

RESEARCH ARTICLE

Standardization of Ajmodadichurna and Haritakichurna

Sarika Nigam, Pallavi M. Lavhale*, Pankaj Kumar, Gaurang H. Gupta

ABSTRACT

Introduction: Standardization is an essential process to evaluate a drug's quality, purity, safety and efficacy. Standardization means the comparison of a test substance with a reference substance on the basis of organoleptic, physical and physiochemical parameters. This article reports on the standardization of Ajmodadi churna and Haritaki churna. Ajmodadi churna is a polyherbal classical Ayurvedic medicine containing 12 ingredients. It gives relief in inflammatory painful conditions such as Rheumatism, Sciatica, Neuralgic pain etc. Haritaki is an excellent antioxidant and rejuvenative herb (Rasayana), having digestive and mild laxative action. It is a potent detoxifying and anti-aging herb that efficiently supports liver functions and metabolism as well.

Material and Methods: Ajmodadichurna and Haritakichurna (Patanjali Company).

Result and Discussion: In this study, we have standardized Ajmodadi churna and Haritaki churna. All the set parameters were sufficient to standardize both the drugs and are helpful not only to ensure the quality of drugs but also to find out the purity of the drugs.

Conclusion: The present article details the importance and methods of standardization of Ajmodadichurna and Haritakichurna to ensure their quality, purity, safety and efficacy.

Keywords: Standardization, Ajmodadichurna, Haritakichurna.

How to cite this article: Nigam S, Lavhale PM, Kumar P, Gupta GH. Standardization of Ajmodadichurna and Haritakichurna. Int. J. Pharm. Edu. Res. 2022;4(2):20-24.

Source of support: Nil

Conflict of interest: None

INTRODUCTION

Ayurveda is the oldest system of medicine, based on the belief that health depends on the balance between mind, body and spirit.¹ The purpose of this research work on the standardization of herbal formulations gives a profound knowledge of the important herbs found in India which are widely used in Ayurvedic formulation. India can emerge as a major country that can play a lead role in the production of therapeutically effective Ayurvedic formulations that can be standardized. India needs to explore medicinally important plants. This can

only be achieved if herbal products are evaluated and analyzed by using sophisticated modern techniques and methods of standardization. The World Health Organization (WHO) has evolved guidelines to support national policies on traditional medicine and to study their potential usefulness, including evaluation, safety, and efficacy.²

Standardization

Standardization is a process of comparing test substance (any prepared pharmaceutical product) with the standard substance (any commercial pharmaceutical product) relative to all its intrinsic or extrinsic property for providing a grade to the test substance for its identification, quality, purity, safety and efficacy.³

Aim of Standardization

- Identification of test drug (herbal drug and its formulation)
- Quality control of test drug (herbal drug and its formulation)
- Safety profile of test drug (herbal drug and its formulation)
- To check the purity of test drug (herbal drug and its formulation)
- To check the efficacy of test drug (herbal drug and its formulation)^{4,5}

Ajmodadichurna

Ajmodadi Churna is a polyherbal classical Ayurvedic medicine containing twelve ingredients -

- Ajamoda (Fruit) - *Trachyspermum ammi*
- Vidanga (Fruit) - *Embelia ribes*
- Saindhalavana - Salt
- Devadaru - *Cedrus deodara*
- Chitraka (Root) - *Plumbago zeylanicum*
- Pippalimula (Root) - *P. longum* (stems)
- Shatapushpa (Shatahva) - *Anethum graveolens*
- Pippali (Fruit) - *Piper longum*
- Maricha (Fruit) - *Piper nigrum*
- Pathya (Haritaki) - *Terminalia chebula*
- Vriddhadaruka (Root) - *Argyria nervosa*
- Nagara (Shunthi) - *Zingiber officinale*

It has carminative action, due to which it reduces Vata inside the body. It gives relief in painful inflammatory conditions such as Rheumatism, Sciatica, Neuralgic pain etc.^{6,7}

Ram-Eesh Institute of Vocational and Technical Education, Greater Noida, Uttar Pradesh, India

Corresponding Author: Pallavi M. lavhale, Ram-Eesh Institute of Vocational and Technical Education, Greater Noida, Uttar Pradesh, India, E-mail: principalrit@rameesh.org

