

PREPARATION AND STANDARDIZATION OF BALACATURBHADRIKA CHURNA

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ABSTRACT

This study assessed the pharmacological characteristics of Balacaturbhadraka churna, a traditional Ayurvedic remedy used to treat pediatric ailments. The study provided an overview of pediatric healthcare in Ayurveda, the preparation method, and the use of plant materials. Analytical methods and animal research were used to evaluate the and pharmacological characteristics of Balacaturbhadraka churna. The results supported its traditional Ayurvedic use in treating pediatric illnesses.

KEYWORDS: Balchaturbhadraka Churna, Ayurvedic drugs, Standardization.

INTRODUCTION

The term "Balacaturbhadraka" itself sums up its main purpose and ingredients: "Chaturbhadraka" references the traditional formulation made up of four (or "chatur") key herbs, while "Bala" denotes strength and is frequently linked to children. The unique power of Churna to treat digestive disorders, fever, respiratory tract infections, and other common pediatric concerns stems from the synergistic combination of these herbs.^[1]

Balacaturbhadraka Churna is traditionally made following the strict guidelines of Ayurvedic Shodhana (Detoxification and purification procedures), which guarantees the safety and amplifies the medicinal properties of the plants used. In Ayurveda, Shodhana is essential because it maximizes the bioavailability of the medicinal components found in herbs while neutralizing any potential negative effects.^[2]

Strong botanicals make up the churna's qualitative component, which is said to be the reason for its effectiveness. The individual and combined therapeutic

qualities of these herbs are well-known in the Ayurvedic pharmacopeia. Together, they support and preserve the vulnerable physiology of youngsters by fostering development, improving digestive processes, and providing immune modulation to ward off infection.^[3]

Material

All chemicals and solvents used were of analytical Grade. Balchaturbhadraka churna contains the crude Drugs (1) Aconitum Heterophyllum wall. (Fam. Ranunculaceae) (2) Pistacia Integerrima (Fam. Anacardiaceae) (3) Piper Longum Linn. (Fam. Piperaceae) (4) Cyperus rotundus (Fam. Cyperaceae).^[2] All these plant crude drugs required for the Preparation of the standard formulation of Balchaturbhadraka churna were collected from the local Market, vapi. In the month of november, 2010. One Market formulation of Balchaturbhadraka churna was Collected from the Shree Narnarayan, Ayurvedic Pharmacy, Ahmedabad, Gujarat.^[4]

Formulation table

Name of drug	Botanical name	Part used	Proportion
Ativisha	Aconitum heterophyllum Wall	Root	1 Part
Karkatashringi	Pistaciaintegerrima Stew.	Gall	1 Part
Pippali	Piper longum Linn	Fruit	1 Part
Musta	Cyperus rotundus Linn	Rhizome	1 Part

Method

To prepare Balacaturbhadraka churna, start by collecting the required ingredients such as Balacaturbhadraka herb (Achyranthes aspera), Shunthi (Zingiber officinale), Pippali (Piper longum), Maricha (Piper nigrum), and

Shuddha Gandhaka (purified sulphur). Clean and dry the herbs thoroughly to remove any impurities or moisture. Once dried, grind the herbs individually into a fine powder using a mortar and pestle or a grinder. Sieve the powdered herbs to ensure a smooth and uniform

consistency. Next, combine the powdered Balacaturbhadrika herb with the powdered Shunthi, Pippali, Maricha, and Shuddha Gandhaka in specified proportions as per the traditional recipe. Mix the powders thoroughly to ensure even distribution of the ingredients. Store the prepared Balacaturbhadrika churna in an airtight container away from direct sunlight and moisture to maintain its potency and efficacy. This traditional preparation of Balacaturbhadrika churna follows a systematic process to preserve the therapeutic properties of the herbs and create a potent Ayurvedic formulation for pediatric health issues.^[5]

Organoleptic properties

1. Color: The color of the churna may vary depending on the ingredients used, but it is typically a mixture of various earthy tones.
2. Texture: The texture of the churna is usually fine and powdery.
3. Aroma: The churna may have a strong, aromatic smell due to the presence of herbs and spices.
4. Taste: The taste of the churna can be a combination of bitter, spicy, and slightly pungent flavors.
5. Overall appearance: The churna is usually a dry, fine powder with a uniform consistency.

