

PHYSICOCHEMICAL EVALUATION OF “KAKKUBATHY CHOORNA”

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ABSTRACT

Standardization of a polyherbal formulation is mandatory in order to confirm the quality and reliability of herbal medicines. *Kakkubathy choorna* is one of the Ayurvedic formulas to treat Ischemic Heart Disease. This present study reported on the organoleptic characters and physicochemical parameters of *Kakkubathy choorna*, a polyherbal formulation. The organoleptic character of above drug is powder in nature, sand colour, astringent and pungent in property. Percent of weight loss on drying or moisture content was 15.2583 ± 0.33 , extractive values in both water and ethanol was 19.176% and 8.248%. pH is acidic. The total ash value was 7.731 ± 0.577 . After the present analysis it can be concluded that the standardization and preliminary physicochemical analysis of *kakkubathy choorna* yielded a set of standards that can serve as an important source of information to ascertain the identity and to determine the quality and purity of the plant material in future studies. This study is a substantial step and it further requires a long term study to evaluate therapeutic effect and toxicity to establish as the drug.

Keywords: *Kakkubathy choorna*, physicochemical analysis, moisture content, Ash value

INTRODUCTION

Herbal medicines or herbalism is the use of herbs or herbal products for the therapeutic purposes. About 80% of the world's population, especially in the developing countries uses herbal medicine for their primary health care (Bodeker, 2005). The most herbal medicines are believed to be safe for their consumption (Bisset, 1994). For instance the availability and quality of the raw materials are problematic; the active principles are diverse and may be unknown. A well-defined and constant composition of the drug is therefore one of the most prerequisites for the production of quality drug.

(Bauer, 1998). Standardization of herbal medicines is the process of prescribing a set of standards, constant parameters, definitive qualitative and quantitative values that carry an assurance of quality efficacy, safety and reproducibility (Kunle, 2012). The *kakkubathy choorna* is a poly-herbal formula containing eight ingredients namely *Terminalia arjuna*, *Zingiber officinalae*, *Sida veronicaefolia*, *Sida cordifolia*, *Saussurea lappa*, *Kaempferia galangal*, *Piper longum*, *Acorus calamus*, *Alpinia galangal*, *Terminalia chebula*. Therefore, this present research work was to evaluate the

physicochemical parameters by analytical specification of *choorna* powder.

OBJECTIVE

To determine the physicochemical parameters of *kakkubathy choorna*

MATERIALS AND METHODS:

Literature:

The drug *kakkubathy choorna* was selected from *Bhaisajya ratnavali* by Govinda dasji bhisagrathna, volume 2 in page no 40. In *Oushada sangrahaya* part 1 published in year 1961 page no 159; both text books reveal that this herbal preparation could be used for Ischemic heart disease.

Collection and authentication of raw materials:

The raw materials were taken from the store in BMARI- Nawinna. The drugs were authenticated by botany laboratory. The raw materials were washed, dried and crushed into powder in pharmacy.

DETERMINATION OF PHYSICOCHEMICAL PARAMETERS

Organoleptic characters:

Powder was identified morphologically and its appearance, colour, odour, texture and taste recognized using five senses.

Particle size:

Sieve analysis is a practice or procedure used to analyze to assess the particle distribution of a granular material (WHO, 1998).

Loss on drying:

Loss on drying is the loss of mass expressed as percent W/W. About 2gm of powder will be weighed in a dried and tared flat weighing disk and dried at 105⁰C for 5 hours; percentage was calculated with reference initial weight (Lohar, 2007).

Determination of Total ash:

About 2gm of powder will be accurately weighed and placed in a previously ignited and tared silica crucible. The material will be spread in an even layer and ignited by gradually increasing the heat to 500-600⁰C. Until it is white, indicating the absence of

carbon to a final constant weight. Then crucible containing ash was cooled in the desiccators for 30 minute and weighed. The content of total ash in mg per g of air dried materials was calculated as follows (Lohar, 2007).

$$\% \text{ total ash} = \frac{\text{Weight of ash}}{\text{Weight of sample}} * 100$$

Determination of pH:

The pH of different formulations in 1% W/V and W/V of water soluble portions was determined using pH meter (WHO, 1998).

