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Preparation and Evaluation of Intuppukanam Churnam

Khatik Avej*, Khanushiya Maaz , Khan Adil , Khairdi Mohd. Ubaid.
Ali-Allana College of Pharmacy, Akkalkuwa, Dist Nandurbar, MS, India.

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Corresponding Author:
Khatik Avej

Email ID:
maazmak66@gmail.com

Abstract: Intuppukanam Churnum contains powders of four fruits such as Haritaki, Rock salt, Tipalli, Ajamoda is an example of a classic Ayurvedic formula, used for thousands of years to treat digestive problems. Despite the fact that Intuppukanam Churnum is having great significance, no extensive data available for its standardization. The present work intends to prepare and standardize Intuppukanam Churnum by various physicochemical parameters.

Keywords: Intuppukanam Churnam, Ayurvedic Formulation, Evaluation

INTRODUCTION

Development of Ayurvedic formulation with appropriate standardization and quality control is the first requisite in the present era that fulfills increasing demands of global population. Though traditional formulations are effective, there is no complete data is available for quality control and there evaluation. To overcome these problems there is a need to developed standardization parameter.[1] In the current attempt; it is planned to prepare and standardize Intuppukanam Churnam by various physicochemical parameters.

Intuppukanam Churnam is an example of a classic Ayurvedic formulation, used for thousands of years that is made from the powders of four fruits such as Haritaki, Rock salt, Tipalli, Ajamoda. The indication of churna is effective in pain abdomen, loss of apetite, indigestion, flatulence, constipation. The dose is half to 1 teaspoon along with warm water or buttermilk before or after food as directed as physicians. [2] The side effect is it may induce gastric irritation in higher dose used with caution in hypertensive patients as it contain salt.[3]

MATERIALS AND METHODS

Plant Material Collection

The all plant materials were purchased from local market and dried. All ingredients were coarsely powdered in grinder separately and powder materials was sieved through 60-120 mesh and subjected for preparation of a poly herbal churnam. [4]

Preparation of Intuppukanam Churnam

The Intuppukanam Churnam is prepared by simple mixing appropriate amount of plant material as mention in Ayurvedic Formulary of India. [1]The quantity is given below in table 1.

Table 1: List of Ingredient

Sr. No.	Name of Ingredient	Quantity
1	Intuppukanam (Rock Salt)	10 grm
2	Ajmoda (*Apium graveolens*)	20 grm
3	Tippali (*Piper longum*)	40 grm
4	Haritaki (*Terminalia chebula*)	60 grm

Organoleptic Evaluation

Organoleptic study was carried out by means of sense organs. Which involve the evaluation of drug for its color, odor and taste. [5]

Evaluation of Physical parameter

In Physical parameter foreign organic matter, loss on drying, ash value, Total ash, sulphated ash, acid insoluble ash, and extractive value were determined for leaf, stem, bark, root and fruit drugs as per standard method. [6,7,8]

Determination of foreign organic matter

Foreign organic matter means the material which is not collected from the original plant source, part of organ other than mentioned, Insects, moulds or the animal contamination. For determination of foreign organic matter 5 gm of air dried coarsely powdered drug was spread in a thin layer. The sample was inspected with the unaided eye. The foreign organic matter was separated manually as completely as possible. Sample was weighed and percentage of foreign organic matter was determined from the weight of the drug taken.

Determination of loss on drying

Loss on drying is the amount of both water and volatile mater which evaporates during drying. For determination loss on drying accurately weighed flat and thin porcelain dish was dried and 2g of sample was transferred, the weight was taken and sample was distributed evenly. Then loaded porcelain dish was kept in oven at 100^{o} C. The sample was dried to constant weight. After drying it was collected to room temperature in desiccator. Weighed and calculated loss on drying in terms of percent w/w.

Determination of Total ash

Accurately weighed 2 gm of the air-dried crude drug was taken in a tared silica dish and incinerated at a temperature not exceeding 450^{0}C until free from carbon, cooled in a desiccator and weight was taken. The process was repeated till constant weight was obtained. The percentage of ash was calculated with reference to air-dried drug.

Determination of Water- soluble ash

The ash, obtained as per the method described above boiled for 5 minutes with 25 ml of water, filtered, and collected the insoluble matter on an ash less filter paper, washed with hot water and ignited for 15 minutes at a temperature not exceeding 450^{0}C and weight was taken. Subtracted the weight of the insoluble matter from the weight of the ash; the difference in weight represents the water-soluble ash. The percentage of water-soluble ash was calculated with reference to air-dried drug.

Determination of acid -insoluble ash

The ash obtained as per method described above and boiled with 25 ml of 2 M hydrochloric acid for 5 minutes, filtered, and collected the insoluble matter on an ash less filter paper, washed with hot water,

ignited, and cooled in a desiccator and weighed. The percentage of acid-insoluble ash was calculated with reference to the air-dried drug.