Haritakichurna

Haritaki is an excellent antioxidant and rejuvenating drug (Rasayana), having digestive and mild laxative action. It is a potent detoxifying and anti-aging herb that efficiently supports liver functions and metabolism as well. Haritaki is extremely useful as a daily health supplement, which effectively mitigates the following conditions: Acute or chronic constipation, hyperacidity, gastritis, peptic ulcers and associated dyspepsia. It is also useful as an adjuvant in liver dysfunction, hemorrhoids (piles), Fissure and fistula-in-ano, and dyslipidemia.⁸⁻¹⁰

MATERIAL AND METHODS

Marketed Samples

Ajmodadi churna (Patanjali Company)

Haritaki churna (Patanjali Company)

Sampling

The reliability of any conclusions drawn from the analysis of a sample will depend upon how well the sample represents the whole batch. General recommendations for the sampling of pharmaceutical materials in connection with quality control are provided in the 39th report of the WHO Expert Committee on Specifications for Pharmaceutical preparations

METHOD

The average sample is obtained by quartering.

Procedure

Form the pooled sample, adequately mixed, into an even and square-shaped heap, and divide it diagonally into four equal parts.

Take two diagonally opposite parts and mix carefully.

Repeat the process as necessary until the required quantity, to within $\pm 10\%$, is obtained (100–200 g for flowers and up to 10 kg for certain roots).

Any remaining material should be returned to the batch.

Powder Fineness

As shown in Table 2 the coarseness or fineness of a powder is classed according to the nominal aperture size expressed in micrometres of the mesh of the sieve through which the powder will pass.

Determination of Foreign Matter

The coarseness or fineness of a powder is classed according to the nominal aperture size expressed in micrometres of the mesh of the sieve through which the powder will pass as shown in Table 2.

Table 1: Morphological Parameters

S.no	Churna	Organoleptic Property	Characterization of Property
1	Ajmodadichurna	Colour	Light Brown
		Odour	Slight
		Taste	Slightly Bitter
2	Haritakichurna	Colour	Light to Yellowish Brown
		Odour	Slight Characteristic
		Taste	Bitter

Table 2: Powder Rheology

S.no	Churna	Angle of Repose	Type of Flow
1	Ajmodadichurna	43.62	Passable Flow
2	Haritakichurna	40	Fair Flow

Table 3: True Density

S.no	Churna	True Density(g/ml)
1	Ajmodadi churna	0.083
2	Haritaki churna	0.084

Herbal materials should be entirely free from any visible signs of contamination by molds, insects, and other animal contamination, including animal excreta. No abnormal odor, discoloration, slime or signs of deterioration should be detected.

Macroscopic and Microscopic Examination-

Macroscopic and Microscopic Examination are shown in Table 1 and 5.

The macroscopic identity of herbal materials was based on shape, size, colour, surface characteristics, texture, fracture characteristics and appearance of the cut surface.

Microscopic inspection of herbal materials is indispensable for the identification of broken or powdered materials; the specimen may have to be treated with chemical reagents.

The presence of certain cell contents, such as starch grains, aleurone grains, plastids, fats and oils were studied.

Phytochemical Evaluation

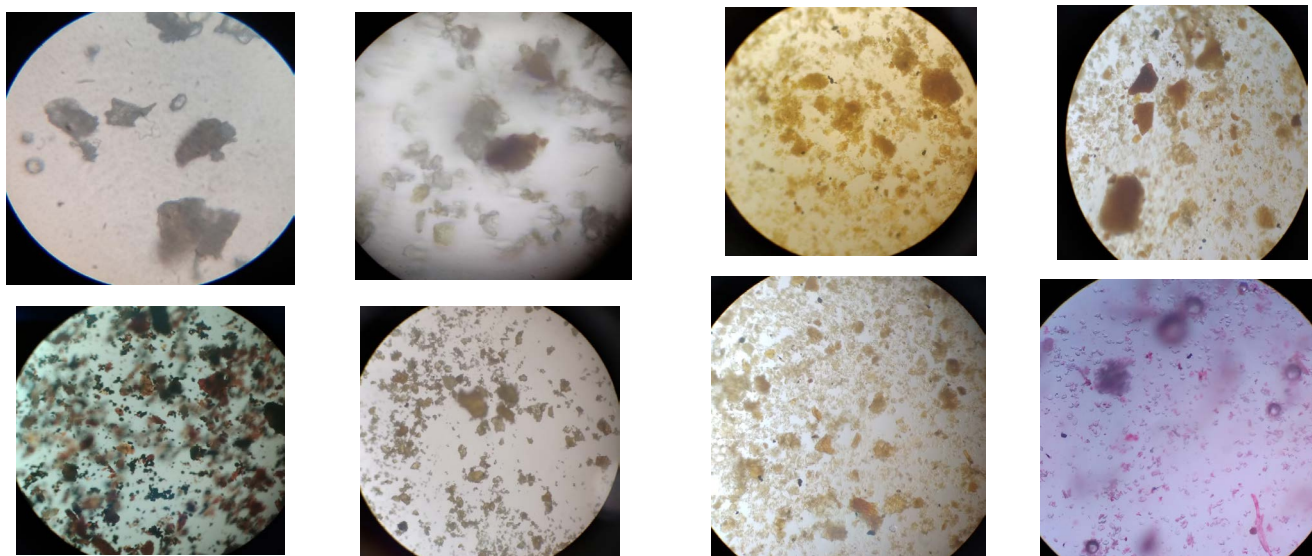
Phytochemical evaluation shown in Table 3. The petroleum ether, methanol and water extracts of Lab formulation and marketed formulation were subjected to phytochemical screening as per standard methods.

