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Herbal Churna for Digestive Use: A Review of Preparation and Evaluation

Devendra C. Pardeshi[1*], Dipak R. Bawaskar[2], Ganesh R. Khedkar[3], Girish S. Hasban[4], Harsh A. Chavan[5], Gopal V. Theng[6], K. R. Biyani[7]

[1–5] UG Students, Anuradha College of Pharmacy, Chikhli, Maharashtra, India.
[6] Project Guide, Anuradha College of Pharmacy, Chikhli, Maharashtra, India.
[7] Principal, Anuradha College of Pharmacy, Chikhli, Maharashtra, India.
Corresponding author: Devendra C. Pardeshi
UG Students, Anuradha College of Pharmacy, Chikhli, Maharashtra, India.
E-mail: devendrapardeshiabc@gmail.com

Abstract: *A churna is a fine powder of one or more dried herbal drugs, prepared by powdering the drugs separately, sieving them and mixing them in the prescribed proportion, and it is one of the oldest and simplest Ayurvedic dosage forms. Churnas are widely used for digestive complaints such as indigestion, flatulence and loss of appetite, but their quality varies between manufacturers because of differences in the raw materials, the particle size and the method of preparation. Ajwain, fennel, cumin, dry ginger, haritaki and black salt are common ingredients of digestive churnas. The present review discusses the churna as a dosage form, its advantages and limitations, the profile of the commonly used digestive drugs, the method of preparation by powdering, sieving through sieve no. 85 and mixing by geometric dilution, the factors affecting the quality, the tests used for evaluation, such as organoleptic and flow properties, ash and extractive values, phytochemical screening, TLC fingerprinting, microbial load and stability, and the important reports on the subject. The review shows that controlled preparation and standardisation are needed to obtain reproducible churnas.*

Keywords: Churna, Herbal powder, Digestive, Ajwain, Fennel, Cumin, Ginger, Haritaki, Standardisation

I. INTRODUCTION

Herbal medicines are therapeutic products obtained from plants, and they form the basis of traditional systems such as Ayurveda. They are widely used because they are easily available, relatively inexpensive and generally well tolerated. In Ayurveda, many herbal drugs are given in the form of a churna, which is a fine powder of one or more dried herbal drugs, prepared by powdering the drugs separately, passing them through a sieve and mixing them in the prescribed proportion.[1]

Churnas are among the oldest and simplest Ayurvedic dosage forms and are still popular for digestive complaints such as indigestion, flatulence and loss of appetite. However, the quality of churnas varies between manufacturers because of differences in the raw materials, the particle size and the method of preparation, and hence their evaluation and standardisation using physicochemical, phytochemical and microbial parameters are essential.[2,3,4]

Dosage Forms in Ayurveda

Table: Dosage Forms (Kalpana) in Ayurveda[1,5]

Sr. No.	Dosage form	Description	Mode of use
1	Churna	Fine powder of one or more dried herbal drugs, sieved and mixed	Taken with an anupana such as warm water or honey

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2	Vati / Gutika	Tablet or pill prepared from the drug powder or extract with a binder	Swallowed with water
3	Kwatha	Decoction prepared by boiling the coarse drug powder in water	Taken as a liquid
4	Asava / Arishta	Fermented liquid preparations	Taken in measured doses with water
5	Ghrita	Medicated ghee prepared with the drug paste or decoction	Taken with warm water or milk

Herbal materials are natural products, so their composition changes with the species, the part used, the place and time of collection, drying and storage. Adulteration, microbial contamination, pesticide residues, heavy metals and loss of volatile oil during handling can also affect the quality, and the WHO, the Indian Pharmacopoeia and the Ayurvedic Formulary of India give methods and standards for the quality control of herbal drugs and formulations.[1,4,6]

Advantages and Limitations

Table: Advantages and Limitations of Churna[1,3,5]

Sr. No.	Advantages	Limitations
1	Simple and low-cost dosage form with a long tradition of use	Bitter and unpalatable taste of some herbs
2	The whole drug is used, so all the constituents are present and no preservative is needed	Hygroscopic; absorbs moisture, which favours microbial growth and shortens the shelf life
3	The dose can be easily adjusted and the powder is taken with a suitable anupana	Volatile oils may be lost during grinding and storage
4	Quick preparation and a quicker onset of action than tablets	Bulky dose and poor accuracy of dose with spoon measures
5	Can be used as the raw material for tablets and capsules	Quality varies with the source of the raw material and adulteration

