

FORMULATION AND EVALUATION OF HINGWASHTAK CHURNA FOR DIGESTIVE PROPERTY: A RESEARCH

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ABSTRACT

Hingvashtak churna is an ayurvedic formulation it is combination of several ingredients. As the name suggest hing (asafetida) is the major ingredient of the formulation. Hingvashtak churna is used as carminative, digestive, astringent and antacid. Hing is also known as old culinary ingredient is enriched with various health properties. It ensure the quality and quantity, purity of drug, evaluation of herbal based formulation is almost based on the phyto consistuent. In home-made preparation formulation and evaluation parameters are organoleptic, physical, physico-chemical and phytochemical analysis. The world health organization (WHO) is the importance of medicinal plant for public health care in developing nation and some guidelines

to support the member states in their efforts to formulate national policies on traditional medicine. Hingwastak is preferred in digestive for vata body type, although kapha type may use it as well. Herbs are used as medicine is the oldest form of healthcare known to humanity and has been used in culture throughout in history. Herbal medicine are herbs or herbal product used for their therapeutic or medicinal value. They may come from any part of plant are most commonly made from leaves, roots, bark, seed and flowers. Hingwashtakchurna is used for centuries as a household remedy to treat stomach ailments and to maintain proper function of gastrointestinal tract. Firstly used for excretory function such as defecation, micturition, flatulence.

KEYWORDS: Hingwashtakchurna, polyherbal formulation and physicochemical parameters.

INTRODUCTION

Hingwashtakchurna is used for centuries as a household remedy to treat stomach ailments and to maintain proper function of the gastrointestinal tract. It is firstly used for excretory function such as defecation, micturition, flatulence. Excellent medicine for gas, indigestion, constipation, and other common problems associated with poor metabolism.^[15] Hingwashtak is the preferred digestive for vata body type, although kapha type may use as well.^[16] Herbs used as medicine is the oldest form of healthcare known to humanity and has been used in culture throughout in history. Herbal medicine are herbs or herbal products used for their therapeutic or medicinal value. They may come from any part of plant and are most commonly made from leaves, roots, bark, seed, and flowers.^[17] In order to ensure the quality, quantity, purity and efficacy of drug, evaluation of herbal based formulation is most requirement based on the amount of their phytochemical screening.^[18,19] It is a fine powder of drug or drug on ayurvedic system of medicine. Drugs mentioned in path, are cleaned properly, dried thoroughly and ground, then passed through 80 mesh sieve. A lab formulation passed through different evaluation parameters; organoleptic parameters, physical, physicochemical and phytochemical analysis.

MATERIALS AND METHOD

PLANT MATERIAL

Hingwashtakchurna mainly composed by nine ingredients viz., piper nigrum, piper longum, zingiber officinale, carum carvi, cuminum cyminum, apium graveolens, ferula foetida, rock salt, trachyspermum ammi. All these ingredients were purchased by local market.

DEVELOPMENT OF HINGWASHTAK CHURNA

The churna was prepared according to the method given in ayurvedic formulary of India. Piper nigrum, piper longum, zingiber officinale, carum carvi, apium graveolens, rock salt, trachyspermum ammi were taken in equal amount that were in 100 gm each refer to table 1. In the coarsely powdered form and were fried in equal quantity. The fried ingredient shown in fig.(1.1) become unchanged, humidity free and more potent. They were coarsely powdered separately and passed through 80 mesh sieve and mixed together in equal quantity, along with ferula foetida and cuminum cyminum fried to low flame in uniform mixing.^[1]

CONSISTEUNT ON HINGWASTAK CHURNA**Fig. 1.****Table 1: Composition On Hingwashtak Churna.**

S.NO.	CONSTITUENT	PART
1.	Piper nigrum	1 part
2.	Piper longum	1 part
3.	Zingiberofficinale	1part
4.	Carcumcarvi	1 part
5.	Cuminumcyminum	1 part
6.	Apiumgraveallens	1 part
7.	Ferula foetida	1 part
8.	Rock salt	1 part
9.	Trachyspermumammi	1 part

METHOD AND PREPARTION

1. 12 gram of pipernigrum, piper longum, zingiberofficinale, carcumcarvi, cuminumcyminum, Apiumgraveallens, rock salt and carumcoticum.
2. 4 gram of ferula foetida.
3. Cuminumcyminum is heat after grind.
4. Now grind them to make it in powder form.
5. Now mix all the ingredient in proper form.
6. Then pass the powder through sieved (size 80).
7. Churna is ready to use.

DOSE

- 3 to 4 grams with ghee during food.

STORAGE

- 6 months to one year
- Store the powder in air tight container
- Keep away from direct sunlight
- Keep out of reach and sight of children

INDICATION

- Indigestion
- Weak digestive order
- Joint disorder like rheumatoid arthritis

CONTRAINDICATION

- Stomach irritation
- Under medical prescription if suffered from high blood pressure or kidney problems.

