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PHYSICO CHEMICAL ANALYSIS OF YAVAMALAKA CHURNA

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ABSTRACT

One of India's ancient systems of medicine is *Ayurveda*. The fundamental principle of *Ayurvedic* medicine is to keep our body, mind, and environment in balance and harmony to prevent and treat sickness rather than to treat symptoms of disease. In order to treat the disease's underlying cause and restore balance, *Ayurveda* uses natural ingredients. *Yavamalaka Churna* is a herbal formulation. Ingredients used in this formulation are *Yava* (Hordeum vulgare) and *Amalaki* (Emblica officinalis). It is mentioned in *Charaka Samhita, Ashtauninditiya adhyaya*, it is a therapeutic formulation to treat *Sthoulya*. The symptoms of obesity are similar to *Sthoulya*, a disease explained in classical Ayurvedic textbooks. Physico chemical analysis of formulation with modern parameters increase their scope and acceptance. The study was based on standard analytical parameters proposed by API. **Method:** *Yavamalaka Churna* was evaluated for physico chemical analysis. The analysis was done by using the parameters like Organoleptic features, loss on drying, total ash, acid insoluble ash, water soluble ash, alcohol soluble extractive, water soluble extractive. **Results:** Analytical parameter of *Yavamalaka Churna* like loss on drying 1.12%w/w, total ash 2.36%, acid insoluble ash 0.61%, water soluble ash 1.09%, alcohol soluble extractive 9.8%w/w, water soluble extractive 19.61%w/w, pH 3.16 were obtained.

KEYWORDS: Physicochemical Analysis, *Sthoulya*, *Yavamalaka Churna.*

INTRODUCTION

Obesity, or *Sthoulya* as it is known in *Ayurveda*, is a global health challenge characterized by excessive accumulation of body fat, leading to numerous health complications. While modern medicine offers various approaches, ancient *Ayurvedic* texts provide a holistic perspective on its management, emphasizing lifestyle modifications, dietary regulations, and herbal remedies. One such significant formulation mentioned in *Charaka Samhita*[1] is *Yavamalaka Churna*. This powdered preparation, primarily composed of *Yava* (barley) and *Amalaki* (Indian gooseberry), is traditionally advocated for its efficacy in weight management. This article delves into the potential of *Yavamalaka Churna* by exploring its physico-chemical characteristics, providing a scientific basis for its traditional claims in combating obesity. *Charaka Samhita* describes *Sthoulya* as a metabolic disorder stemming from deranged *Agni* (digestive fire) and vitiated *Kapha* and *Medovaha Srotas.*

AIM

To study in detail about physico chemical properties of *Yavamalaka Churna.*

MATERIALS AND METHODS

Collection and Preparations of the Drug

Yava and *Amalaki* collected from local market and authenticated from Department of *Dravyaguna Vijnana*, Karnataka Ayurveda Medical College, Mangalore.

1) Table 1: DETAIL STUDY OF INGREDIENTS OF *YAVAMALAKA CHURNA*[2][3]

DRUG	Botanical name	Family	*Rasa*	*Guna*	*Veerya*	*Vipaka*	*Karma*	Part used
Yava	Hordeum valgare	Poaceae	*Kashaya, madhura*	*Laghu, ruksha, sara*	*Sheeta*	*Katu*	*Lekhana, vata kaphahara*	Seeds
Amalaki	Emblica officinalis	Euphorbiaceae	*Lavana varjita, amla pradhana pancharasa*	*Laghu ruksha*	*Sheeta*	*Madhura*	*Kapha Pittahara*	Fruit pulp

PHYSICO CHEMICAL ANALYSIS OF *YAVAMALAKA CHURNA*

The preliminary physicochemical screening test was carried out for *Yavamalaka Churna* as per standard procedures mentioned here.

Organoleptic Characters

The *churna* was examined for its macroscopic features including colour, odour, taste, and appearance (e.g., fine powder, granular).

Loss on drying at 105°C

10 g of sample of *Yavamalaka Churna* was placed in tared evaporating dish. It was dried at 105˚C for 5 hours in hot air oven and weighed. The drying was continued until difference between two successive weights was not more than 0.01 after cooling in desiccator. Percentage of moisture was calculated with reference to weight of the sample.

Total Ash

2 g of sample was of *Yavamalaka Churna* incinerated in a tared platinum crucible at temperature not exceeding 450˚C until carbon free ash is obtained. Percentage of ash was calculated with reference to weight of the sample.

Acid insoluble ash

To the crucible containing total ash, add 25ml of dilute HCl and boil. Collect the insoluble matter on ashless filter paper (Whatmann 41) and wash with hot water until the filtrate is neutral. Transfer the filter paper containing the insoluble matter to the original crucible, dry on a hot plate and ignite to constant weight. Allow the residue to cool in suitable desiccator for 30 mins and weigh without delay. Calculate the content of acid insoluble ash with reference to the air-dried drug.

Water soluble ash

Boil the ash for 5 min with 25 ml of water; collect insoluble matter on an ashless filter paper, wash with hot water, and ignite for 15 min at a temperature not exceeding 450˚C. Subtract the weight of the insoluble matter from the weight of the ash; the difference in weight represents the water-soluble ash with reference to the air-dried sample.

Alcohol soluble extractive

Weigh accurately 4 g of *Yavamalaka Churna* in a glass stoppered flask. Add 100 ml of distilled Alcohol (approximately 95%). Shake occasionally for 6 hours. Allow to stand for 18 hours. Filter rapidly taking care not to lose any solvent. Pipette out 25ml of the filtrate in a pre-weighed 100 ml beaker. Evaporate to dryness on a water bath. Keep it in an air oven at 105°C for 6 hours, cool in desiccator for 30 minutes and weigh. Calculate the percentage of Alcohol extractable matter of the sample. Repeat the experiment twice and take the average value.