Profile of the Herbal Drugs Used in Digestive Churnas

Ajwain, fennel, cumin, dry ginger and haritaki, together with black salt, are common ingredients of digestive churnas. Ajwain, fennel and cumin are fruits rich in volatile oils and are traditionally used as carminatives, dry ginger is a common household digestive, and haritaki is one of the three fruits of Triphala.[7,8,9,10,11]

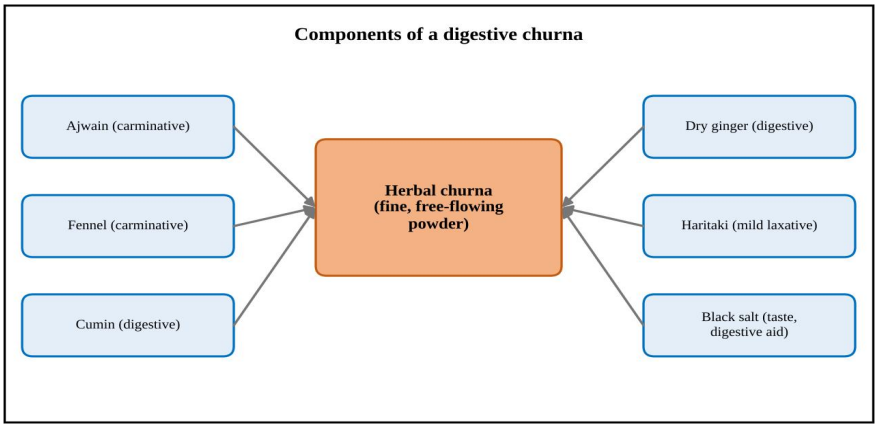

Fig. No. 1: Components of a Digestive Churna

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Table: Herbal Drugs Used in a Digestive Churna[7,8,9,10,11]

Sr. No.	Drug	Botanical name (family)	Part used	Major constituents	Traditional use
1	Ajwain	*Trachyspermum ammi* (Apiaceae)	Dried fruit	Volatile oil rich in thymol	Carminative, digestive
2	Fennel (Saunf)	*Foeniculum vulgare* (Apiaceae)	Dried fruit	Volatile oil rich in anethole, fenchone	Carminative; relieves flatulence
3	Cumin (Jeera)	*Cuminum cyminum* (Apiaceae)	Dried fruit	Volatile oil rich in cuminaldehyde	Stimulates digestion, carminative
4	Dry ginger (Sunthi)	*Zingiber officinale* (Zingiberaceae)	Dried rhizome	Gingerols, shogaols, volatile oil	Digestive; relieves nausea
5	Haritaki	*Terminalia chebula* (Combretaceae)	Dried fruit	Tannins, phenolics, glycosides	Mild laxative, digestive
6	Black salt (Kala namak)	Mineral salt	Whole	Sodium chloride, sulphates, minerals	Improves taste, digestive aid

Haritaki is one of the three fruits of Triphala, and its tannins, flavonoids, phenolics and glycosides are linked to antioxidant, antimicrobial and digestive effects.[11,12] Black salt is added by the traditional practice of improving the taste and digestive action of the churna.

Table: Role of the Components of a Churna[1,5]

Sr. No.	Component	Role	Examples
1	Main drug(s)	Provide the therapeutic effect	Ginger, haritaki
2	Carminative drugs	Relieve flatulence; improve taste and aroma	Ajwain, fennel, cumin
3	Salt / mineral	Improves taste and aids digestion	Black salt, rock salt
4	Vehicle (anupana)	Helps intake and absorption	Warm water, honey, buttermilk

Method of Preparation of Churna

Churnas can be prepared by traditional pounding, by electric grinders, by hammer or cutter mills or by cryogenic grinding.[1,13] Powdering in an electric grinder, followed by sieving through sieve no. 85 and mixing by geometric dilution, is the simplest and most reproducible method for a laboratory.

Table: Methods of Preparation of Churna[1,13]

Sr. No.	Method	Principle	Remarks
1	Traditional pounding	Drugs pounded in a mortar and pestle (khalva) and sieved	Simple, small quantity; slow and variable
2	Electric grinder / pulveriser	Dried drugs powdered mechanically and sieved	Fast; suitable for a laboratory
3	Hammer or cutter mill	Industrial size reduction, sieving and blending	Large scale; needs special equipment
4	Cryogenic grinding	Drugs cooled before grinding	Protects volatile oils; costly

Step 1: Collection and Authentication

The herbal drugs are purchased from a reliable source, authenticated by a botanist or by the Department of Pharmacognosy, and cleaned to remove foreign matter.[14]