ROLE OF CONSTITUENT

Role of single item is important in order to signify the use of the specific crude drug. As the formulation is digestive in nature. The constituent used to carminative, astringent, antacid, bloating.^[2]

PIPER NIGRUM- Black pepper are fruit are the source one of the most widely used spices black, white and green peppercorn all come from piper nig rum. Black pepper is also used in traditional medicine, particularly for digestive aliments.^[3]

Family - piperaceae

Common name- black pepper

Species- p. Nigrum

Genus –piper

Biological source- fruit of piper nigrum. figure.1.2.



Fig. 1.2.

PIPER LONGUM

The fruit of the pepper consists of many minuscule fruits – each about the size of a poppy seed– embedded in the surface of a flower spike that closely resembles a hazel tree catkin. Like *Piper nigrum*, the fruits contain the alkaloid piperine, which contributes to their pungency. Another species of long pepper, *Piper retrofractum*, is native to Java, Indonesia. Medicinal used digestive formulation, treatment of respiratory disorder.^[4]

Family- piperaceae

Common name - pipili

Species- p. longum

Genus – piper

Biological source- dried stem of piper longum figure. 1.3.



Fig. 3.

ZINGIBER OFFICINALE-Zingiberofficinale is commonly known as ginger, is a species consumed worldwide from culinary and medicinal purpose and it medicinal uses antiarthritis, anti-inflammatory, antifungal, antibacterial, antidiabetic.^[5]

Family- Zingiberaceae

Common name- Ginger

Species- Z. officinal

Genus- Zingiber^[6]

Biological source- Rhizomes of zingiberofficinale figure. 4.



Fig. 4.

CARCUM CARVI

It is used in traditional system of medicine for many disorder. some pre- clinical or clinical trial have investigated it efficacy using the seed oil, essential oil. It is used in fever, reliving cough.^[10]

Family- Apiaceae

Common name- jeerashey

Species- *C. carvi*

Genus- *carcum*

Biological sourceFruits and seeds of centratherumanthelminticus figure 5.



Fig. 5.

CUMINUM CYMINUM- the seed of cumin are widely used as a species of their different aroma, they are also used as traditional medicine to treat a variety of disease. It is used as rich source of iron, diabites.^[7]

Family- Apiaceae

Common name-jeerashwet

Species- *C. cyminum*

Genus- *cuminum*

Biological sorce- it is dried seed of *cuminumcyminum*^[8] figure. 6



Fig. 6.

APIUM GRAVEALLENS- celery was used as a flavouring by the ancient greeks and romans as a medicine ancient Chinese, used in anxiety, antioxidant.^[11]

Family- apiaceae

Common name-

Species- *A. graaveolens*

Genus- *Apium*

Biological source- dried seed of *apiumgraveallens* figure. 7.



Fig. 7.

TRACHYSpermum AMMI-Ajwain is used as traditional ayurveda for firstly for stomach disorder such as indigestion, bloating, fatigue.^[9]

Family-Apiaceae

Common name- Ajwain

Species- *T. ammi*

Genus- *trachyspermum*

Biological source- ripe fruit of *trachyspermumamm* figure. 8.



Fig. 8.

FERULA FOETIDA- Asafoetida, a spices derived from the plant ferula assa- foetida. It is used as asthma, sedative.^[12]

Family- Apiaceae oleogum

Common name- hing

Species- f. foetida

Genus- ferula

Biological source- roots of ferula foetida figure. 9.



Fig. 9.

ROCK SALT- rock is a chemical sedimentary rock that forms from evaporation of ocean and saline lake waters. It is also known as “halite”. It is a type of salt, the mineral form of sodium chloride (NaCl). It fights with digestive order, reduces stress and helps in the respiratory system.

Common name- Sendhanamak

Color- Colourless, white pure or brownish figure. 2.



Fig. 2.

ORGANOLEPTIC CHARACTERISTICS- Organoleptic characteristics studied by different methods by color, odour, taste, texture.

PHYSICOCHEMICAL STUDY- Physicochemical studies of methods were carried out, involving the analysis of loss of drying, pH, ash values, extractive values.^[13]

1) PROCEDURE FOR THE DETERMINATION OF LOSS ON DRYING

1. Weigh a prepared crucible with lid and record weight (W_{tare}).
2. Place 2.012 g of sample into the crucible and tap carefully, record the weight (W_{start}) to $\pm 1\text{mg}$.
3. Place the crucible into the drying oven with lid in tilted position at $105\pm 2^\circ\text{C}$ for exactly two hours.
4. After the 2-hour time period, take the crucible out of the oven, being careful not to create turbulence. Replace lid to closed position. Place the crucible in the desiccator and allow cooling for at least 30 minutes.
5. Reweigh the crucible with closed lid (W_{dry}) to $\pm 1\text{mg}$.

Calculation -The % loss on drying is calculated by the following equation.