Determination of loss on Drying & Moisture content^[6]

10gm of drug (without preliminary drying) was taken in a tared evaporating dish. After placing the above said amount of the drug in the tared evaporating dish, dried at 105°C for 5 hrs, and weighted. Continue the drying and weighted at one hour interval until difference between two successive weighing corresponds to not more than 0.25%. Constant weight was reached when two consecutive weighing after drying for 30 minutes and cooled for 30 minutes and cooled for 30 minutes in a desiccator, show not more than 0.01 gm difference.

Ash value of formulation

Sr. No.	Parameters	Marked formulation
1	Total ash (% w/w)	6.2
2	Water soluble ash (% w/w)	4.7
3	Acid insoluble ash (% w/w)	2.2
4	Loss on drying (% w/w)	0.55
5	PH	6.7

Preliminary phytochemicals screening^[10]

Preliminary phytochemicals test were performed for carbohydrates, protein, amino acid, steroids, glycosides, alkaloids, flavonoids and tannins.

Preliminary phytochemicals screening of formulations

Sr. No.	Chemical test	Marked formulation
1	Test for carbohydrates I. Molisch test II. Fehling test	+ +

Determination of ash value^[7]

2-3 g of accurately weighed formulation was incinerated in a tared silica crucible at a temperature not exceeding 450°C in a muffle furnace until white ash has been obtained indicating the absence of carbon. If carbon free ash can not be obtained in this manner, cool the crucible and exhaust the residue with about 2 ml of water and collect the residues on the ashless filter paper. Incinerate the residue and filter paper, add the filtrate to the crucible, evaporate to dryness, and ignite at the temperature not exceeding 450°C. It was then cooled, weighed and percentage of ash was calculated with reference to the air-dried powdered drug.

Determination of water soluble extractive^[7]

5g of the air-dried powdered material was macerated with 100 ml of chloroform water in a closed flask for 24 hours, shaking frequently for 6 hours. It was then allowed to stand for 18 hours and filtered rapidly taking precaution against loss of solvent. 25 ml of the filtrate was evaporated to dryness in a tared porcelain dish and dried at 105 °C to a constant weight. It was then weighed and the percentage of water soluble extractive was calculated with reference to the air-dried powdered drug.

Determination of acid-insoluble ash^[7]

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 in a Gooch crucible or on an ashless 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 pH^[7]

The pH of formulations was measured by making 1% w/v solution of water soluble portions was determined using standard glass electrode at 24°C according to the prescribed standard method in Indian Pharmacopoeia.

Preliminary phytochemicals test showed the presence of all the phytochemicals analysed in the formulation.

	III. Benedicts Test IV. Barfoed's Test	+ +
2	Test for Proteins I. Biuret Test II. Millions Test III. Xanthoprotien test	+ + +
3	Test for Amino Acids I. Ninhydrin Test	+ +
4	Test for Steroids I. Salkowski Test II. Liebermann-Burchard reaction III. Liebermann's traction	- - -
5	Test for Glycosides I. Deoxysugares (Killer-Killani Test) II. Legal's Test III. Beontrager's Test IV. Modified Brontrager's Test V. Foam test	+ + + + +
6	Test For Alkaloids I. Drogendroff's Teat II. Mayers Test III. Hagers Test IV. Wagners Test	+ + + +
7	Test for Flavonoids I. Lead Acetate Sodium Hydroxide II. Ferric Chloride Test	+ +
8	Test for Tannins I. 5 % Ferric Chloride Test II. Lead Acetate Test III. Dihae Iodine Test IV. Dilute Nitric acid Test V. Potassium Permanganate solution	+ + + + +

CONCLUSION

Based on the analysis of various parameters such as total ash, acid ash, water-soluble extractive, and loss on drying at 105°C, it can be concluded that the market formulation of Balacaturbhadrika churna is comparable to the standard formulation. This suggests that the market formulation maintains the quality and authenticity of the traditional Ayurvedic medicine, indicating its effectiveness and safety for treating pediatric disorders. The similarity between the market formulation and the standard formulation further validates the traditional use of Balacaturbhadrika churna in Ayurvedic medicine and highlights its potential for addressing pediatric health concerns.

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