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Step 2: Drying
Each drug is dried in shade or in a hot air oven at a low temperature, to bring the moisture to a safe level and to avoid loss of the volatile oil.
Step 3: Powdering
Each drug is powdered separately in an electric grinder in short intervals, so that the heat produced does not drive off the volatile oil.
Step 4: Sieving
The powder is passed through sieve no. 85, and the residue is ground again and re-sieved until the whole quantity passes.[1]
Step 5: Mixing
The powders are weighed as per the proportion of the formula and mixed by geometric dilution, starting with the smallest quantity, for about 15 minutes, and the mixture is sieved once more to ensure uniform mixing.[13]
Step 6: Packing and Storage
The churna is packed in airtight containers, labelled with the batch number and date, and stored in a cool, dry place away from light.

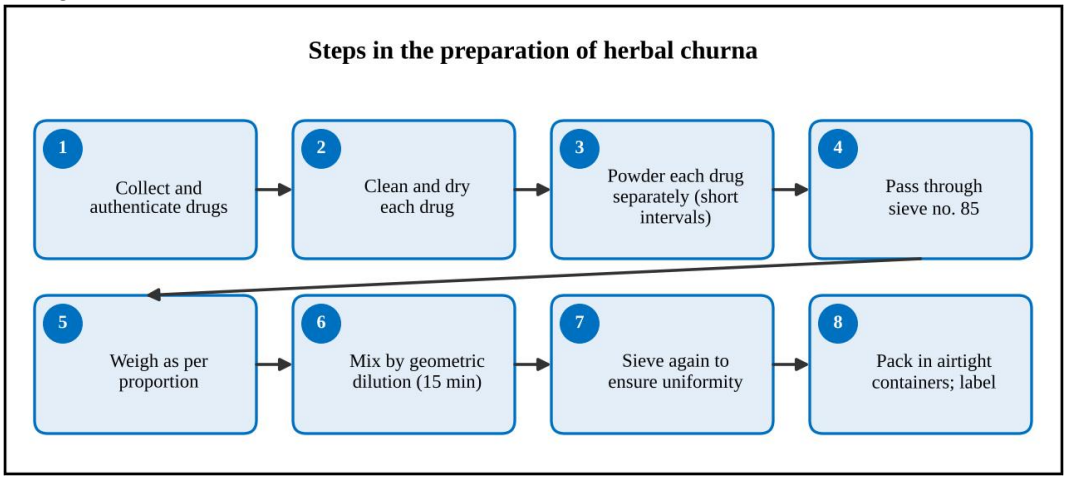

Fig. No. 2: Steps in the Preparation of Herbal Churna

Factors Affecting the Quality of Churna

The particle size decides the flow, the uniformity of mixing and the release of the constituents; a very fine powder has poor flow and takes up moisture more easily. The moisture content decides microbial growth and the shelf life. Heat produced during grinding can drive off the volatile oil, and uniform mixing is needed so that every dose contains the drugs in the correct proportion. The quality of the raw material and its authentication decide the final quality of the churna.[2,3,13]

Evaluation of Churna

A churna is standardised and evaluated by organoleptic, physical, physicochemical, phytochemical and microbial parameters, which are the common set used in the studies on churnas.[2,15,16] The tests and the results generally expected are given in the table below.

Table: Evaluation of Herbal Churna[4,6,14,15,16]

Sr. No.	Test	Method	Expected Result
1	Organoleptic properties	Colour, odour, taste and texture noted visually	Characteristic of the drugs
2	Particle size	Sieve analysis; percentage retained on each	Uniform fine powder

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		sieve	
3	Flow properties	Bulk and tapped density, angle of repose, Carr's index, Hausner's ratio	Free-flowing powder
4	Loss on drying	2 g dried at 105 °C to constant weight	Low moisture; within the limit
5	Total ash and acid-insoluble ash	Incineration at about 450 °C; ash boiled with dilute HCl	Within the limit
6	Extractive values	Cold maceration of 5 g with 100 mL water or ethanol for 24 hours	Within the limit
7	pH	1% and 10% w/v aqueous suspension with a pH meter	Recorded value
8	Volatile oil content	Hydrodistillation using a Clevenger-type apparatus	Recorded value
9	Phytochemical screening	Tests for alkaloids, flavonoids, tannins, saponins, glycosides	Constituents of the herbs present
10	TLC fingerprint	Methanolic extract on silica gel G; spots under UV and after spraying	Reproducible spots and Rf values
11	Microbial load	Plate count for bacteria, yeast and mould; tests for E. coli and Salmonella	Within the limit; pathogens absent
12	Stability	25 °C / 60% RH and 40 °C / 75% RH as per ICH[17]	No change in appearance, flow and microbial count