Determination of Ash

The ash remaining after ignition of medicinal plant materials was determined by three different methods: total ash, acid-insoluble ash and water-soluble ash as shown in Table 6.

Table 4: Chemical Test

S.no	Chemical Test	Ajmodadichurna			Haritakichurna		
		Alcoholic Extract	Petroleum Ether Extract	Aqueous Extract	Alcoholic Extract	Petroleum Ether Extract	Aqueous Extract
1	Test for Carbohydrate						
	Molisch's test	-	+	+	-	+	-
	Fehling's test	-	-	-	-	-	+
	Benedict's test	-	+	+	-	+	+
	Iodine test	-	+	+	-	-	-
2	Test for Gums	-	-	+	-	-	+
3	Test for Mucilage	-	-	+	-	-	+
4	Test for Protein						
	Biuret test	+	+	+	-	-	-
	Precipitation test	-	-	-	-	-	-
5	Test for Amino Acid						
	Ninhydrin test	+	-	-	-	-	-
6	Test for Oil and Fats						
	Saponification test	-	-	-	-	-	-
	Stained test	+	-	-	-	-	-
7	Test for Steroids						
	Lieberman Buchard test	-	-	-	-	-	-
8	Test for Glycosides						
	KellarKelliani test	-	-	-	-	-	-
	Baljet test	+	+	+	-	-	-
9	Test for Flavonoids						
	Shinoda test	-	-	-	-	-	-
10	Test for Alkaloids						
	Dragondroff's test	-	-	+	-	-	-
	Mayer's test	+	-	-	-	-	-
	Hager's test	+	-	-	-	-	-
	Wagner's test	-	+	+	-	-	+
11	Test for Tannins						
	Lead acetate test	+	-	-	+	-	+
	Acetic acid test	-	-	-	+	+	-

Table 5: Microscopy

Cont....

Table 6: Determination of Ash

S.no	Type of Churna	Type of Ash	Ash Value (mg/g)
		Total ash value	78.43
1	Ajmodadichurna	Acid insoluble ash value	3.34
		Water soluble ash value	16.72
		Total ash value	16.66
2	Haritakichurna	Acid insoluble ash value	2.67
		Water soluble ash value	7.69

Table 7: Determination of Water and Volatile Matter (Loss on Drying)

S.no	Type of Churna	Amount of Moisture(g)	% Loss on Drying
1	Ajmodadichurna	0.17	8.02
2	Haritakichurna	0.18	8.34

Table 8: Determination of Swelling Index

S.no	Type of Churna	Swelling Index (ml)
1	Ajmodadichurna	3.5
2	Haritakichurna	3.8

Table 9: Determination of Extractive Value

S.no	Type of Churna	Type of Extract	% Extractive Value
		Petroleum Ether	68
1	Anajmodadichurna	Aqueous	4
		Methanolic	13
		Petroleum Ether	2
2	Haritakichurna	Aqueous	21
		Methanolic	50

Determination of Physical Characteristics

The methods determined physical parameter like true density, angle of repose and moisture content as per WHO guidelines as shown in Table 7.

Determination of Foaming Index and Swelling Index

The foaming and swelling indices were determined per the WHO guidelines. Foaming index and swelling index shown in Table 8

Determination of Extractable Matter

This method determines the amount of active constituents extracted with different solvents like petroleum ether, water and methanol. Results of Extractable Matter are shown in Table 9

RESULTS AND DISCUSSION

In this study, we have standardized Ajmodadi churna and Haritaki churna. All the parameters were sufficient to standardize both the drugs and are helpful not only to ensure the quality of drugs but also helpful to find out their purity.