Determination of solvent extraction values:

Alcohol soluble extractive value:

2.5gm of coarsely powdered air-dried drug was macerated with 50ml of alcohol in a closed flask for 24hrs, shaking frequently during 6hrs and allowing stand for 18hrs. It was then filtered rapidly taking precautions against loss of solvent 25ml of the filtrate was evaporated to dryness in a tared flat bottomed shallow dish at 105⁰C to constant weight and weighed. The % of alcohol soluble extractive was calculated with refer to the air dried drug and is represented as % value (Lohar, 2007).

Water soluble extractive value:

2.5gm of coarsely powdered air-dried drug was macerated with 50ml of water in a closed flask for 2hrs, shaking frequency during 6hrs and allowed to stand for 18hrs. It was then filtered rapidly; taking precautions against loss of solvent 25ml of the filtrate was evaporated to dryness in a tared flat bottomed shallow dish at 105⁰C to constant weight and weighed. The percentage of water soluble extractive was calculated with reference to the air dried drug and is represented as % value (Lohar, 2007).

RESULTS:

Preparation of *choorna* material:

The raw materials were washed and dried under shade. Finally the dried raw materials were powdered separately, sieved and equal amount of each raw materials mixed evenly to make the *choorna* powder.

Organoleptic character:**Table 1:** Organoleptic characters of *kakkubathi choorna*

Serial.No	Formulations	Appearance	Colour	Taste	Odour
01	<i>Kakkubathy choorna</i>	powder	Sand colour	Astringent Pungent	Nil

Table no 1 suggest that the *kakkubathy choorna* possess the appearance of powder with sand colour, taste is astringent and pungent in nature with no odour.

Particle Size:**Table 2:** Particle size of the *choorna* powder

S.No	Size of sieve	Weight of the particle(g)	% of the weight
1	$\geq 250\mu\text{m}$	43.0045	43.26%
2	250-212 μm	33.0834	33.28%
3	212-150 μm	15.4143	15.5%
4	$\leq 150\mu\text{m}$	7.9068	7.95%
Total particles		99.409	

Table 2 indicates that as per the diameter of the siever the particle size varied as it expressed in the percentage shows 43.26% in $\geq 250\mu\text{m}$, 33.28% in 250-212 μm , 15.5% in 212-150 μm and 7.95% in $\leq 150\mu\text{m}$. The total particle size is 99.409 (g).

Physicochemical properties:**Table 3:** Physico chemical parameters of *kakkubathy choorna*

Serial No	Parameters	Mean Value
1	pH Value (1%)	4.83-5.11
2	Moisture content	15.2853 \pm 0.33
4	Total Ash	7.731 \pm 0.577
5	<u>Extractive value</u>	
	Water	19.176%
	Ethanol	8.248%.

DISCUSSION

This study contains the portion of physicochemical analysis, such as particle size, pH, and extractable matter, loss on drying and ash value.

The sensory and related characteristics of the extracts show that they are nonhazardous, and can be handled within normal laboratory or factory conditions. The fact that they can be obtained dry, should facilitate handling during production. Dry materials also have the additional advantage of been easier to store and less liable to microbial or hydrolytic spoilage. Results of physicochemical properties for Loss on drying at 105°C, pH, Total ash, water soluble extractive matter, ethanol soluble

extractive matter and pH were calculated. Ash values used to find out quality, authenticity and purity of unsophisticated drug and also these values are important quantitative standards useful in determining purity of drug and mainly important for quantitative standards. Percent of weight loss on drying or moisture content was 15.2583 \pm .33 found to be in w/w. less value of moisture content could prevent bacterial, fungal or yeast growth.

CONCLUSION

After present analysis it can be concluded that the standardization and preliminary physicochemical analysis of *kakkubathy choorna* yielded a set of

standards that can serve as an important source of information to ascertain the identity and to determine the quality and purity of the plant material in future studies.

SUGGESTIONS

This study is a substantial step and it further requires a long term study to evaluate therapeutic efficacy and toxicity of leaf, to establish as the drug.

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