Review of Literature

Jhanwar et al. (2013) studied Chaturjat churna, and compared two batches each of marketed and laboratory-prepared samples with the Indian Pharmacopoeia and the WHO guidelines using extractive values, total ash, loss on drying and chemical constituents, because the quality of such formulations varies between manufacturers.[2] Maurya et al. (2020) prepared Hingwashtak churna according to the Ayurvedic Formulary of India and assessed its quality by organoleptic, microscopic, phytochemical, physicochemical and microbial methods and by TLC and HPTLC fingerprinting.[15]

Haligoudar et al. (2022) converted an Ayurvedic polyherbal churna with digestive use into a dispersible tablet, after standardising the churna for loss on drying, ash and extractive values, and assessed its digestive activity.[5] Shankhwalker et al. (2024) compared an in-house Rasayana churna with two marketed samples and found variations in morphology and physicochemical results, which showed the need for standardisation.[3]

Kharade et al. (2026) formulated a polyherbal churna for diabetes from the leaf powders of five plants, and evaluated it for organoleptic characters, physicochemical properties, phytochemical constituents, particle size and microbiological quality against the Indian Pharmacopoeia and WHO guidelines.[16] Singh et al. (2026) reviewed Triphala churna, covering its pharmacognostical, physicochemical and phytochemical evaluation, preparation, standardisation and therapeutic uses.[12]

REFERENCES

1. Ministry of Health and Family Welfare, Government of India. The Ayurvedic Formulary of India, Part I. New Delhi.
2. Jhanwar B, Solanki R, Singh M. Determination of quality standards for herbal formulation: Chaturjat churna. J Pharmacogn Phytochem. 2013;2(1):101-105.
3. Shankhwalker SK, Kopardekar P, Paranjape L, Jeedigunta MK, Mohanty B. Analysis of evaluation parameters of the in-house and marketed samples of Rasayana churna. Indian J Tradit Knowl. 2024;23(5):423-432.
4. World Health Organization. Quality Control Methods for Herbal Materials. Geneva: WHO; 2011.

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5. Haligoudar S, Patil M, Balekundri A. Formulation and evaluation of dispersible tablet from poly herbal churna for digestive property. J Pharmacogn Phytochem. 2022;11(1):123-128.
6. Indian Pharmacopoeia Commission. Indian Pharmacopoeia 2022. Ghaziabad: IPC; 2022.
7. Bairwa R, Sodha RS, Rajawat BS. Trachyspermum ammi. Pharmacogn Rev. 2012;6(11):56-60.
8. Badgujar SB, Patel VV, Bandivdekar AH. Foeniculum vulgare Mill: a review of its botany, phytochemistry, pharmacology, contemporary application, and toxicology. Biomed Res Int. 2014;2014:842674.
9. Johri RK. Cuminum cyminum and Carum carvi: an update. Pharmacogn Rev. 2011;5(9):63-72.
10. Mashhadi NS, Ghiasvand R, Askari G, Hariri M, Darvishi L, Mofid MR. Anti-oxidative and anti-inflammatory effects of ginger in health and physical activity: review of current evidence. Int J Prev Med. 2013;4(Suppl 1):S36-S42.
11. Bag A, Bhattacharyya SK, Chattopadhyay RR. The development of Terminalia chebula Retz. (Combretaceae) in clinical research. Asian Pac J Trop Biomed. 2013;3(3):244-252.
12. Singh A, Bhardwaj A, Rathore H, Badola A, Ashok PK, Krati, Karwal A, Gupta R. A review on pharmacognostical, physicochemical and phytochemical evaluation of triphala churna. J Pharmacogn Phytochem. 2026;15(4):369-377.
13. Lachman L, Lieberman HA, Kanig JL, editors. The Theory and Practice of Industrial Pharmacy. 3rd ed. Philadelphia: Lea & Febiger; 1986.
14. Khandelwal KR, Sethi V. Practical Pharmacognosy: Techniques and Experiments. Pune: Nirali Prakashan.
15. Maurya N, Vishwakarma R, Bhanap K, Shah S, Patil S. Preparation and quality evaluation of hingwashtak churna: a polyherbal formulation. J Pharmacogn Phytochem. 2020;9(3):1923-1927.
16. Kharade AP, Panchal AB, Navale SD. Formulation and evaluation of polyherbal churna for management of diabetes mellitus. J Pharmacogn Phytochem. 2026;15(3):498-506.
17. International Council for Harmonisation. ICH Q1A(R2): Stability Testing of New Drug Substances and Products. 2003.