodium benzoate – 0.15mg
- Final product – 300ml

Analytical study

Analysis of Bhunimbadi Kwath

Table no. 4 – showing Analytical parameters of kwath.

Sr. No.	Modern parameter	Kwath prepared by Sandhan	Kwath prepared by adding preservative
1	Total solid	17.23	13.22
2	Alcohol percentage	8.64	-
3	Specific gravity	1.03	1.00
4	pH	3.96	5.48
5	Viscosity	1.75	1.64

Discussion

Standard manufacturing procedure means information that describe the processes, procedures and requirements specifically related to the manufacture of any product. This ensures the quality, safety, efficacy and reproducibility of the product.

Bhunimbadi kwath was prepared according to reference yogaratnakar amlapittarogadhikar. As per literature and reference kwath Kalpana prepared by using 16 parts of water and maintaining heat (85-90°c) and reduced 1/8th. This kwath made by two methods for increasing shelf life and efficacy. In sandhan process, adding Dhataki pushpa & Guda for fermentation. Observed siddhi lakshnas like Asav Arishta. Like hissing sound, wick of lamp continuous heating during fermentation. In second method, 0.15mg Sod. Benzoate added in Kwath. Put for stabilisation. After few days, seen fungus layer on kwath prepared by preservative method.

Comparative study done the both process in organoleptic character and analytical parameter. Organoleptic study carried out on the changes in colour and taste in both processes.

Analytical Test

Analytical parameters confirming the quality of prepared formulations. Parameters like total solid, pH, specific gravity, viscosity to determine the standard of formulation. They help to know that purity, active ingredients of prepared formulations and compare the stability of both formulations made by two methods.

Total solid

Total dissolved solids are a measure of dissolves combine content of all inorganic & organic substances present in liquid in molecular measure of the suspended & dissolved solid in water. In Bhunimbadi kwath, total solid is 17.23 by sandhan process & 13.22 by adding preservative. It indicates that active ingredient is more in sandhan process kwath than adding preservative.

Alcohol percentage

Alcohol by volume is a standard measure of how much alcohol contained in a given volume of an alcoholic beverages. It containing self-generated alcohol. It not more than 12%. In sandhan process alcohol percentage is 8.64 and sod.benzoate stop the fermentation process. It yeasts inhibitor^[9], So that it not generated alcohol.

Specific gravity

Specific gravity is the ratio of the density of a substance to the density of a given reference material. It determines the concentration of formulation to evaluate physical changes or determine the degree of uniformity between molecules.

Here, specific gravity of Bhunimbadi kwath by sandhan process is 1.03 & by adding preservative is 1. it indicates that specific gravity by sandhan process is denser than water. i.e it sinks in water.

pH

A measurement of the level of acid/alkali in a substance. Quantitative measure of the acidity or basicity of aq. Solution. Acidic & alkaline pH indicates rate of decomposition of drugs. Many drugs pH stable between 4 to 8.

Here, pH of Bhunimbadi kwath by sandhan process is 3.96 & adding preservative is 5.48 i.e. both are acidic and pharmaceutically stable.

Viscosity

Viscosity of a fluid is a measure of its resistance to deformation at a given rate.

for liquid, it corresponds to the concept of "Thickness".

Viscosity of Bhunimbadi kwath by sandhan process is 1.75 & adding preservative is 1.64 i.e., indicates that kwath prepared by sandhan process is more viscous than kwath prepared by adding preservative.

Conclusion

Bhunimbadi kwath most commonly used practitioner in their practice for amlapitta disease. The detailed pharmaceutical- analytical study has not done till date. Here given comparison of two processes i.e., by sandhan & adding preservative. detailed description & documentation of pharmaceutical and analytical study has done. This study revealed that analytical value of two formulations has significant changes seen. It concludes that bhunimbadi kwath prepared by sandhan process is best method for formulation than by adding preservative. Efficacy and shelf life of sandhan kwath is more and stable than another method. It's fermentation action removed undesirable sugars from plant material and extracts active ingredients of herbal drugs, so it useful in amlapitta disease.

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