% loss on drying at 105°C

$$(\text{LOD}) = \frac{W_{\text{initial}} - W_{\text{final}}}{W_{\text{initial}}} * 100$$

2) PROCEDURE FOR THE DETERMINATION OF pH

pH of the churna was determined using pH meter by dispersing 1% w/v churna in water.

3) PROCEDURE FOR THE DETERMINATION OF ASH VALUE

The total ash content was determined by taking 2g of churna into a preweighed and tarred crucible and incinerated at a temperature not exceeding 450°C , cooled and weighed. The difference between initial and final gives the total ash value.^[8]

4) PROCEDURE FOR THE DETERMINATION OF EXTRACTIVE VALUE^[9]**Water Soluble Extractive Value**

5g of churna was added with 100ml of alcohol and kept for 24hrs, occasionally shaking and left aside after the first 6hrs. It was then filtered. The filtrate was evaporated until constant weight was obtained. The difference in weight gives alcohol soluble extractive value.^[10]

PHYSICAL INVESTIGATION -Physical investigation of method were carried out, involving the analysis of bulk untapped density, tapped density, angle of repose, compressibility index, hausner ratio.

1) PROCEDURE FOR THE DETERMINATION OF BULK UNTAPPED DENSITY

10gm of churna was taken in a measuring graduated cylinder and tapped on wooden surface.

Bulk density = $\frac{\text{weight taken}}{\text{Bulk volume}}$

Bulk volume

Tapped density = $\frac{\text{weight of churna taken}}{\text{volume (tapped)}}$

volume (tapped)

2) PROCEDURE FOR THE DETERMINATION OF ANGLE OF REPOSE

Angle of repose was determined by using funnel method. The powder was allowed to flow through a funnel fixed on a stand to form a heap. The height and the radius gives the angle of repose.

Angle of repose $\tan\theta = h/r$

$\theta = \text{Tan}^{-1} (h/r)$.

Where, h = height of heap

r = radius of heap

3) PROCEDURE FOR THE DETERMINATION OF COMPRESSIBILITY / CARR'S INDEX

This is calculated using the formula: $\frac{\text{Bulk density (Tapped)} - \text{Bulk density (Untapped)}}{\text{Bulk density (Tapped)}}$

Bulk density (Tapped)

4) PROCEDURE FOR THE DETERMINATION OF Hausner's Ratio

The formula used to determine Hausner's ratio = $\frac{\text{Bulk density (Tapped)} \times 100}{\text{Bulk density (Untapped)}}$

$\frac{\text{Bulk density (Tapped)} \times 100}{\text{Bulk density (Untapped)}}$

PHYTOCHEMICAL ANALYSIS- The churna is prepared by lab were tested by the presence by chemical constituent by molisch test, Fehling test, foam test, Hager test, vol. oil test.^[14]

RESULT AND DISCUSSION

In lab formulation was designed strictly according to the directives of ayurvedic formulary of india. This formulations were determined by referencing to the method as mentioned in the WHO guidelines for medicinal plant materials. The organoleptic character shown in table 2.

The physicochemical and sensory features as shown in table 3. And physiological properties shown in table 4. The phytochemical analysis shown in table 5.

Table 2: Organoleptic Characteristics.

S.No.	PARAMETERS	RESULT
1.	Color	Light brown
2.	Odour	Aromatic
3.	Taste	Characteristics
4.	Texture	Fine

Table 3: Physicochemical.

S.NO.	PARAMETERS	OBESERVATION
1)	LOD (%)	0.15
2)	pH (1%W/W)	7
3)	Total ash value	11.2
4)	Water solouble extractive Value (% W/W)	0.72

Table 4: Physiological.

S.NO.	PARAMETERS	OBESERVATION
1)	Bulk untapped density (gm/ml)	0.512
2)	Tapped density (gm/ml)	0.6
3)	Angle of Repose	0.58
4)	Compressibility index (%)	14.66
5)	Hausner ratio	1.17

Table 5: Phytochemical.

S.NO.	PARAMETER	OBESERVATION
1.	Molisch	+ve
2.	Fehling	-ve
3.	Foam test	-ve
4.	Hager	+ve
5.	Vol. oil test	+ve

CONCLUSION

Polyherbal formulation of hingwashtak churna in lab formulation carried out. The lab formulation were evaluated as per WHO guidelines and mentioned in herbal pharmacopeia. The formulation was accordingly and observed for various organoleptic, physical, physicochemical and phytochemical properties. Hingwashtakchurna is a promising herbal medicine used to treat various ailment related to gastro intestinal tract. With the effective work on all parameters, this churna can be explored for all its application and other hidden aspects. From the data and starts obtained from hingwastakchurna, it could be used as a

valuable analytical tool routine analysis .it helps to check the batch to batch variations. Pharmacognostic characters established for the raw materials could be employed as quality control for its identify and can be used for routine analysis. purity and potency of material and formulations following the procedure given could be performed in quality control and assurance sector of a pharmaceutical company as well as to explore new phytoconsistent and new medicinal activities.

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