Determination of sulphated ash

Silica crucible was heated to redness for 10 minutes and allowed to cool in desiccator and weighed. 2 gm of air-dried drug was weighed and ignited gently until the substance was charred cool. The residue was moistened with 1 ml sulphuric acid. It was heated gently until the white fumes no longer evolved and ignited at $800^0C \pm 25^0C$ until all black particles had disappeared. Ignition was conducted in place protected from air currents. Crucible was cooled and few drops of sulphuric acid were added and ignited. Then it was allowed to cool and weighed.

Determination of Extractive value

The total soluble constituents of the drug in any particular solvent or mixture of solvents may be called as extractive value. Different extractive values like water soluble extractive, alcohol soluble extractive, chloroform -soluble extractive and petroleum ether-soluble extractive value were determined by standard method.

Determination of water -soluble extractive value

5 gm of air dried coarsely powdered drug was macerated with 100 ml of chloroform water in a closed flask for 24 hours, and it was shaken frequently during first 6 hours and allowed to stand for 18 hours. Then it was filtered, 25 ml of the filtrate was evaporated in a flat shallow dish, and dried at 105^0C and weighed. Percentage of water-soluble extractive value was calculated with reference to air-dried drugs.

Determination of alcohol -soluble extractive value

5 gm of air-dried coarsely powdered drug was macerated with 100 ml of ethanol of specified strength in a closed flask for 24 hours, and it was shaken frequently during first 6 hours and allows standing for 18 hours. Then it was filtered, during filtration precaution was taken against loss of ethanol, 25 ml of the filtrate was evaporated in a flat shallow dish, and dried at 105^0C and weighed. Percentage of ethanol soluble extractive value was calculated with reference to air-dried drugs.

Preliminary Phytochemical Analysis

The formulation was then subjected to preliminary phytochemical screening to detect the presence of various phyto-constituents as per standard methods.[5,8]

RESULTS AND DISCUSSION

Organoleptic Evaluation

The formulation has dark brown or blackish color, characteristics odor with salty and spicy taste and have fine particle.

Table 2: List of Ingredient

Sr. No.	Parameter	Morphological Characters
1	Color	Dark Brown or Blackish
2	Odor	Characteristics
3	Taste	Salty, Spicy

Evaluation of Physical parameter

The foreign organic matter was found to be 01.55 ± 0.03, which indicate that plant materials were collected with standard procedure and precautions taken during drying. Loss on drying was found to be 05.71 ± 0.07, which indicate that plant materials have very low moisture content which will not able to produce microbial growth and deteoriation of plant material.

Total Ash value, Water soluble ash, Acid -insoluble ash and Sulphated ash was was found to be 10.52 ± 0.05, 04.33 ± 0.12, 02.26 ± 0.14, 12.15 ± 0.08, respectively. which indicates amount of inorganic radicals present in parts of plant like phosphates, carbonates and silicates of sodium, potassium,

magnesium, calcium etc. these compounds are available in definite amount hence the data will help full for standardization of formulation.

The Water soluble and alcohol soluble extractive value was found to be 06.42 ± 0.04 and 08.53 ± 0.03 respectively. Which indicates that formulation have significant concentration of poly phenols, flavonoids, saponins etc.

Table 3: List of Ingredient

Sr. No	Parameter	Leaf
1	Foreign organic matter	01.55 ± 0.03
2	Loss on drying	05.71 ± 0.07
3	Ash value	10.52 ± 0.05
4	Water soluble ash	04.33 ± 0.12
5	Acid -insoluble ash	02.26 ± 0.14
6	Sulphated ash	12.15 ± 0.08
9	Alcohol soluble extractive value	06.42 ± 0.04
10	Water soluble extractive value	08.53 ± 0.03

Preliminary Phytochemical Analysis

Qualitative phytochemical analysis for selected formulation shows presence carbohydrates, proteins amino acids, saponins, alkaloids, flavonoids, tannins

Table 4: List of Ingredient

Sr. No	Parameter	Leaf
1	Carbohydrate	+
2	Protein	+
3	Amino acid	+
4	Steroids	-
5	Cardiac Glycosides	-
6	Anthroquinone Glycosides	-
7	Saponin Glycosides	+
8	Cyanogenetic Glycosides	-
9	Coumarin Glycosides	-
10	Alkaloids	+
11	Flavonoids	+
12	Tannins	+

CONCLUSION

The present study unearth a number of phytochemical as well as physicochemical features of Intuppukanam Churnam, an important poly herbal formulation. The present study gives significant data which will beneficial in standardization of formulation. Further work (HPLC/ HPTLC) is required to identify its quantitative standardization parameter or bioactive compounds.

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