Water soluble extractive

Weigh accurately 4 g of *Yavamalaka Curna* in a glass stoppered flask. Add 100 ml of distilled water, shake occasionally for 6 hours. Allow to stand for 18 hours. Filter rapidly taking care not to lose any solvent. Pipette out 25ml of the filtrate in a pre-weighed 100 ml beaker. Evaporate to dryness on a water bath. Keep it in an air oven at 105°C for 6 hours. Cool in a desiccator and weigh. Repeat the experiment twice. Take the average value.

pH Determination

Preparation of buffer solutions: Standard buffer solution: Dissolved one tablet of pH 4, 7 and 9.2 in 100ml of distilled water.

Determination of pH: 0.4g of *Yavamalaka Churna* was taken and make up to 40ml with distilled water, stirred and filtered. The filtrate was used for the experiment. Instrument was switched on. 30 minutes time was given for warming pH meter. The pH 4 solution was first introduced and the pH adjusted by using the knob to 4.02 for room temperature 30° C. The pH7 solution was introduced and the pH meter adjusted to 7 by using the knob. Introduced the pH 9.2 solution and checked the pH reading without adjusting the knob. Then the sample solution was introduced, and reading was noted. Repeat the test four times and the average reading were taken as result.

Table 2: Organoleptic Features.

Sl.No	Features	*Yavamalaka churna*
1.	Colour	Pale brown
2.	Odour	Characteristic smell
3.	Taste	Astringent
4.	Consistency	Powder

Table 3: Results of Physico Chemical Analysis.

Sl.No	Parameters	Result	API References values of *Amalaki*	API References values of *Yava*
1.	Loss on drying wt %	1.12%	Not more than 5%	Not more than 4%
2.	Total ash wt %	2.36%	Not more than 10%	Not more than 9.25%
3.	Acid Insoluble Ash %	0.61%	Not more than 1.5%	Not more than 2.25%
4.	Water Soluble Ash wt %	1.09%		
5.	Water soluble extraction	19.61%	Not less than 50%	Not less than 8%
6.	Alcohol soluble extraction	9.87%	Not less than 40%	Not less than 7%
7.	pH	3.16	3 – 4.5	

DISCUSSION

Although herbal drugs are said to have therapeutic qualities, it is important to preserve their quality and purity in order to use them appropriately. With the development of new analytical methods and advanced instrumental technology in recent years, it is now feasible to recommend a workable quality assurance profile for an herbal medication or its bioactive ingredients. Estimating which elements are soluble in which solvents is another use for extractive values. Microscopic analysis aids in precisely identifying the sources of materials. Macroscopic features, extractive values, and ash values are diagnostic indicators that aid in assessing the purity of medications.

The observed values of physico-chemical properties of *Yavamalaka Churna* are loss on drying (1.12%), total ash value (2.36%), Acid insoluble ash (0.61%), Water soluble ash (1.09%), Water soluble extraction (19.61%), Alcohol soluble extraction (9.87%) and pH (3.16).

Interpretation of Results

a. Loss on drying: Test value is within limits for both *Amalaki* and *Yava*, which indicates proper drying, good stability, shelf life and low microbial risk.
b. Total Ash: Test value (2.36%) is much lower than permissible limits suggest purity and absence of excess inorganic matter.
c. Acid Insoluble Ash: Test value (0.61%) is within limits indicates minimal contamination with siliceous matter.
d. Alcohol Soluble Extractive (9.87%) and Water-Soluble Extractive (19.61%): Lower than *Amalaki's* standard but higher than *Yava's* value, indicates that when *Amalaka* and *Yava* are combined, the extractive values get balanced, giving a moderate concentration of both alcohol and water-soluble active constituents.
e. pH (3.16): This lies in the acidic range, matching *Amalaki's* standard and ensuring stability of phytoconstituents.

CONCLUSION

Yavamalaka Churna, rooted in the profound wisdom of *Charaka Samhita*, presents a promising *Ayurvedic* intervention for the management of *Sthoulya*. A thorough physico-chemical analysis of this traditional formulation is not merely a scientific exercise but a vital step towards validating its efficacy, ensuring its quality, and promoting its wider acceptance in contemporary healthcare. By meticulously analysing its organoleptic properties, moisture

content, ash values, extractive matter, pH we can ensure a safe, stable, and therapeutically potent product. In this study, the test values of *Yavamalaka Churna* compare to API standards of its individual components *(Yava* and *Amalaki)*. The result indicates good stability, purity and presence of bioactive constituents, though the extractive values reflect a balancing effect due to the combination of ingredients. Overall, the formulation meets quality standards and can be considered pharmaceutically acceptable and therapeutically reliable.

REFERENCES

1. Agnivesha, Charaka Samhita, Ayurveda Deepika Commentary of Chakrapanidatta, Edited by; Vaidya Yadavji Trikamji Acharya, Choukambha Surabharati Prakashana Varanasi, Reprint-2020, Sutra Sthana, Chapter 21, Verse-23, pg no-117.
2. https://niimh.nic.in/ebooks/e-Nighantu/?mod=read Bhavaprakasha Nighantu, Chapter 9, verse 24-27.
3. https://niimh.nic.in/ebooks/e-Nighantu/?mod=read Dhanvantari Nighantu, chapter 1, verse 243-245.