The present article explained about the importance and methods of standardization of Ajmodadi churna and Haritaki churna to ensure their quality, purity, safety and efficacy.¹¹⁻¹⁵

CONCLUSION

The physiochemical standardization of Ajmodadichurna and Haritaki churna was carried out and the individual ingredients of the formulation was standardized and authenticated as per WHO guidelines. The formulation was prepared in lab. Various physiochemical parameters were studied and compared with commercially available brands.¹⁶⁻²⁰

REFERENCES

- Sharma PC et al data base on medicinal plants used in Ayurveda, C.C.R.A.S. Vol 2, reprint 2005, p.216
- Charaka, charaka samhita. Sharma PV (editor), chaukhamba orientalia publication, varanasi, 3rd ed. 1996, kusthta chikitsa, chikitsa sthana. 7/166, p.14
- Williamson E. Major Herbs of Ayurveda, Churchill Livingstone Publication, 1st ed 2002; p.13-15
- Adil MD, Kaiser p, satti NK, ZARGAR AM, Vishwakarma RA, Tasduq SA, Effect of Emblica officinalis(fruit) against UVB- Induced photo -aging in human skin fibroblasts. J Ethnopharmacol. Oct 28, 2010; 132(1):109-14.
- Sairam K, Rao CV, Babu MD, kumar KV, Agrawal VK, Goel RK, Antiulcerogenic effect of methanolic extract of Emblica officinalis: an experimental study, J Ethnopharmacol, 2002; 82 (1):1-9
- Krishnamurthi AK, Manjunath BL, sastri BN, Deshaprabhu SB, Chadha YR. The Wealth of India; Raw Materials, Vol. 7. 1st ed NEW Delhi: CSIR; 1969. P 295- 298.
- katsura H, Tsukiyama RI, SUZUKI A, konayashi M. In Vitro antimicrobial activities of bakuchiol against oral microorganisms. Antimicrob Agents Chemother. 2001;45;3009-3013.
- Borate A, khambhupati A, Udgire M, paul D, Mathur S. Preliminary phytochemical studies and Evaluation of Antibacterial Activity of psorales corylifolia seed Extract. American journal of phytomedicine and clinical Therapeutics, 2014;2(1):95-101
- Lohar D.R. Protocol for testing ayurvedic siddha and unany medicine, pharmacopoeial laboratory for Indian medicines, Ghaziabad.
- Ayurvedic formulary of india (AFI), part 2, first English edition, 2000, national institute of science communiton, CSIR, NEW DELHI.
- WHO Guideline: <https://www.pharmatutor.org/articles/who-guidelines-for-quality-standardization-herbal-formulation>.
- Rai PD, Rajput sj. Biological Evaluation of polyherbal Ayurvedic Cardiotonic preparation " Mahamrutyunjaya rasa". Evidence based complementary and Alternative Medicine. 201,1 Article ID 801940, 11 Pages.
- Mukherjee PK: quality control herbal drug: An approach to evaluation of botanicals, Business Horizons, First Edition, 2002
- Patwardhan B, Warude D, Pushpangadan p, Bhatt N, Ayurveda

- and traditional Chinese medicine :a comparative overview. Evidence- Based Complementry and Alternative Medicine, 2005;2(4):465-473.
15. ICH, Q1A(R2) (2003) Stability testing of new drug substances and product in : International Conference on Harmonization, Geneva Switzerland.
 16. Ayurved Sarsangrah, shri Baidyanath Ayurved Bhab Ltd, Edition 1,2014,237.
 17. The Ayurved formulary of India, part-1, 2 nd edition, published by Ministry of health and family welfare, Dept. of India system of medicine and homeopathy, New Delhi, 362.
 18. The Ayurvedic Formulary of India, part1 ,2 nd edition, published by Ministry of health and family welfare, Dept. of Indian system of medicine and homeopathy, New Delhi,,348.
 19. The Ayurvedic Formulary of India, part1, 2 nd edition, published by Ministry of health and family welfare,Dept. of Indian system of Medicine and homeopathy, New Delhi 255.
 20. Chopra RN, Nayar SL, Chopra IC, Glossary of Indian Medicine Plants. National Institute of Science communication and Information Resources, Council of Scientific and Industrial Research, 1956, 122